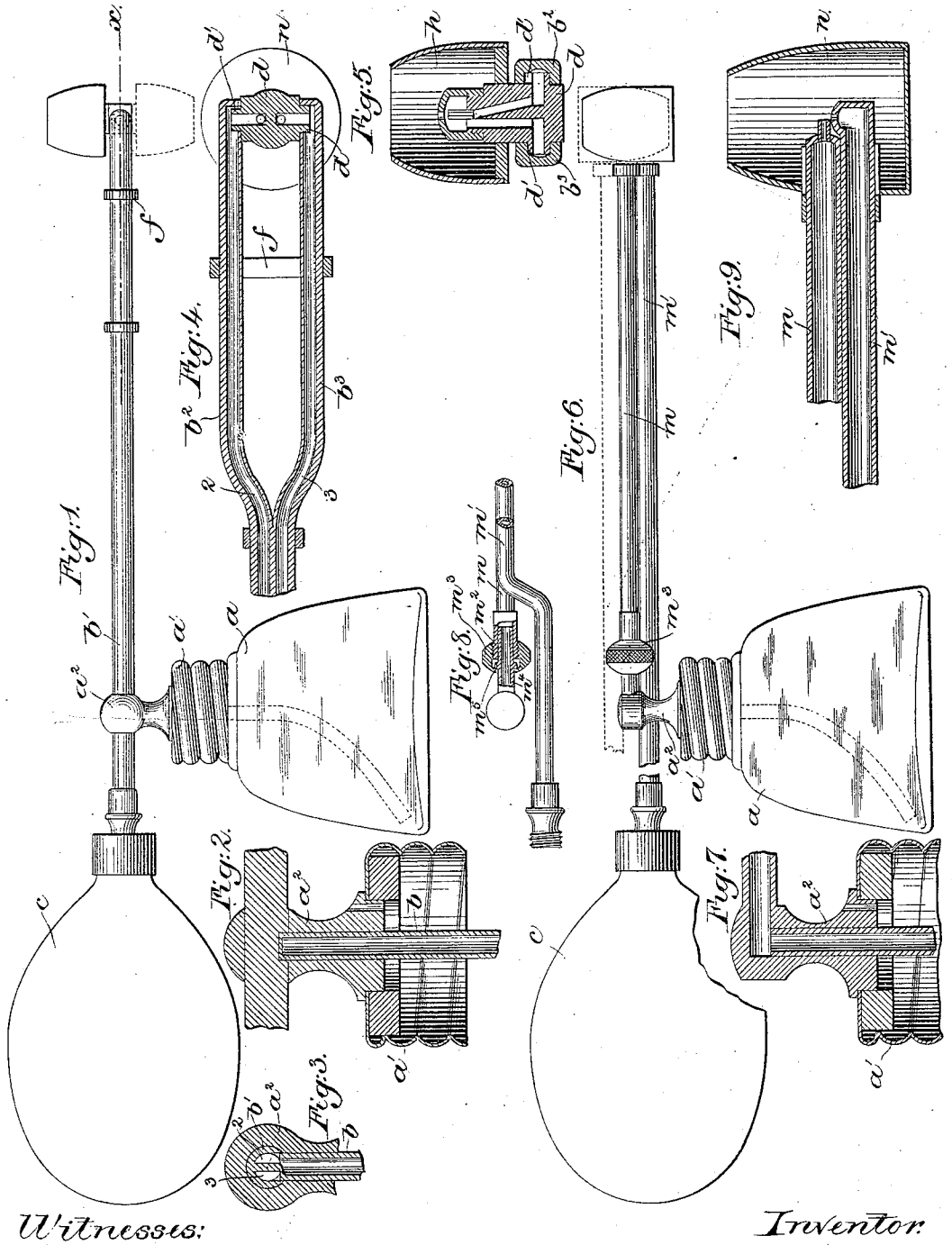
(No Model.)

A. M. SHURTLEFF.

ATOMIZER.

No. 451,079. Patented Apr. 28, 1891.



Witnesses:
Fred'k S. Greenleaf
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UNITED STATES PATENT OFFICE.

ASAHEL M. SHURTLEFF, OF BOSTON, MASSACHUSETTS.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 451,079, dated April 28, 1891.

Application filed November 24, 1890. Serial No. 372,516. (No model.)

To all whom it may concern:

Be it known that I, ASAHEL M. SHURTLEFF, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Atomizers, of which the following description, in connection with the accompanying drawings, is a specification like letters and figures on the drawings representing like parts.

This invention has for its object to improve the construction of atomizers; and my invention consists in details of construction to be hereinafter described, and pointed out in the claims.

Figure 1 shows in side elevation an atomizer embodying this invention; Fig. 2, an enlarged vertical section of the cap or stopper and tube-support thereon; Fig. 3, a sectional detail of the tube-support shown in Fig. 2; Fig. 4, an enlarged horizontal section of the liquid and air tubes and nozzle shown in Fig. 1, taken on the dotted line *x x;* Fig. 5, an enlarged section of the atomizing-orifices and nozzle shown in Fig. 1; Fig. 6, a side view of a modified form of atomizer to be referred to; Fig. 7, an enlarged sectional view of the cap or stopper and tube-support shown in Fig. 6; Fig. 8, a sectional detail of the coupling for the liquid and air tubes shown in Fig. 6; Fig. 9, an enlarged sectional detail of the liquid and air tubes, showing the atomizing-orifices and nozzle containing them.

