

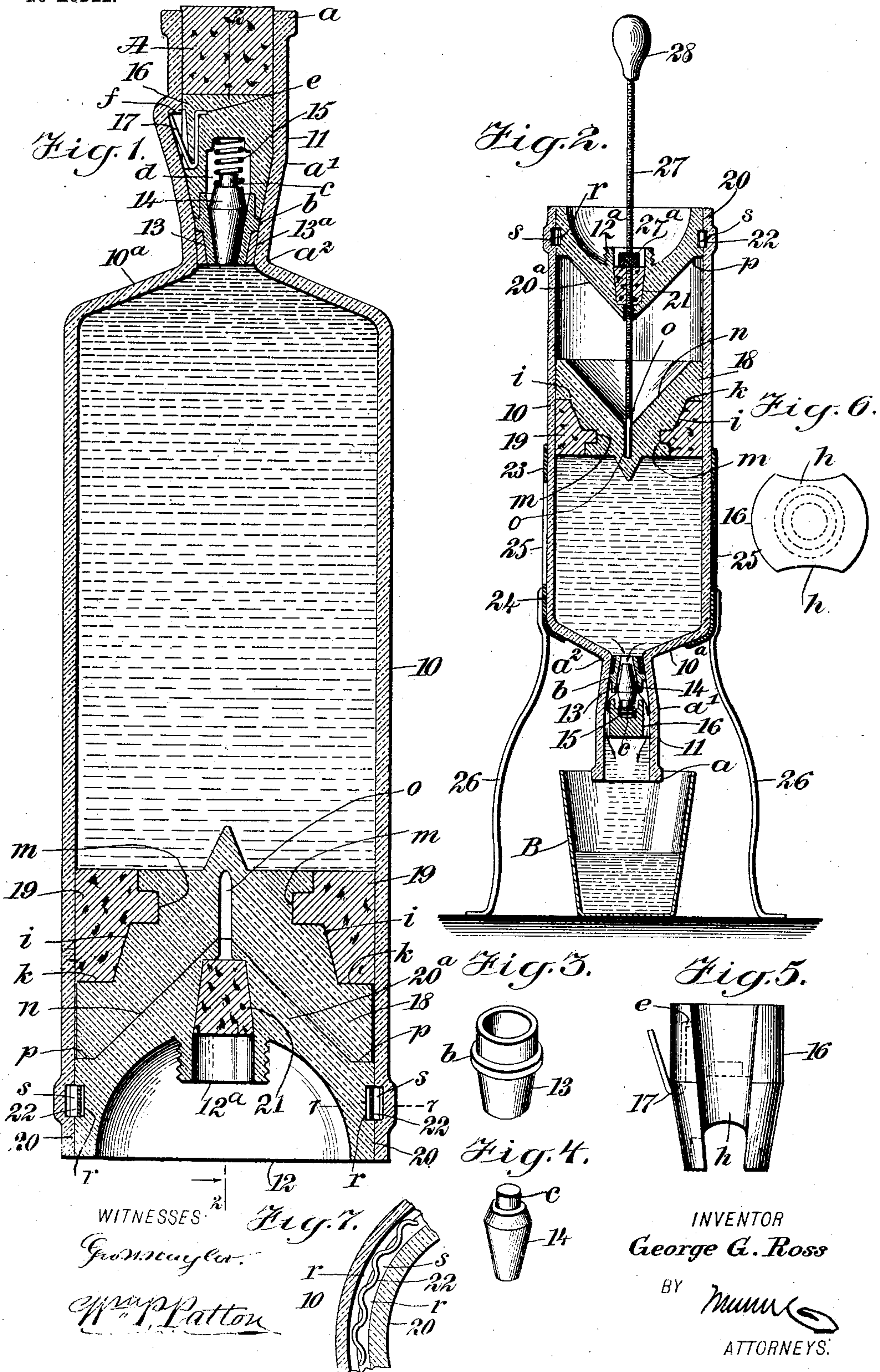
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PATENTED JULY 12, 1904.

