No. 782,758. PATENTED FEB. 14, 1905.

C. J. PAULSON.

NON-REFILLABLE BOTTLE.

APPLICATION FILED MAY 11, 1904.

Fig. 1.

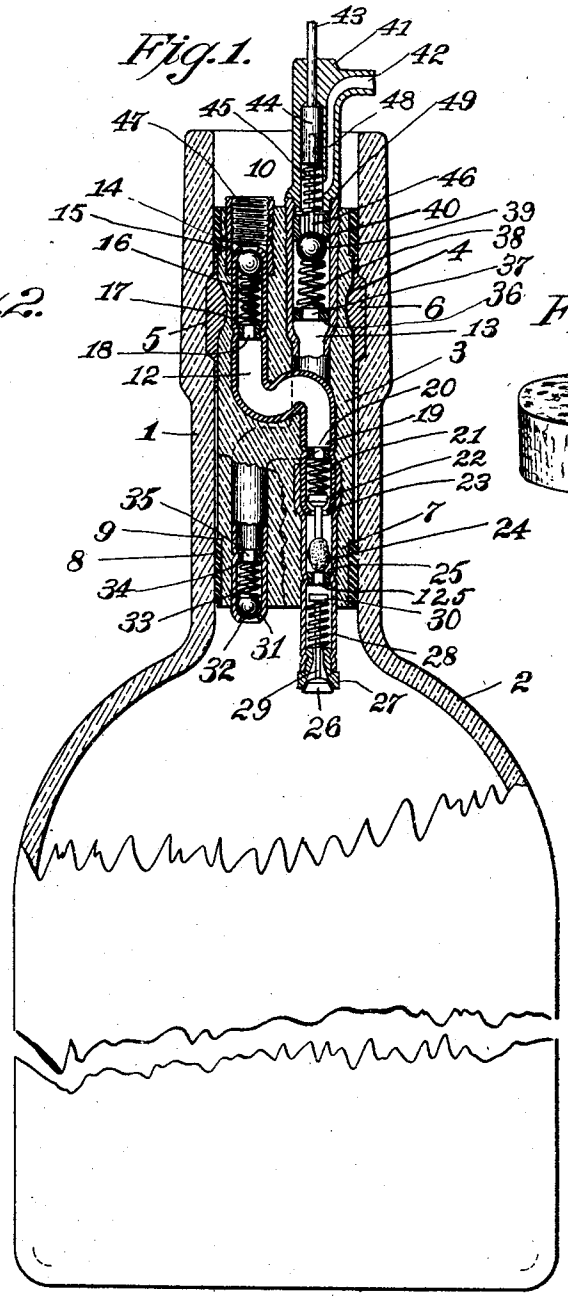


Fig. 2.

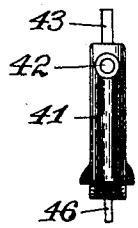
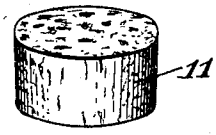


Fig. 3.



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No. 782,758. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

CHARLES J. PAULSON, OF BROOKLYN, NEW YORK.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 782,758, dated February 14, 1905.

Application filed May 11, 1904. Serial No. 207,358.

To all whom it may concern:

Be it known that I, CHARLES J. PAULSON, a subject of the King of Sweden and Norway, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention has reference to bottles of a non-refillable type, and in its specific application is designed for use in connection with a plug seal or stopper adapted to be inserted into the mouth of an ordinary bottle and be cemented thereinto.

It is an object of the present invention to render the introduction of fluid into the bottle impossible after the bottle has been once sealed and also to permit the fluid to escape from said bottle by pressure from within the same.

It is a further object to provide for the removal of a portion of the sealing device, so that the stopper may be inserted into the mouth of the bottle for the purpose of shipment.

An embodiment of the present invention is illustrated upon the sheet of drawings accompanying this specification, wherein—

Figure 1 illustrates an elevational view, partly in section, of a bottle with the sealing device applied, said sealing device being in section to show its construction. Fig. 2 is an elevational view of a nozzle, and Fig. 3 illustrates a sealing-cork.

Similar characters of reference indicate like parts throughout the figures.

