(No Model.)

# W. H. PAYNE.

## ATOMIZER.

No. 507,160. Patented Oct. 24, 1893.

FIG: 1

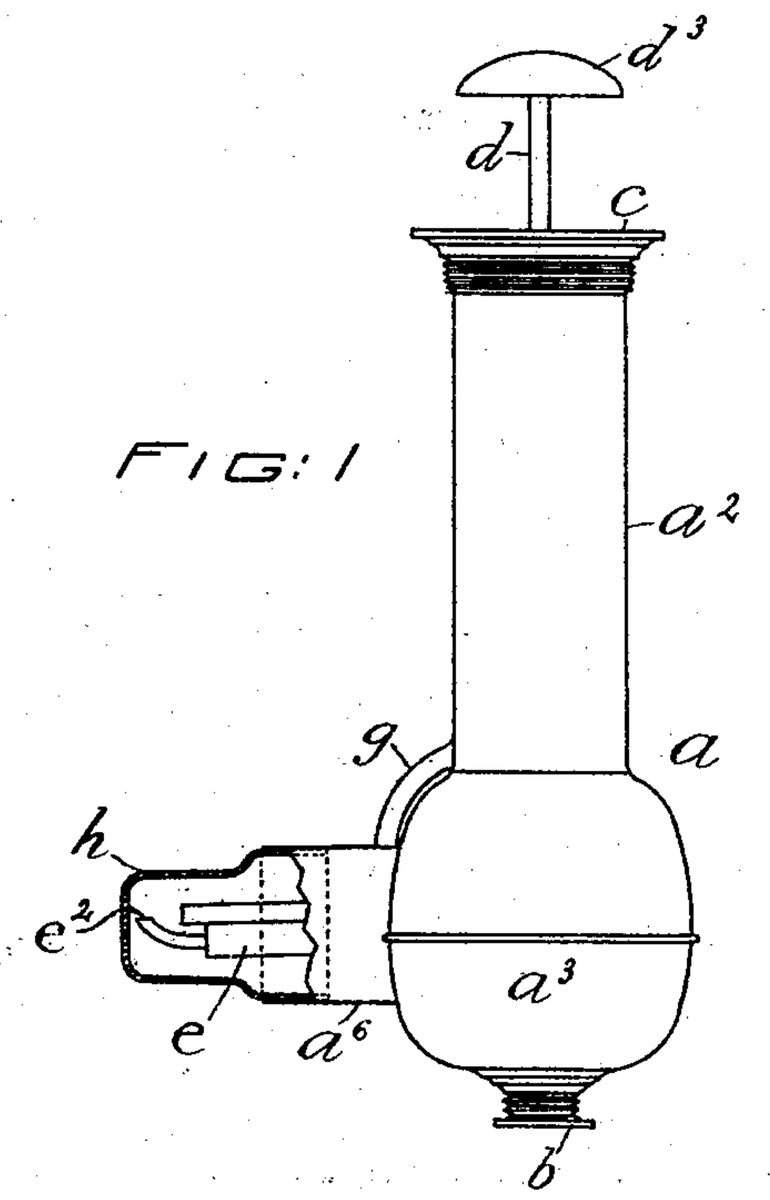
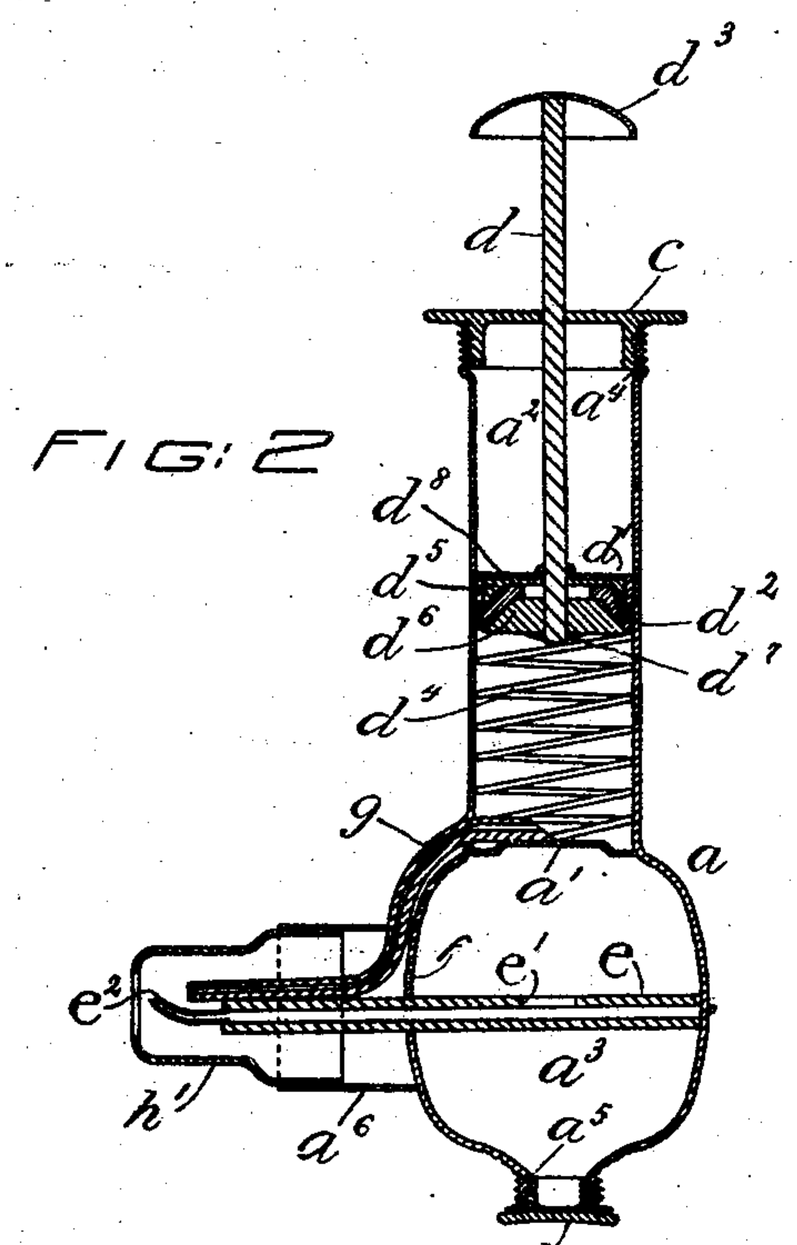