G. G. ROSS.
NON-REFILLABLE BOTTLE.

APPLICATION FILED OCT. 16, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

GEORGE G. ROSS, OF HAZEL, WASHINGTON.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 764,959, dated July 12, 1904.

Application filed October 16, 1903. Serial No. 177,288. (No model.)

To all whom it may concern:

Be it known that I, GEORGE G. ROSS, a subject of the King of Great Britain, and a resident of Hazel, in the county of Snohomish and State of Washington, have invented a new and Improved Non-Refillable Bottle, of which the following is a full, clear, and exact description.

This invention has for its object to provide novel details of construction for bottles used to put up for sale certain quantities of a vendable liquid—such, for example, as a popular brand of whisky or the like—which will prevent the refilling in part or entirely of the bottle when emptied, and thus prevent adulteration of the liquor or substitution of an inferior kind for that originally held in the bottle.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side view of the improved non-refillable bottle. Fig. 2 is a similar view on the line 2 2 in Fig. 1, showing the bottle inverted and supported for removal of part of the contents. Fig. 3 is a perspective view of a thimble that is a detail of the invention. Fig. 4 is a perspective view of a coniform valve employed. Fig. 5 is a side view of a sealing-plug that protects the valve and is securable in the wall of the bottle-neck. Fig. 6 is a plan view of the sealing-plug, and Fig. 7 is a transverse sectional view taken substantially on the line 7 7 in Fig. 1.

In the drawings which illustrate the construction and operation of the invention, 10 indicates the body of a bottle that is cylindrical and of any desired capacity, said body having a neck 11 of a special form and a bottom 12, which is originally separate from the body 10, but is securable therein, as will presently be explained. The integral wall of the bottle-neck 11 is circular and is cylindrical in its body for a suitable distance from the pouring lip or opening a , defined at a' , from which point the neck is contracted to give it con-

form shape, that terminates at a'' , where the neck is united with the dome-like upper wall 10^a, which is integral with the body 10. A thimble 13, preferably formed of glass, is provided, said thimble being coniform interiorly, and at a point between its ends a circumferential flange b is formed on the outer surface, the portion of the thimble below the flange b tapering slightly to receive a packing-ring 13^a, formed of rubber or other suitable material, and it will be seen that the flange by contact with the wall of the neck will define the distance that the thimble may be forced downward therein, whereby the lower end of said thimble is held at the point where the neck merges into the top wall 10^a.

A coniform valve 14, formed of glass or other available material, is fitted to seat liquid-tight in the thimble 13, and upon the upper end of the valve a nipple c is formed, that receives the lower end of a coiled spring 15, which is thus held upright. A sealing-plug 16, formed of glass or other suitable material, is provided, the side wall of which is shaped to fit closely into the upper portion of the coniform part of the bottle-neck and also in the cylindrical portion thereof immediately above said coniform formation. Centrally in the normal lower end of the sealing-plug 16 a recess d is formed, wherein the spring 15 is contained and has contact with the bottom wall thereof, the spring being somewhat compressed when the plug is fully inserted within the bottle-neck.

A V-shaped locking-dog 17 is preferably furnished to hold the sealing-plug in fully-depressed condition within the bottle-neck 11, this dog being formed of resilient wire of proper gage, and upon one limb a toe e is bent outward, the limb having the toe being embedded in the material composing the plug, so that the other limb will incline outward and toward the upper end of the plug.

In a lateral enlargement that thickens the side wall of the neck 11 at a proper point an indentation is provided that affords a horizontal locking-shoulder f , and it will be seen in Fig. 1 that the free limb of the dog 17 will be compressed by its contact with the side wall of the bottle-neck when the plug 16 is

inserted therein; but when said limb is disposed opposite the indentation it will resume normal projection and engage with the shoulder *f*, thus positively locking the plug in the neck 11. The lower end of the recess *d* is preferably widened, so as to receive the upper end of the thimble 13, whereon the plug presses, which insures the formation of a liquid-tight joint between the packing-ring and the side wall of the bottle-neck 11.

