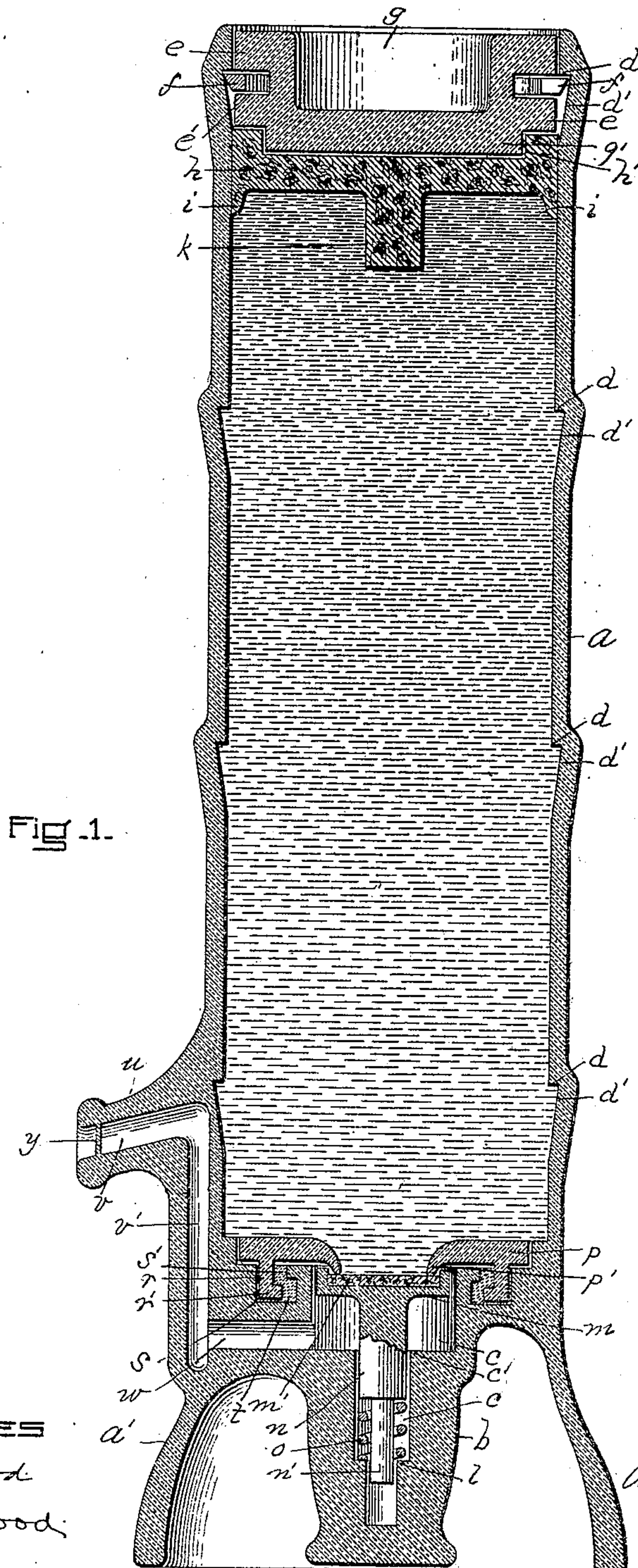


No. 816,829.

PATENTED APR. 3, 1906.

W. P. SWETT.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JAN. 22, 1906.

2 SHEETS—SHEET 1.



WITNESSES
A. F. Hood
M. A. Atwood

INVENTOR
Warren P. Swett,
By his Atty.