FIG: 2




WITNESSES:
W. J. Jackson.
W. A. Schaefer

INVENTOR:
William H. Payne.
BY J. Walter Douglas.
ATT'Y

# UNITED STATES PATENT OFFICE.

WILLIAM H. PAYNE, OF PHILADELPHIA, PENNSYLVANIA.

## ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 507,160, dated October 24, 1893.

Application filed February 18, 1893. Serial No. 462,820. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. PAYNE, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Atomizers, of which the following is a specification.

The principal objects or my invention are first, to provide a simple, reliable, efficient and inexpensive atomizer for spraying liquid, as perfume, disinfectants or other materials; and second, to construct and arrange the parts of the atomizer in such manner that the same may be protected when not in use from accidental breakage, dust and leakage.

My invention consists of an atomizer comprising a housing or shell horizontally partitioned to form a cylinder and a reservoir located one above the other, a discharge tube and a vent communicating with the curved wall of the reservoir, an air conduit leading from the cylinder into proximity to the discharge tube, and a spring controlled piston for forcing air through said conduit; and my invention further consists of the improvements in atomizers hereinafter described and claimed.

The nature, characteristic features and scope of my invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof; and in which—

Figure 1, is a side elevational view of an atomizer embodying features of my invention and showing a detachable cap applied thereto in order to prevent accidental escape of the contents thereof; and Fig. 2, is a sectional view of the atomizer illustrated in Fig. 1, showing the detachable cap removed and replaced by a detachable nozzle.

In the drawings $a$, is a shell or housing divided by a horizontal partition $a'$, into a cylinder $a^2$, and a reservoir $a^3$, and provided with tapped openings $a^4$ and $a^5$, and with a circular flange $a^6$, constituting a seat for a purpose to be hereinafter explained.

$b$, is a screw-plug adapted for insertion into and removal from the tapped opening $a^5$, in order to permit of the filling of the reservoir $a^3$.

$c$, is a cylinder head adapted to be secured to place in the tapped opening $a^4$, and constituting a guide for the piston-rod $d$.

$d'$, is a piston carried by the rod $d$, and provided with a conical flange or rim $d^2$, adapted to hug the walls of the cylinder $a^2$, when the piston $d$, is forced downward into the cylinder $a^2$, by means of the knob $d^3$, and against the force of the spring $d^4$, and also adapted to slide freely against the walls of the cylinder $a^2$, when the piston $d'$, is moving automatically upward under the influence of the spring $d^4$. This flange or rim $d^2$, comprises a soft rubber washer interposed between a packing $d^5$, and a conical hard rubber plug $d^6$, the latter being supported by means of a button $d^7$, on the piston-rod $d$, and the former by means of a cap $d^8$, also secured to the piston-rod $d$.