The vessel a has a cap or stopper a', herein represented as metallic and screw-threaded to fit upon the screw-threaded neck of the vessel a, a suitable washer being interposed to insure a tight connection. A tube-support a^2 is erected on the cap or stopper a'. The liquid-tube b extends down into the vessel and up into the tube-support a^2, as shown in Figs. 2 and 3. The rod b' extends through the tube-support a^2 at substantially right angles with relation to the liquid-tube b, said rod having two longitudinal passages through it, one, as 2, for liquid, and the other, as 3, for air. The rod b' is branched at its outer end into two flattened tubes b^2 b^3, which are separated a short distance, as shown in Fig. 4. The liquid-tube b, as represented in Fig. 3, communicates with the passage 2, and an air-forcing device, as the bulb c, is coupled to the rod b', which communicates with the air-passage 3.

A bearer for the atomizing-orifices is provided, it being represented as a block d, having trunnions d' d', one of which is made larger than the other, said trunnions fitting correspondingly-shaped holes in the flattened tubes b^2 b^3. Passages are formed through the trunnions and through the block, which terminate in the atomizing-orifices. The trunnions d' d' are made different, one with relation to the other, so that they may be non-interchangeable, in order that the trunnion with the air-passage will always be connected with the air-tube and the trunnion with the liquid-passage with the liquid-tube. By means of the trunnions d' d' the bearer d may be rotated or moved independent of the liquid and air tubes.

A nozzle n is detachably fitted on the bearer inclosing the atomizing-orifices. This nozzle may be made of any suitable shape, and when in the full-line position shown in Fig. 1 serves as a retaining-well for the condensed spray, and when reversed may be emptied without overturning the vessel. The nozzle n also serves as a shield for the atomizing-orifices, forming a chamber in which they can operate to produce the spray. The nozzle n is made detachable, so that another nozzle may be substituted, if desired, or that the device may be used without a nozzle, and for the purpose of allowing the parts to be more easily cleansed. The bearer d is held in position between the two tubes b^2 b^3 by means of a retaining ring or device f, surrounding or inclosing the said tube and adapted to slide thereon, the said tubes being made to spread slightly out of parallelism, so that the nearer the ring is moved toward the bearer the tighter the said tubes will hold the bearer.

By making the bearer for the atomizing-nozzles detachable the parts may be readily cleansed.

Referring to Fig. 6, the liquid-tube m and a parallel air-tube m' are provided, the liquid-tube m having a screw-threaded end m^2, (see Fig. 8,) which receives a coupling m^3, held on a stationary tube m^4 by the annular flange m^5. The tubes m m' have at their outer ends atomizing-orifices, (see Fig. 9,) and the nozzle is detachably fitted onto the tubes inclosing the atomizing-orifices. By means of the joint connection shown in Fig. 8 the liquid-tube m may be rotated, and the air-tube

m' will be moved in a circle around the axis of the liquid-tube as a center, and by means of such rotation the nozzle n may be overturned and emptied when desired without disturbing the other parts of the apparatus.

In Fig. 6 the tube-support a^2 has a passage simply for the liquid and differs in this respect from the tube-support a^2 shown in Figs. 2 and 3.

I do not desire to limit my invention to the employment of any specific form of atomizing-orifices, and for some purposes the nozzle n may be fixed instead of detachable and yet subserve the purpose of a shield for the atomizing-orifices, and I do not desire to limit myself to the specific construction of bearer shown, as it may be varied and yet enable the spray to be directed in different ways.

By flattening the tubes $b^2 b^3$, as shown, holes or sockets may be formed therein large enough in diameter to receive large-sized trunnions d' d', whereas if said tubes were made round such large-sized holes or sockets could not be made and still retain a small and light-weight tube.

I claim—

1. In an atomizer, a vessel and a cap or stopper therefor, combined with liquid and air tubes, atomizing-orifices at the ends of said tubes, and a reversible condensed-spray-retaining nozzle containing said atomizing-orifices, substantially as described.

2. In an atomizer, a vessel and a cap or stopper therefor, combined with liquid and air tubes, atomizing-orifices at the ends of said tubes, and a detachable condensed-spray-retaining nozzle containing said atomizing-orifices, substantially as described.

3. In an atomizer, a vessel and a cap or stopper therefor, combined with atomizing-orifices and a detachable bearer therefor, having trunnions differing one from the other, substantially as and for the purposes set forth.

4. In an atomizer, a vessel and a cap or stopper therefor, combined with atomizing-orifices and a detachable bearer therefor, a liquid and an air tube between which said bearer is detachably held, and a movable retaining device, as f, substantially as described.

5. In an atomizer, a vessel and a cap or stopper therefor, combined with atomizing-orifices, a reversible bearer therefor, and two flattened tubes, one for liquid and the other for air, between which the said bearer is held, substantially as described.

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

ASAHEL M. SHURTLEFF.

Witnesses:
BERNICE J. NOYES,
EMMA J. BENNETT.