Sherry Williams

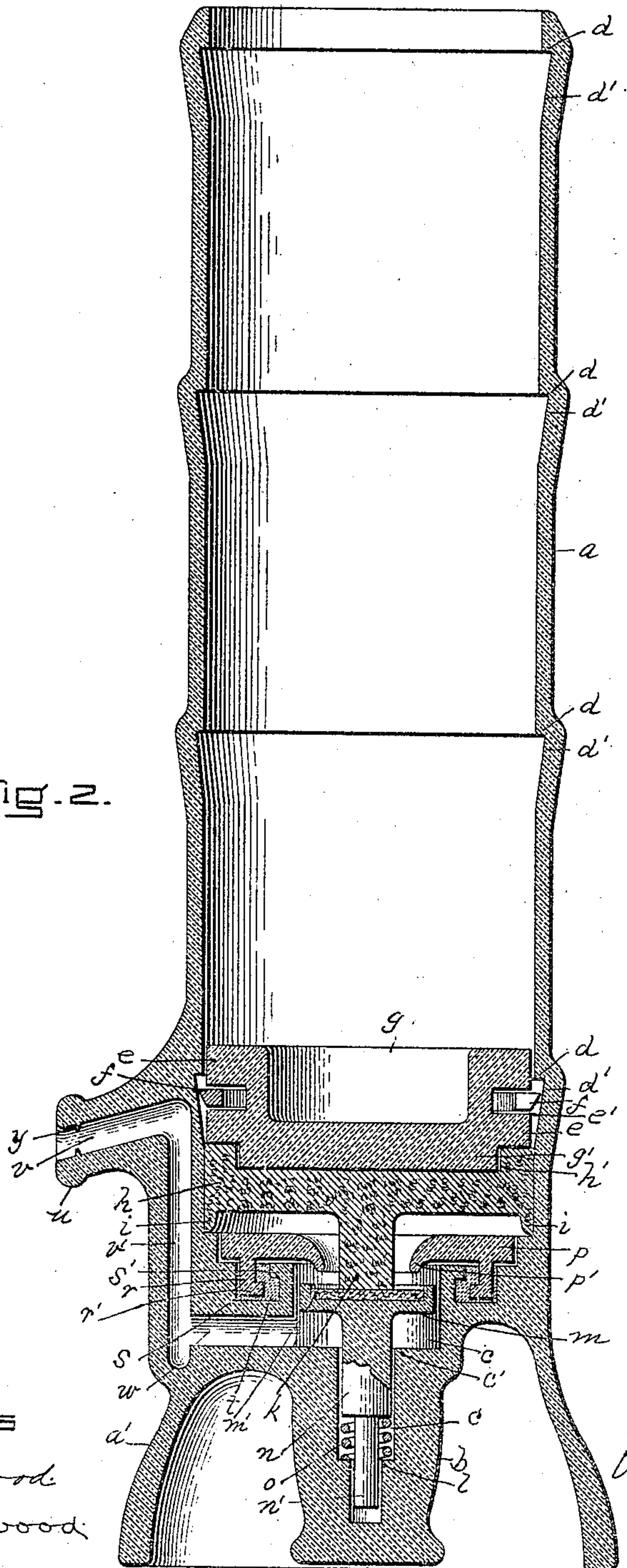
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

WARREN P. SWETT, OF ARLINGTON, MASSACHUSETTS.

NON-REFILLABLE BOTTLE.

No. 816,829.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed January 22, 1906. Serial No. 297,089.

To all whom it may concern:

Be it known that I, WARREN P. SWETT, a citizen of the United States, residing in Arlington, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to an improved non-refillable bottle which is provided with a spout or outlet near its lower end, the passage in said spout being normally closed near its outer end by means of a diaphragm and at its inner end by a valve. To draw off any of the contents of the bottle, the diaphragm is broken or punctured, thus showing that the bottle has been tampered with, and the cork or stopple is pressed down, with the effect of opening said valve by the direct pressure of the liquid, which is thus forced out through the passage in the spout until the pressure is removed from the stopple.

The nature of the invention is fully described in detail below and illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section of a non-refillable bottle embodying my invention, a portion of the valve-stem being shown in elevation and said bottle being in its original or normal condition and filled with liquid. Fig. 2 is a similar section of the bottle after the liquid has been withdrawn, showing the stopple pressed down against the valve, whereby it has been lowered from its seat, thus opening the outlet-passage.

Similar letters of reference indicate corresponding parts.

a represents the glass wall or main portion of my improved bottle, and *a'* an annular supporting foot or base integral therewith. Also integral with the bottle and extending down from the bottom thereof is a central extension *b*, provided with a chamber *c* for the accommodation of a valve below described. The main portion *a* of the bottle is of substantially the same diameter throughout its entire length or height—that is, it is not provided with a contracted neck—and the inner surface of said portion is provided with a series of downwardly-facing annular shoulders *d*, formed by shaping the wall of the bottle slightly outward upwardly, as shown at *d'*. As many of these shoulders may be provided as desired, four being illustrated in the draw-

ings. The highest shoulder is near the upper end of the bottle where the stopple is normally located.

e represents a glass stopple provided with an annular horizontal groove *e'*, adapted to receive a C-spring *f*. The upper surface of this glass stopple is formed into a central recess *g*, and its under side is provided with a downward extension *g'*, which fits into a corresponding recess *h'* in a cork *h*. The under surface of this cork is extended downward into an annular flange *i*, which bears against the inner surface of the bottle and produces a liquid-tight joint. The central portion of the cork is provided with a downward extension *k*.

