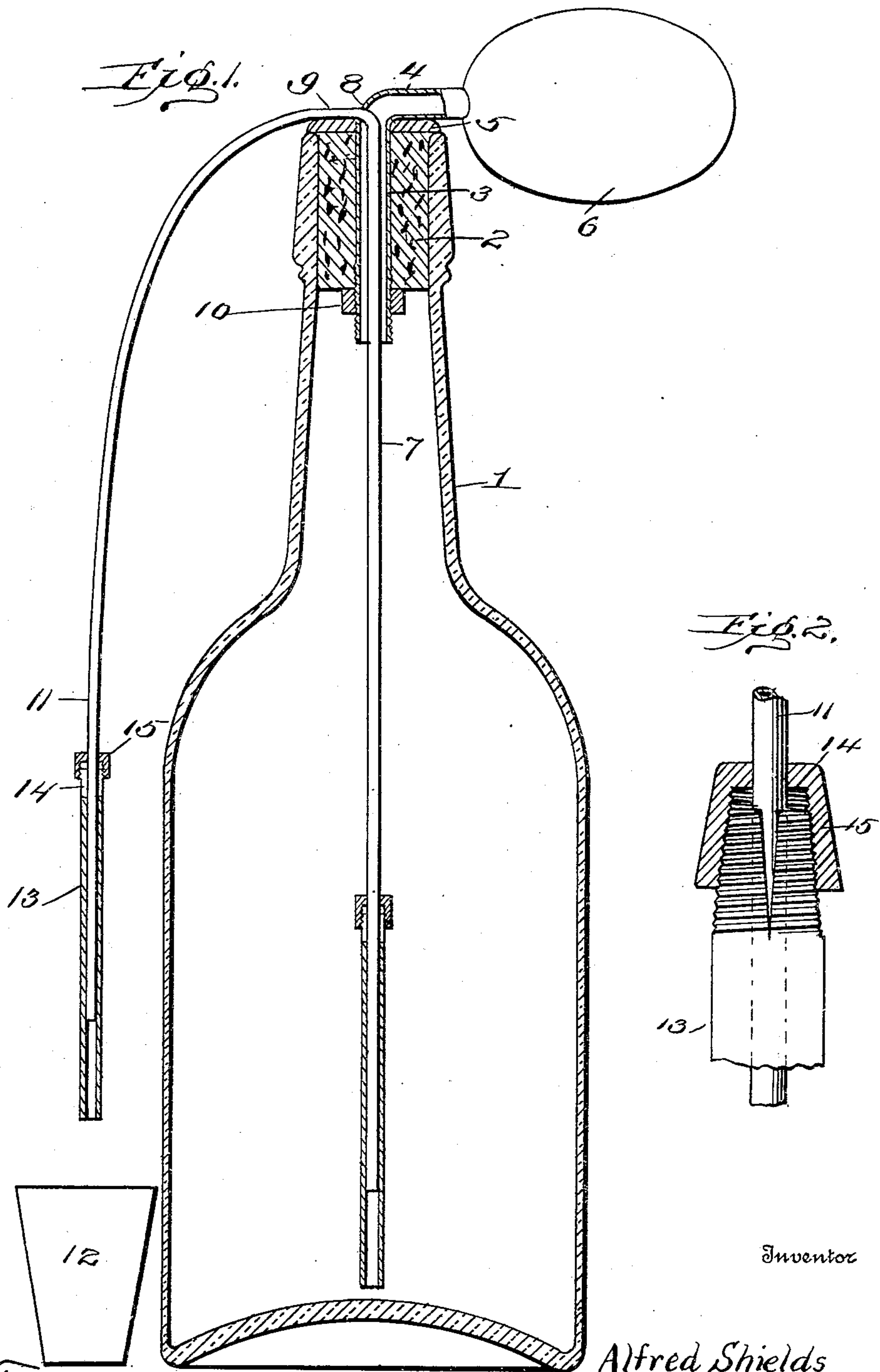


A. SHIELDS.  
DISPENSING PUMP.  
APPLICATION FILED DEC. 13, 1907.

929,990.

Patented Aug. 3, 1909.



Witnesses

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# UNITED STATES PATENT OFFICE.

ALFRED SHIELDS, OF GREENVILLE, MISSISSIPPI.

## DISPENSING-PUMP.

No. 929,990.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed December 13, 1907. Serial No. 406,379.

*To all whom it may concern:*

Be it known that I, ALFRED SHIELDS, a citizen of the United States, residing at Greenville, in the county of Washington and State of Mississippi, have invented certain new and useful Improvements in Dispensing-Pumps, of which the following is a specification.

This invention relates to improvements in pumps, and particularly to dispensing pumps for liquid.

The invention comprises the provision of an air tube, a liquid carrying tube, means for holding the same in a predetermined relation to each other, and means for forcing air through the air tube for dispensing liquid from a given receptacle, and the consequent forcing of liquid through the carrying tube.

The invention further comprises the provision of a pump adapted to fit into any desired receptacle, particularly to fit into and be carried by the cork of an ordinary bottle, and arranged to compress air in said bottle and to suck air into the bottle for being compressed, together with means for receiving and leading from the bottle the liquid contained therein, said means being arranged to be regulated to various size bottles or receptacles.

The object in view is the provision of a pump or dispensing apparatus designed to be positioned in a receptacle as, for instance, a bottle, and to be held in position therein by being clamped to the cork or stopper thereof.