A sufficient space is afforded above the plug 16 for the accommodation of a cork A, that will prevent the escape of liquid, the plug having one or more channels *h* formed in its side wall to permit liquid to pass from the bottle-body therethrough when the bottle is inverted and pressure is imposed on the liquid contents, as will be described. The wall of the cylindrical body 10 is rendered true interiorly and of equal diameter, and in it a plunger-block 18 is fitted loosely, said block being peripherally reduced at and near one end to form a rabbet *i*, defined in length by the shoulder *k*. In the reduced body portion of the plunger-block that projects above the shoulder *k* an annular channel *m* is formed, at a point near the upper end thereof, and in the rabbet and channel a joint-ring 19, of cork or other slightly-elastic material, is fitted, the diameter of the joint-ring being so proportioned that said ring will slide in the bottle-body from one end to the other, and thus form a movable plunger for pressure on the contents of the bottle. A concavity *n* is formed in the lower side of the plunger-block 18, and at the center thereof a socket-like perforation *o* is formed, that extends from the lower side to a point near the upper side of the block, and at the lower end of the socket *o* the corner of its defining wall is removed. The plunger-block 18 may with advantage be formed of glass and in service is utilized as a movable bottom for the bottle.

A fixed bottom piece is provided to fill up the lower end of the bottle-body 10 and consists of a preferably glass block that for a portion of its length considered from the lower end is cylindrical in contour, and said portion 20 is closely fitted into the lower end of the body 10.

The portion 20^a of the bottom piece that projects above an annular shoulder *p*, which defines the extent of the cylindrical wall 20, is rendered coniform and exactly conforms in shape with the concavity *n* in the plunger-block 18, so that the latter may have intimate contact with the upper side of the bottom piece. Centrally in the coniform top portion 20^a of the bottom piece an aperture is formed, that may taper slightly from the lower end upwardly, this aperture being fitted with a cork 21, formed of material that may be punctured readily. In the periphery of the cylindrical lower portion 20 of the bottom piece a channel *r* is formed, and in the inner

surface of the bottle-body 10 a similar channel is produced, these channels being disposed opposite each other, and in the continuous passage *s*, formed by the joined channels, an undulating spring 22 is introduced. The spring 22 is adapted for reduction in diameter by compression and is first placed in the channel formed in the cylindrical portion 20 of the bottom piece and then contracted by the slidable insertion of the bottom piece within the bottle-body, said spring being adapted to resume original form when the two channels register, and thus effect a positive locking of the bottom piece in the lower portion of the body 10, due to contact of the edges of the undulating plate-spring 22 upon the parallel side walls of the registering channels wherein the spring is held. The bottom piece is lightened by cupping its lower surface, and, as shown, the cork 21 is exposed at its lower end.

Before the insertion of the bottom pieces 20 the peripheral surface of the portion 20 may be coated with a suitable cement, that is adapted to become rigid and effect a hermetic closure of the joint between the bottle-body and the bottom piece.

The bottle-sealing device that occupies the neck 11 is not inserted until the bottle is filled, it being understood that the plunger-block 18 is fully depressed before the bottle receives the liquid it is to hold as an original package.

Upon the insertion of the thimble 13, the ring 13^a, coniform valve 14, spring 15, and sealing-plug 16, as hereinbefore described, the locking-dog 17 by its interlocking engagement with the shoulder *f* will positively secure the plug in position, and the valve 14 will be held upon its seat by the spring 15, so as to prevent escape of liquid from the bottle without regard to the position given thereto.

