J. DESMOND.

LIQUID DISPENSER.

APPLICATION FILED SEPT. 9, 1912.

1,071,890. **Patented Sept. 2, 1913.**

Fig. 1.

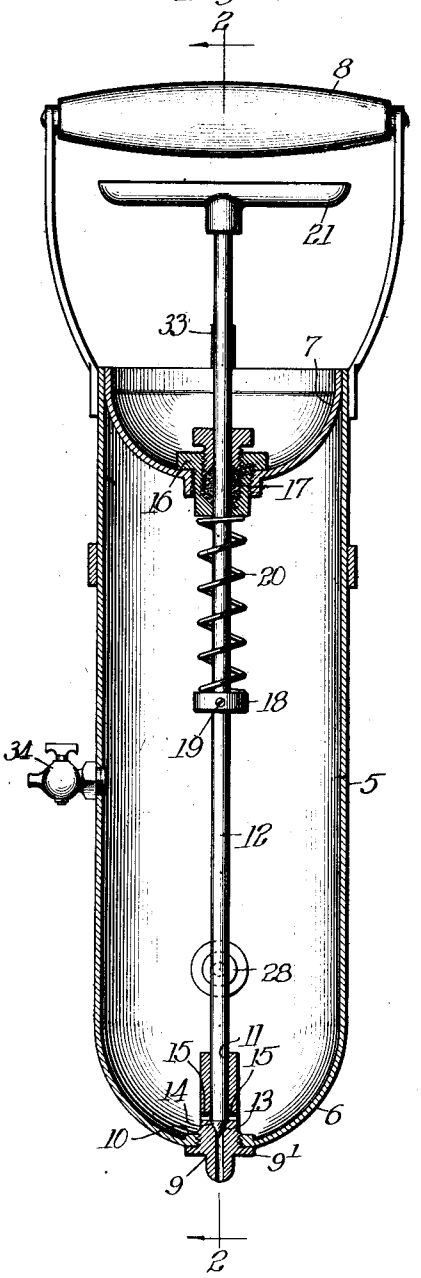
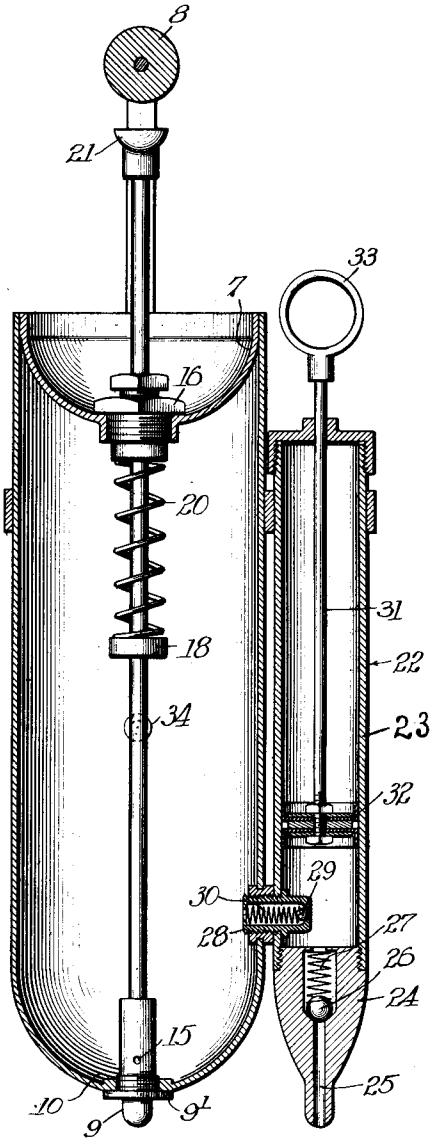


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN DESMOND, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO HARRY DEAM, OF RIVERSIDE, ILLINOIS.

LIQUID-DISPENSER.

1,071,890. Specification of Letters Patent. Patented Sept. 2, 1913.

Application filed September 9, 1912. Serial No. 719,247.

To all whom it may concern:

Be it known that I, JOHN DESMOND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Liquid-Dispensers, of which the following is a specification.

My invention relates to improvements in liquid dispensers and has especial reference to devices of this character wherein liquid may be held within the receptacle or reservoir under pneumatic pressure and projected therefrom at will, and whereby air may be directly pumped into the reservoir to regulate the force with which the liquid shall be expelled.

One of the objects of my invention is to provide a device wherein a liquid such as an insecticide, or cleaning fluid such as gasolene or the like, may be contained under pneumatic pressure and projected against or onto objects in desired quantities and at convenient times.

Another object of my invention is to provide a pump conveniently associated with the reservoir by means of which the reservoir may be partly filled with liquid and subsequently with air under pressure.

Other and further objects of my invention will become apparent to persons skilled in the art from a consideration of the accompanying description taken in connection with the drawing, wherein—

Figure 1 is a central vertical section of the device; and Fig. 2 is a similar view taken at right angles to Fig. 1.

In both of the views, the same reference characters indicate similar parts.