Another object in view is the provision of a dispensing pump arranged to compress confined air in a bottle for forcing liquid therefrom and after a given quantity of liquid has been discharged, to suck into the discharge nozzle a new supply of air for taking the place of the discharged liquid, the new air thus drawn in, together with the air already in the bottle being designed to be compressed for succeeding discharges of liquid after which succeeding discharge, another amount of air is drawn in through the discharge pipe.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangement of parts as will be hereinafter more fully described and claimed.

In the accompanying drawing: Figure 1 is a vertical section through a receptacle

with my improved pump secured thereto. Fig. 2 is an enlarged detail sectional view showing the clamping means for holding an extension forming part of the present invention.

In providing pumps for emptying or discharging liquid from various receptacles as, bottles, barrels, tanks, and the like, it is always desirable to discharge the same in predetermined or given quantities, and to be reasonably positive what amount is to be discharged before the pump or discharging apparatus is put into operation. This is particularly true in regard to dispensing liquids from bottles, and the present invention is designed to present a structure in which the desirable result of dispensing the exact quantity when desired at the time desired and without any danger of exposing the contents in any way is attained.

Referring more particularly to the drawing, 1 indicates a receptacle designed to contain a liquid, and 2, an ordinary cork or stopper therefor of any desired kind, having an aperture or hole passing therethrough for accommodating an air tube 3. The air tube 3 is bent at a substantial right-angle for forming a rest or hook member 4 that rests upon and is rigidly secured to a support or disk 5, preferably by solder. The hook member or air tube extension 4 has secured thereto a collapsible bulb 6 that is formed of some elastic material as, a good quality of rubber, which when collapsed by the hand or some other means and when released, will take its normal position in an inflated position. Passing through air tube 3 is a liquid carrying tube 7 that is designed to pierce or pass through the sides of air tube 3 at 8, and is then bent for forming a support or hook shaped portion 9 and is rigidly secured to cap or washer 5, preferably by solder. By this construction tube 7 is firmly held in position as well as tube 3 in relation to each other. In order to more firmly hold the tube 3 in position and consequently the remaining mechanism a nut 10 is provided for tube 3 which is screw-threaded at its lower end. Nut 10 acts as a lock nut and clamps cork or stopper 2 between washer 5 and itself. By this arrangement whenever a stopper 2 is placed into a bottle, the remaining mechanism will also be positioned in the bottle in proper relation or position for successful operation without any adjustment of the various parts.



Tube 7 after it has been formed into a support 9 extends over and forms a discharging pipe 11 which extends down to near the bottom of the receptacle for discharging into an auxiliary receptacle as 12. Mounted on tube 11 is an extension 13 that is bifurcated at 14 and is threaded at the bifurcated end for receiving a clamp nut 15. Nut 15 is internally threaded and beveled as seen in Fig. 2 clamping the bifurcated end of extension 13 against tube 11 for firmly supporting the tube in position against tube 11. Ordinarily the clamping of the tube 13 against tube 11 will prevent any escape of liquid, but to positively prevent any accidental escape the nut 15 is made at its upper end to snugly fit pipe 11. An extension similar to pipe 13 is provided for pipe 7 so as to permit the pump to be used with any desired receptacle without any change except in the positioning of the extension tube. However, it will be perfectly evident that tube 7 and tube 11 may be made any desired length to fit any desired receptacle. Also the extension tubes may be made of any desired length for permitting any desired extension.

By this construction and arrangement of pump for dispensing or moving liquid a device is provided that dispenses with all valves of any kind, and all moving parts, except bulb or compressing member 6. It will, of course, be understood that bulb 6 may be constructed in different ways as, for instance, by being formed into a cylinder with a piston mounted therein for compressing the air in the receptacle 1 within the spirit of the invention, the idea being to simply provide a receptacle in which the air may be displaced or forced into receptacle 1 for forcing therefrom liquid as heretofore set forth. When it is desired to dispense or move liquid from receptacle 1, bulb 6 is collapsed which forces the air contained therein into receptacle 1, and as the air enters receptacle 1 it forces liquid out through pipe 7 into pipe 11 and from pipe 11 to a receptacle 12. After the liquid has escaped from pipe 11 bulb 6 is released and permitted to expand, which will withdraw any remaining liquid in pipes 11 and 7, and will in addition draw in some new air for

taking the place of the dispensed liquid, so that the space not occupied by liquid will still be full of air at substantially atmospheric pressure. When it is again desired to dispense additional liquid, bulb 6 is again pressed or collapsed and the air in receptacle 1 is again compressed for forcing liquid through pipes 7 and 11. When bulb 6 is released the remaining liquid in these two pipes, together with a fresh supply of air, is again drawn back into the receptacle. This operation is continued as often as desired until the receptacle is emptied. After the receptacle is emptied the cork or stopper 2 may be removed together with the pump, and the receptacle refilled and the cork or stopper 2 again inserted in position and the pump will be again in position for operation.

What I claim is:

In a receptacle, the combination of a dispensing pump comprising a support, a stopper, an air-tube open at its extreme bottom and passing through said support and said stopper and being threaded on its bottom end, a nut mounted on said threaded portion of said air-tube and engaging the bottom of said stopper, a hook member formed integral with said air-tube and rigidly connected with said support, a bulb carried by said hook member, said support being positioned upon said stopper, a dispensing tube entering the wall of said air-tube, at the junction of said hook member and said air-tube, the said dispensing tube passing through said air-tube and into said receptacle, a hook member formed integral with said dispensing tube and rigidly secured to said stopper, the said hook member being formed with a discharge extension, the said bulb adapted to force air into said receptacle around said dispensing tube through said stopper, and to force liquid from said receptacle through said dispensing tube, said hook member and said discharge extension, substantially as shown and described.

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

ALFRED SHIELDS.

Witnesses:

JOHN L. FLETCHER,  
ZOE BEALL.