Within the neck 1 of an ordinary bottle 2 a plug or seal 3 is inserted, which is provided with an annular groove or offset 4, which is designed to correspond or register with a groove 5 in the bottle-neck, so that by the use of a suitable cement 6—such, for instance, as plaster-of-paris or the like—the plug 3 may be suitably sealed within the neck of the bottle. For the purpose of preventing any of the fluid within the bottle from getting in between the wall of the plug 3 and the neck 1 of the bottle, so that it may reach and soften the cement 6, I preferably provide a reduced portion 7 on the bottom of the plug 3, whereon may be placed a gasket 8, which fits tightly between the plug 3 and the wall of the neck, as shown, it being understood, of course, that this gasket will be placed around the reduced portion before the plug is inserted into the neck of the bottle and, as is obvious, will be prevented from slipping upwardly by reason of the abutment formed by the shoulder 9 around the plug. It will also be observed that for the purposes to be hereinafter set forth the plug 3 is inserted sufficiently into the neck of the bottle as to leave a corking or sealing space 10 for the reception of a cork 11 when it is desired to ship the bottle. This plug 3 is provided with two channels 12 and 13, respectively, the former of which is designed for the introduction of air under pressure after the bottle has been filled and the plug 3 inserted. The channel 13 is intended as a discharge for the contents of the bottle.

The channel 12 is provided near its upper mouth with a valve 14, resting on a seat 15, and which valve in the present instance consists of a ball normally held against said seat by a spring 16, as shown. This spring rests upon an internal shoulder 17 within the channel 12, which shoulder is provided with a port 18, so that the air directed into said channel may pass on into the channel 12. Some distance below the shoulder 18 is another shoulder, 19, provided with a port 20, and beneath this shoulder is a spring 21, which rests thereagainst and whose pressure is directed against a valve 22, upheld away from a valve-seat 23 by a piece of readily-soluble material 24, which rests on another internal shoulder, 25, within the channel 12, and at the end of this channel is an additional valve 26, held normally against its seat 27 by a spring 28, surrounding a stem 29, which spring is held in place by a headpiece 30. The channel 13 at its lower portion is provided with a seat 31, having a ball-valve 32, held in place under pressure by a spring 33, bearing up against a shoulder 34, having a port 35. Near the upper end of said channel is another shoulder, 36, having a port 37 and upon which rests a spring 38, which presses a ball 39 against a valve-seat 40, suitably located, preferably at the mouth of the channel 13. Screw-threaded into the mouth of this

channel is a nozzle 41, having a mouth 42, and this nozzle is provided with a key-stem 43, provided with a plunger 44, normally upheld by a spring 45, and which plunger is provided with another stem, 46, adapted to take against the valve-ball 39.

After the bottle has been suitably filled with liquid the plug 3 is inserted into the neck of the bottle, and, as before stated, the same is sealed therein by pouring cement or plaster-of-paris in the place therefor provided, whereupon a suitable air-pump is connected with the screw-threaded nozzle 47 at the outer end of the channel 12. As soon as the air-pressure is applied, ball 14, resting against the seat 15, will recede from said seat, when the air will pass through the port 18, the channel 12, the port 20, through the valve-seat 23, through the port 125, and down against the valve-head 26. This valve 26 will then recede from its seat 27 and allow the pressure to pass into the bottle. When this operation is completed, the pump is removed from the screw-threaded portion 47, said valve 26 will again close against seat 27 under said pressure, and thus confine the pressure within the bottle. This pressure in turn will then lift the ball 32 away from its seat 31, so that the channel 13 will then be open to the flow of the fluid. A pressure upon the stem 43 will cause the ball 39 to recede from its seat 38, when the liquid will come forth under pressure through said channel 13 and into the channel 48 of the nozzle 41 in a manner similar to the ordinary siphon-bottle.

If it should be attempted to introduce a liquid through the channel 12 at the connection 47 in a manner similar to the introduction of the air, the channel 12 by virtue of its being closed by the valve 26 will commence to fill up until it passes the soluble plug 24, which upholds the valve 22 from the seat 23. At this juncture, as is obvious, the soluble material will readily dissolve and release the valve 22, which will then bear tightly against the seat 23 by means of a spring 21, whereupon no further fluid can pass that point, and, as is further obvious, the weight of the material between such point and the valve 26 is not sufficiently heavy to cause said valve 26 to recede from its seat 27, or, in other words, the pressure of the spring 28 is sufficiently strong to overcome the weight of the body contained in the channel 12 between the valve 22 and the valve 26.