The reservoir or cylinder 5 may be made of a suitable material, such as brass or the like, and preferably is provided with dished or bumped ends, 6 and 7. The handle 8 is secured to one end of the casing, as shown, by means of which the device may be supported and manipulated. A nozzle 9 for projecting a stream of fluid, shown in section in Fig. 1, is secured in a threaded bushing, 10. The nozzle is provided with a clear front opening, and with a relatively long bore, as at 11, guiding and retaining the valve stem 12 in operative position with reference to the valve. At the inner end of the bore 11 a valve seat 13 is provided for reception of the needle valve 14 on the end of the valve stem 12. The seat is formed at the conjunction of the two bores in the nozzle, and near the point where the transverse bore 15 flanks the axial bore. The lateral or transverse bore 15 admits liquid to the nozzle proper. A shoulder 9′ is secured against the threaded bushing 10 to provide a water-tight joint and to prevent the nozzle from going too far into the reservoir when it is secured in place. A gland 16 is secured to the other end of the casing for packing the valve stem to permit its easy reciprocation and to render the casing substantially tight. Packing 17 as usual in such devices is employed in connection therewith for this purpose.

A collar 18 is secured to the valve stem 12, as by screw 19 or otherwise, against which the open compression spring 20 abuts, normally maintaining the valve closed as shown. The outer end of the valve stem 12 carries a handle 21, which is limited in its reciprocating movement by the handle 8. When the handle 21 is moved to its full extent, or until it comes into actual contact with the handle 8, it has not moved sufficiently to withdraw the valve 14 from the guide bore 11 of the nozzle 9 and thus the valve cannot be displaced with reference to its seat, being constantly guided in its larger bore, the handle 8 acting as a stop to prevent undesirable further movement of the valve stem 12.

A pump 22 is secured to the side of the reservoir 5 and by this means the reservoir may be filled with liquid or it may be partly filled with liquid and partly with air. The pump consists of a cylinder 23, provided with a nozzle 24. The nozzle has a central bore 25 at the upper extremity of which is formed a valve seat for the valve 26. It is adapted to move vertically in the larger bore. The valve is held normally closed by means of the spring 27. A screw threaded fitting 28 is a means for connecting the pump 22 to the reservoir 5, and serves as a passageway for fluid from the pump into the reservoir. It is hollow and is provided with contracted open ends. The valve 29 is normally seated in the opening inside of the pump and is held on its seat by means of the spring 30. A piston rod 31 carries a piston 32 upon its lower end for reciprocation within the cylinder 23, and on its upper end is provided with a ring handle 33, by means of which the rod may be re-

ciprocated. About midway of the vertical height of the reservoir 5 is an opening closed by a pet cock 34.

The use and operation of the device is as follows: When it is desired to partially fill the reservoir 5 with the liquid, the two nozzles 9 and 24 are placed in the liquid supply, the nozzle 9 opened, and the liquid permitted to flow into the reservoir 5 until it has reached the level of the pet cock 34, or the piston 32 may be reciprocated by means of the handle 33. When the piston is drawn up, the valve 26 is unseated and liquid is drawn into the cylinder 23. When the piston is depressed, the valve 26 is seated, and the liquid is forced out through the fitting 28, the valve being unseated, and when the piston is again drawn outwardly the spring 30 will seat the valve 29, and the valve 26 will be again opened against the pressure of spring 27. In this way, liquid may be taken from the liquid supply and forced into the reservoir 5. At the time the reservoir is being filled with liquid in the manner described, the pet cock 34 is preferably opened, and when the liquid has reached the height of the opening which is closed by the pet cock 34, it will run out of said cock and indicate that that quantity of liquid has been forced into the reservoir. Now, the cock 34 is closed, and the device is taken from the liquid supply and the pump piston 31 is again operated, and by this means air is pumped into the reservoir on top of the liquid that it now contains until sufficient air has been introduced to produce the desired pressure. Now, if the handle 21 be moved toward handle 8 to open the valve 14 against the resilient spring 20, the liquid within the reservoir will be forced out as the result of the compressed air through the lateral openings 15 and through the central bore of the nozzle 9, and the force with which it will be expelled will be determined by the air pressure within the reservoir.

The device is especially convenient for applying insecticide in places that are inaccessible by other means, as it may be taken into a tree and the liquid directed into places and on surfaces that are not to be reached by ordinary means. This is not the only use for which it may be employed, as it may be used to spray gasolene upon surfaces for cleansing them, as in cleaning oily surfaces of automobiles and like machinery, or for other purposes.

What I claim is:

1. In a device of the character described, a cylindrical reservoir, a nozzle provided with a controllable outlet valve in one end of the reservoir, an air-and-liquid pump secured directly to said reservoir, a valve normally closing communication between said reservoir and pump openable toward said reservoir, a nozzle for the pump opening in substantially the same exterior plane as the reservoir nozzle, and a valve for said pump nozzle openable toward the interior of the pump.

2. In a device of the character described, a cylindrical reservoir, a nozzle provided with a controllable outlet valve in one end of the reservoir, an air-and-liquid pump having an inwardly opening valve at one end, said reservoir and pump being arranged with respect to each other to bring the nozzle of the reservoir and the valved opening of the pump in substantially the same exterior plane and to bring the handle of the reservoir and the handle of the pump at the same end of the device, said reservoir and pump being connected together at each end respectively, the means of connection at one end comprising a fitting affording communication between the reservoir and pump, and a valve in said fitting opening from pump toward the reservoir, for purposes described.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

JOHN DESMOND.

In the presence of—
MARY F. ALLEN,
W. LINN ALLEN.