The chamber *c* in the portion *b* is of three different diameters, whereby shoulders *c'* and *l* are provided. In the upper portion of the chamber is a valve *m*, recessed to receive a suitable washer *m'*, preferably of cork.

n is the stem, provided with an extension *n'*, around which is disposed a spiral spring *o*, of silver or other non-corrosive material, and which is confined between the lower end of the main portion of the valve-stem and the shoulder *l*.

p is an annular glass ring provided with a downwardly-extending annular lip *p'*, which constitutes a seat for the valve *m*. Integral with this ring is an annular shank *r*, formed at its inner end with an inwardly-extending ledge *r'*, said shank lying in an annular groove *s* in the bottom of the bottle. This groove encircles the upper portion of the chamber *c*, and its inner wall is formed at its upper end with an outwardly-extending flange *s'*. This groove contains cement *t*, which holds the shank of the ring in position, it being rendered the more secure by the oppositely-projecting flanges *r'* and *s'*, whereby the corners of such flanges face each other and enable the cement to securely lock the glass ring *p* in position.

u is a spout or nozzle integral with the bottle and extending outward, preferably at a downward angle therefrom. This spout is provided with a passage *v*, which extends from the outer end of the spout to the passage *v'* in the wall of the bottle, said passage being connected at a short distance above its lower end with the upper portion of the chamber *c* below the valve by means of a passage *w*. Near the outer end of the passage *v* is a

comparatively thin partition or diaphragm *y* integral with the bottle, whereby said passage is normally closed.

In assembling the parts the spring *o* is first dropped into the chamber *c* and rests on the shoulder *l*. The stem *n* of the valve *m* is then dropped into the position shown in Fig. 1. Next, cement *t* is poured into the annular groove *s*, and the glass ring or seal *p* is placed in the position illustrated, its shank *r* *r'* being embedded in the cement. A weight is laid on the seal and remains in place until the cement hardens, said weight being necessary in order to prevent the spring *o* from pushing the valve *m* up and lifting the seal or ring *p*. When the above-named parts are in this position, as indicated in Fig. 1, the passage *w*, which connects the chamber *c* with the passages *v'* and *v*, is closed by the valve *m* and the glass seal or ring *p*, so that liquid can be poured into the bottle through its open upper end. After the weight has been removed and the desired quantity of liquid has been poured into the bottle the cork stopple *h* is slightly inserted and the glass stopple *e* placed with its extension *g'* in the recess *h'*, the C-spring or split ring *f* contracted and pressed into the groove *e'*, and the two stopples pressed down together by inserting a suitable instrument, such as a round stick, (or by means of a machine constructed for the purpose,) into the recess *g* until the spring *f* expands and springs under the highest shoulder *d*, as illustrated in Fig. 1. The bottle is thus sealed, and no liquid can be drawn from it without breaking the bottle or fracturing the diaphragm *y*. To draw off some of the liquid, the diaphragm *y* is first broken by means of any suitable instrument. Then a suitable tool, such as a cylindrical piece of wood, is inserted in the recess *g* and the stopples *e* and *h* pressed down together, thereby thus causing the liquid to force the valve *m* downward from its seat and pass between it and the downwardly-extending lip *p'* of the glass seal *p* and thence through the upper portion of the chamber *c*, the passage *w*, and the passages *v'* and *v* into and out through the spout *u* into a tumbler or other receptacle which may have been placed under the spout. As soon as the desired amount of liquor has passed out through the spout pressure is removed from the recessed stopple *g*, the valve returns to its seat, and the liquor ceases to flow. The operation may be repeated until the lower end of the projection *k* reaches the washer *m'* on the valve *m*, and then by again applying pressure to the stopple *e* the projection or extension acts directly on the valve *m*, lowering it from its seat, as shown in Fig. 2, and the remainder of the liquid is forced out through the said passages and spout. The extension *k* is of course made of suitable diameter to enter centrally the ring *p*.

When the parts are in the position indicated in Fig. 2, the spring *f* locks them in such position under the lowest shoulder *d*, and as there are other shoulders intermediate of said lowest shoulder and the highest which serve to lock the stopple in its downward descent any danger of its being withdrawn or shaken out is obviated.

The spring *o* is of course made strong enough to hold the valve up to its seat against the weight of the liquid and is also strong enough to retain such position even if an attempt be made to dislodge it by shaking the bottle.

The annular flange *i*, which is integral with the cork *h*, operates to make a liquid-tight joint at that point, not only when the stopple is in its highest position, but when it is being forced down, as above described. When it is being pushed down for the purpose of withdrawing some of the liquid, the liquid itself operates to force this flange tightly against the inner surface of the body of the bottle.

It is evident that the bottle may be stood in the position indicated in the drawings or in a reversed position, as it is on the shelf. Should it be deemed desirable to stand the bottle in a reversed position or to lay it on its side, the central extension *b* may be used as a handle in removing the bottle.

The passage *v'* is extended to a point below the level of the passage *w* for the purpose of providing a trap in case a piece of wire should be inserted through the spout after the diaphragm has been broken, so that the wire cannot enter the passage *w* or reach the valve.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition; a valve in the lower portion of the bottle held normally upward against its seat and against the body of liquid in the bottle, said bottle being provided with a valve-chamber for the valve and a passage leading from said valve-chamber to the interior of the spout behind the diaphragm; and a stopple adapted to be pressed into the upper end of the bottle, whereby after the diaphragm has been fractured, the forcing of the stopple into the bottle causes the valve to be removed from its seat by the pressure of the contained liquid.

2. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition, the lower portion of said bottle being provided with a chamber below the body of the liquid; a ring or seal secured in said lower portion of the bottle around and extending over said chamber; a valve in said chamber held normally up against the inner edge of said ring or seal,

said bottle being provided with a passage leading from the valve-chamber to the interior of the spout behind the diaphragm; and a stopple adapted to be pressed down into the bottle from the upper end, whereby after the diaphragm has been fractured the valve may be forced from its seat by the pressure of the contained liquid.

3. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition, the lower portion of said bottle being provided with a chamber below the body of the liquid; a ring or seal secured in said lower portion of the bottle and provided with a downturned annular lip extending into said chamber; a valve in said chamber held normally up against said lip, said bottle being provided with a passage leading from the valve-chamber to the interior of the spout behind the diaphragm; and a stopple adapted to be pressed down into the bottle from the upper end, whereby after the diaphragm has been fractured the valve may be forced from its seat by the pressure of the contained liquid.

4. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition, the lower portion of said bottle being provided with a chamber below the body of the liquid and with an annular groove around said chamber; a ring or seal extending over the edge of the mouth of said chamber and provided with a shank or web held in said groove by suitable cement; a valve in said chamber held normally up against the ring or seal, said bottle being provided with a passage leading from the valve-chamber to the interior of the spout behind the diaphragm; and a stopple adapted to be pressed down into the bottle from the upper end, whereby after the diaphragm has been fractured the valve may be forced from its seat by the pressure of the contained liquid.

5. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition, the lower portion of said bottle being provided with a chamber below the body of the liquid and with an annular groove around said chamber, the inner wall of said groove being provided with an outwardly-extending flange; a ring or seal extending over the edge of the mouth of said chamber and provided with a shank or web held in said groove by suitable cement, said shank or web being provided with an inwardly-extending flange below the flange in the groove; a valve in said chamber held normally up against the ring or seal, said bottle being provided with a passage leading from the valve-chamber to the interior of the spout behind the diaphragm; and a stopple adapted to be pressed down into the bottle from the upper end, whereby after the diaphragm has been fractured the valve

may be forced from its seat by the pressure of the contained liquid.

6. A non-refillable bottle, comprising the body portion *a*; the bottom provided with the hollow foot or base *a'*; the central downward extension *b* integral with said bottom and provided with a suitable chamber; a valve in said chamber held normally upward against its seat and thereby forming a closed bottom; a spout or outlet in the wall of the bottle provided with a passage closed normally by a diaphragm or partition, said chamber being connected with the interior of the spout by a passage; and a stopple adapted to be pressed down into the bottle from the upper end, whereby after the diaphragm has been fractured the valve may be forced from its seat by the pressure of the contained liquid.

7. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition; a valve adapted under normal conditions to prevent the contents of the bottle from entering said spout; and a stopple adapted to be forced down into the bottle after the fracture of the diaphragm and thereby cause the valve to open by the pressure of the liquid.

8. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition; a valve adapted under normal conditions to prevent the contents of the bottle from entering said spout; and a stopple adapted to be forced down into the bottle after the fracture of the diaphragm and thereby cause the valve to open by the pressure of the liquid, said stopple being provided with a recess in its upper surface for the insertion of an operating tool or instrument.

9. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition; a valve adapted under normal conditions to prevent the contents of the bottle from entering said spout; and the cork stopple *h* provided on its under side with the annular flange *i* adapted to bear against the inner surface of the bottle, said stopple being adapted to be forced down into the bottle and thereby cause the valve to be opened by the pressure of the liquid.

10. In a non-refillable bottle, the wall or main portion *a* provided on its inner surface with downwardly-facing annular shoulders *d*; a spout or outlet provided with a passage closed normally by a diaphragm or partition; a valve adapted under normal conditions to prevent the contents of the bottle from entering said spout; and a stopple provided with a peripheral locking mechanism whereby when the stopple is forced down into the bottle it is locked by said shoulders to the extent of preventing upward movement.

11. In a non-refillable bottle, a spout or outlet provided with a passage closed normally by a diaphragm or partition, the lower

portion of said bottle being provided with a
chamber below the body of liquid, and with a
passage connecting said chamber with the
spout behind the diaphragm; a ring or seal
5 supported in the bottle above the chamber;
a valve in the chamber held normally up
against the seal; and a stopple provided on
its lower surface with a downward extension
adapted to enter the ring and force down the
10 valve from its seat when the stopple is pushed

approximately to the bottom of the bottle
after the fracture of the diaphragm.

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

WARREN P. SWETT.

Witnesses:

HENRY W. WILLIAMS,
A. K. HOOD.