When it is desired to ship the bottle, the mouthpiece 41 may be unscrewed from its lodging at 49, when the plug or cork 11 may be inserted into the opening 10, and the bottle is then ready for shipment.

Having thus described this invention, I claim—

1. A non-refillable bottle having a seal, said seal having a channel for the introduction of air and a channel through which the contents of the bottle may flow, each of said channels being provided with spring-actuated valves operable under pressure, and one of said channels being provided with a spring-actuated valve held open by a soluble plug, and adapted to close when said plug is dissolved.

2. A non-refillable bottle having a seal, said seal having a channel for the introduction of air-pressure and a channel through which the contents of the bottle may flow, each of said channels being provided with a series of spring-actuated valves operable under pressure, and a soluble plug so arranged as to hold one of said valves in open position, and which, when dissolved, will cause said valve to close.

3. A non-refillable bottle having a seal, said seal having a channel for the introduction of air-pressure and a channel through which the contents of the bottle may flow, each of said channels being provided with spring-actuated valves operable under pressure, one of said channels being provided with a spring-actuated valve held in open position by a soluble plug, and adapted to automatically close when said plug is dissolved, and an emitting-nozzle for said seal.

4. A non-refillable bottle having a seal, said seal having a channel for the introduction of air-pressure and a channel through which the contents of the bottle may flow, each of said channels being provided with spring-actuated valves operable under pressure, one of said channels being provided with a spring-actuated valve held in open position by a soluble plug, and adapted to automatically close when said plug is dissolved, an emitting-nozzle for said seal, and said nozzle having a spring-actuated stem adapted to operate one of said valves.

5. A non-refillable bottle having a seal, said seal having a channel for the introduction of air-pressure and a channel through which the contents of the bottle may flow, each of said channels being provided with spring-actuated valves operable under pressure, one of said channels being provided with a spring-actuated valve held in open position by a soluble plug, and adapted to automatically close when said plug is dissolved, and a nozzle for said seal having a spring-actuated stem.

6. A non-refillable bottle having in combination a seal adapted to fit in the neck of a bottle and having a displaced portion, a cementitious material disposed between said seal and the bottle-neck and in said displaced portion, said seal having a channel for the introduction of air-pressure and a channel through which the contents of the bottle may flow, each of said channels being provided with spring-actuated valves operable under pressure, and one of said channels being provided with a spring-actuated valve held in open position by a soluble plug and adapted to automatically close when said plug is dissolved.

7. A non-refillable bottle having a seal, said

seal being fitted into the neck of said bottle and provided with a groove, cementitious material surrounding said seal and occupying said groove, said seal having a channel for the introduction of air-pressure and a channel through which the contents of the bottle may flow, each of said channels being provided with a spring-actuated valve operable under pressure, one of said channels being provided with a spring-actuated valve held in open position by a soluble plug and adapted to be closed when said plug is dissolved, and a nozzle for communicating with one of the channels of the seal.

8. A non-refillable bottle having a seal, said seal being fitted into the neck of said bottle and provided with a groove, cementitious material surrounding said seal and occupying said groove, said seal having a channel for the introduction of air-pressure and a channel through which the contents of the bottle may flow, each of said channels being provided with a spring-actuated valve operable under pressure, one of said channels being provided with a spring-actuated valve held in open position by a soluble plug and adapted to be closed when said plug is dissolved, a nozzle for communicating with one of the channels of the seal and a spring-actuated stem within said nozzle for operating one of the valves.

9. A seal for non-refillable bottles comprising a seal provided with an annular groove and adapted to be sunk into the bottle-neck, having a corresponding groove and adapted to be held therein by cementitious material occupying said groove, said seal having an outward-flow channel provided with a spring-actuated valve at its lower end, a spring-actuated valve at its upper end, said first-mentioned spring-actuated valve being held in open position by pressure from within the bottle, and said second-mentioned valve being actuated by pressure from without the bottle, and a nozzle located above said last-mentioned valve.