$e$, is a discharge-tube penetrating the curved wall of the reservoir $a^3$, and provided with an inlet aperture $e'$, and with a contracted discharge aperture $e^2$, located within the circular flange $a^6$.

$f$, is an air vent punched or otherwise formed in the curved wall of the reservoir $a^3$, and also located within the circular flange $a^6$.

$g$, is an air conduit leading from the cylinder $a^2$, into proximity with the discharge end $e^2$, of the tube $e$, as shown in Fig. 2.

$h$, Fig. 1, is a cap adapted to be detachably fitted to the flange $a^6$, when the atomizer is not in use in order to close the vent $f$, and tube $e$, and $h'$, Fig. 2, is a nozzle adapted to be substituted for the cap $h$, when the atomizer is not in use.

In use the reservoir $a^3$, is filled with liquid and for this purpose the screw-plug $b$, may be withdrawn from and subsequently returned to place in the opening $a^5$, and the cap $h$, is replaced by the nozzle $h'$. In order to spray the liquid the piston $d'$, is pushed downward into its cylinder $a^2$, against the force of the spring $d^4$, and by means of the knob $d^3$. This movement of the piston $d'$, causes a blast of air to issue from the air conduit $g$, in proximity to the discharge end $e^2$, of the tube $e$, and this blast of air operates to suck a supply of liquid from the reservoir $a^3$, through the tube $e$, and to discharge the same in the form of spray. In this connection it may be remarked that the requisite supply of air for

permitting of the eduction of the contents of the reservoir $a^3$, in the manner above described, is afforded by means of the air-vent *f*. When the knob $d^3$, is released, the piston $d'$, is automatically returned to its initial position under the influence of the spring $d^4$, and may be again depressed manually in order to repeat the above described spraying operation.

When the atomizer is not in use the nozzle *h*, Fig. 2, is replaced by the cap *h*, Fig. 1, and the latter serves to prevent accidental escape of the contents of the reservoir $a^3$, and also to protect the tube *e*, conduit *g*, and air-vent *f*, from dust and accidental injury.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An atomizer comprising a housing or shell horizontally partitioned to form a cylinder and a reservoir located one above the other, a discharge-tube and a vent communicating with the reservoir, an air conduit leading from the cylinder in proximity to the discharge tube, and a spring controlled piston for forcing air through said conduit, substantially as and for the purposes set forth.

2. An atomizer comprising a housing or shell horizontally partitioned to form a cylinder and a reservoir located beneath the cylinder and provided with a sidewise projecting flange constituting a seat for the reception of a cap and a nozzle, a discharge-tube and a vent communicating with the reservoir and with the interior of the flange, an air-conduit leading from the cylinder through the curved walls of the cylinder and nozzle into proximity to the discharge end of said tube, and a spring controlled piston for forcing air through said conduit, substantially as and for the purposes set forth.

3. An atomizer comprising a housing or shell horizontally partitioned to form a cylinder and a reservoir and provided with a flange projecting from the curved wall of the reservoir and constituting a seat for the reception of a cap and a nozzle, a detachable screw-plug in the wall of the reservoir, a cylinder-head in the cylinder, a discharge tube and a vent communicating with the reservoir and with the interior of the flange, an air-conduit leading from the cylinder into proximity with the discharge end of said tube, and a spring controlled piston for forcing air through said conduit, substantially as and for the purposes set forth.

4. An atomizer comprising a housing or shell horizontally partitioned to form a cylinder and reservoir located one above the other, a discharge tube and a vent communicating with the reservoir, an air conduit leading from the cylinder into proximity with the discharge tube, and a piston operated by a knob against the force of a spring and provided with a conical rim, substantially as and for the purposes set forth.

5. An atomizer comprising a housing or shell horizontally partitioned to form a cylinder and reservoir located one above the other, a discharge-tube and a vent communicating with the reservoir, an air-conduit leading from the cylinder in proximity to the discharge-tube, a piston operated by a knob against the force of a spring and comprising a soft rubber washer interposed between a cone and a packing and held to place by a cap and button on the piston-rod, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

WILLIAM H. PAYNE.

Witnesses:
THOMAS M. SMITH,
RICHARD C. MAXWELL.