To remove a portion or the entire contents of the bottle-body 10 therefrom, pressure must be applied upon the lower side of the plunger-block 18, which is preferably effected in the following manner: A support for the bottle in an inverted condition is provided, which may consist of a light metal frame comprising two rings 23 24, held spaced apart by upright members 25, the rings being mounted upon a plurality of legs 26, that have sufficient height to afford room below the lower ring to permit a free introduction below said ring of a glass vessel B, that may be a tumbler, as shown in Fig. 2. A pusher-rod 27, having a handle 28 on one end, is furnished to effect pressure on the plunger-block 18 when the bottle-body 10 is seated with its neck downward in the rings of the supporting-frame, and said rod may have a screw-thread formed on it whereon the gage-nut 27^a may be secured. Assuming that the cork A has been removed and that the filled and sealed bottle is to be broached for removal of a por-

tion of its liquid contents, the bottle-body is placed in the supporting-frame, that has been described, and said frame is placed upon a stable support. Then the end of the pusher-rod 5 27 is pushed vertically down through the cork 21 and seated in the socket-perforation *o*, as clearly shown in Fig. 2. Pressure is now applied upon the handle 28 of the pusher-rod 27, so as to press the plunger-block 18 down, 10 which will unseat the valve 14 by the compression of the spring 15, and thus open a passage for liquid from the bottle through the channels *h* in the sealing-plug 16. After a proper amount of the liquid has been forcibly expelled from the bottle by pressure on 15 the plunger-block 18, which is determined by the position given to the gage-nut 27^a, the bottle may be removed from the frame and turned into normal position, and it will be 20 seen that the amount of liquid removed from the bottle will be clearly indicated by the position of the plunger-block therein, as the latter is fitted tight enough to hold it where it is pushed and support the weight of the liquid remaining in the bottle. 25

It will be apparent that when all of the liquid has been removed from the bottle by pressure applied upon the plunger-block 18 said block will have contact with the top wall 30 10^a and it is an impossibility to return it to the bottom of the bottle, as well as to introduce any liquid into the body of the bottle between the plunger-block and the neck 11, the bottle being practically worthless as a liquid-package. It is possible, however, to reuse 35 the several parts of the bottle, except the body thereof, by breaking the latter, so as to permit the other parts to be removed, these details being available for service in connection 40 with a new bottle-body and may be applied thereto as has been described to convert the new bottle-body into a receptacle for liquid to be removed therefrom, as hereinbefore explained.

45 A threaded nipple 12^a may be formed on

the lower concave side of the bottom piece 20 around the opening that receives the cork 21, this nipple being adapted for the connection of a tube or end of flexible hose (not shown) that may extend from a source of air under 50 pressure, which means may be employed, if preferred, to force the plunger-block 18 toward the discharging end of the bottle to expel a desired amount of the liquid contents from the bottle. 55

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

1. A non-refillable bottle, comprising a cylindrical body, a neck on one end of said body, non-removable means adapted to seal the neck 60 after the bottle is filled, a plunger-block slidable in the body, a sealable bottom piece inserted in the body below the plunger-block, and means for pressing upon the plunger-block that is slidable through the bottom piece. 65

2. A non-refillable bottle, comprising a cylindrical hollow body open at each end, a neck on one end of said body, a thimble held liquid-tight in the bottle-neck near the junction of said neck with the top wall of the bottle, a 70 spring-pressed coniform valve engaging the seat in the thimble, a channeled sealing-plug pressing the thimble and the spring that presses the valve, means to positively secure the plug in the bottle-neck after the bottle is 75 filled, a plunger-block having a joint-ring on its periphery that works liquid-tight against the inner surface of the body, a bottom piece for the body secured liquid-tight therein, said bottom piece having a central aperture for the 80 reception of a cork, and a presser-rod that may be inserted through the cork and press upon the plunger-block.

In testimony whereof I have signed my name to this specification in the presence of 85 two subscribing witnesses.

GEORGE G. ROSS

Witnesses:

J. BOWMAN,
PETRUS PEARSON.