10. A seal for non-refillable bottles comprising a plug provided with an annular groove and adapted to be sunk into the bottle-neck, having a corresponding groove and adapted to be held therein by cementitious material occupying said groove, an outward-flow channel in said member provided with a spring-actuated valve at its lower end, said spring-actuated valve being held in open position by pressure from within the bottle, and a second valve actuated by pressure from without the bottle, and a nozzle located above said last-mentioned valve, also a channel for introducing air into the bottle, a normally closed valve located in said channel at its upper end, a normally closed valve at its lower end, an intermediate valve normally open, and a soluble plug for maintaining said valve open, said plug when dissolved permitting said valve to automatically close.

11. A seal for non-refillable bottles comprising a plug provided with an annular groove and adapted to be sunk into the bottle-neck, having a corresponding groove and adapted to be held therein by cementitious material occupying said groove, an outward-flow channel in said member provided with a spring-actuated valve at its lower end, said spring-actuated valve being held in open position by pressure from within the bottle, a second valve actuated by pressure from without the bottle, a nozzle having a spring-actuated stem and located above said last-mentioned valve, also a channel for introducing air into the bottle, a normally closed valve located in said channel at its upper end, a normally closed valve at its lower end, an intermediate valve normally open, a soluble plug for maintaining said valve open, said plug when dissolved permitting said valve to automatically close.

12. A seal for non-refillable bottles comprising a plug provided with an annular groove and adapted to be sunk into the bottle-neck, having a corresponding groove and adapted to be held therein by cementitious material occupying said groove, an outward-flow channel in said member provided with a spring-actuated valve at its lower end, said spring-actuated valve being held in open position by pressure from within the bottle, a second valve actuated by pressure from without the bottle, a nozzle located above said last-mentioned valve, also a channel for introducing air into the bottle, a normally closed valve located in said channel at its upper end, a normally closed valve at its lower end, an intermediate valve normally open, and a soluble plug for maintaining said valve open, said plug when dissolved permitting said valve to automatically close.

13. A seal for non-refillable bottles having two channels passing through the seal, each channel being provided with valves, means for automatically closing all of said valves, and a soluble plug located in one of said channels and which holds one of said valves in an open position and permits it to close when the plug is dissolved.

14. A seal for non-refillable bottles comprising a plug provided with two channels passing through its length, a spring-actuated valve at each end of each channel, and a spring-actuated valve intermediately disposed in one channel, a soluble plug for holding said spring-actuated valve open and adapted to permit the valve to close when the same is dissolved.

15. A seal for non-refillable bottles having two channels passing through the seal, each channel being provided with valves, means for automatically closing all of said valves, a soluble plug located in one of said channels and which holds one valve in open position and permits it to close the same when the plug is dissolved, and a nozzle having a spring-actu-

ated stem operating on one of said valves to permit the flow of the bottle contents.

16. A seal for non-refillable bottles comprising a plug provided with two channels passing through its length, a spring-actuated valve at each end of each channel, a spring-actuated valve intermediately disposed in one channel, a soluble plug for holding said spring-actuated valve open and adapted to permit the valve to close when the same is dissolved, and a nozzle operating on one of said valves to permit the flow of the bottle contents.

17. A seal for non-refillable bottles comprising a seal provided with two channels, spring-pressed valves located in each of said channels, a lump of soluble material holding one of said spring-pressed valves away from its seat and adapted to permit said valve to return to its seat when the plug is dissolved, a nozzle provided with a spring-actuated stem secured to one end of one channel and adapted to operate one valve, one of said valves being adapted to open from its seat when air-pressure is within the bottle so as to admit the contents of the bottle into the outflowing channel, the other valve in said channel being adapted to operate at the instant of pressure from the spring-actuated stem of the nozzle, and means for cementing said plug within said bottle.

18. A seal for non-refillable bottles comprising a seal having a channel for the introduction of air-pressure, valves within said channel and adapted to be opened at the instant of pressure, an additional valve in said channel held in open position by soluble material, which, when dissolved, will cause said valve to close, and also another channel for permitting the flow of the bottle contents, spring-actuated valves in said channel, one of which is held open by the pressure from within the bottle, and the other of which is actuated from without the bottle, a nozzle communicating with said channel, a spring-actuated stem within said nozzle and adapted to press on said last-mentioned valve.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 6th day of May, 1904.

CHARLES J. PAULSON.

Witnesses:
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JOHN O. SEIFERT.