(No Model.)

R. LOCKWOOD.

ATOMIZER.

No. 454,055. Patented June 16, 1891.

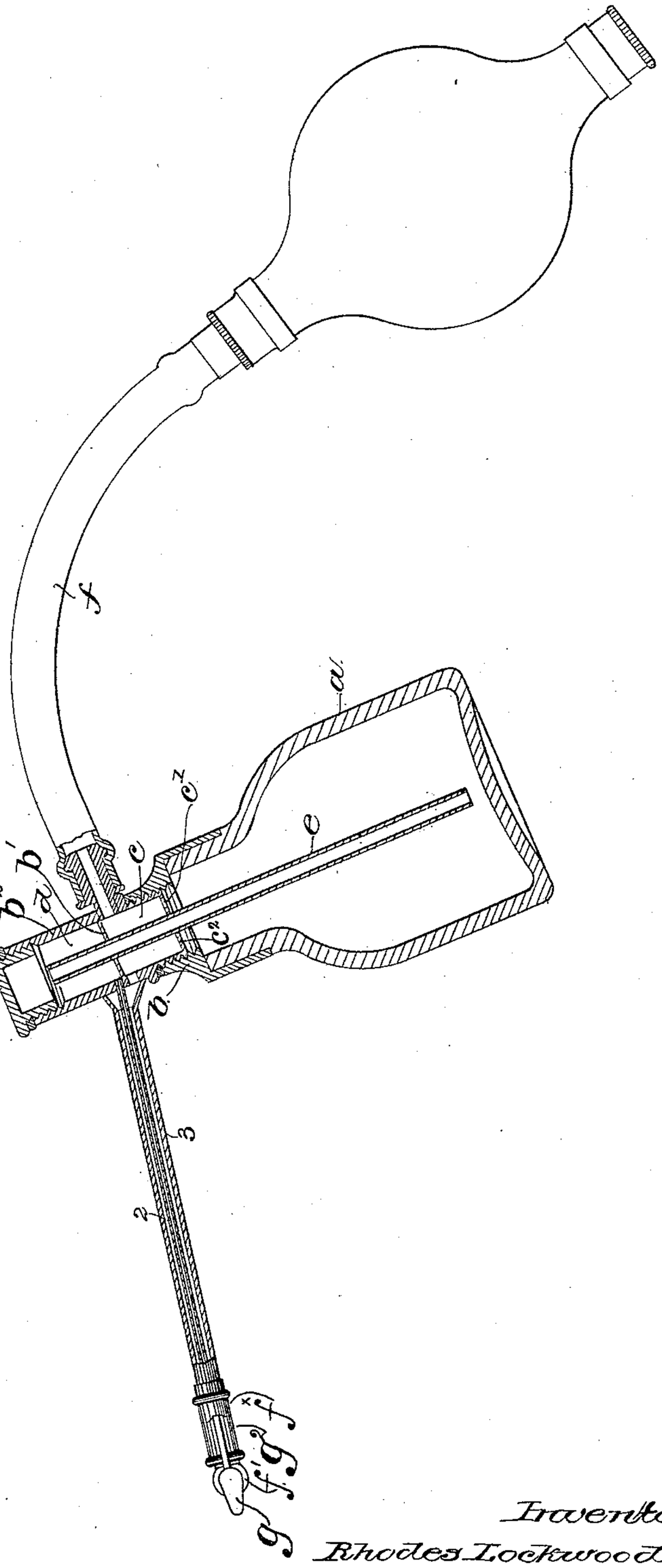

Fig: 1.

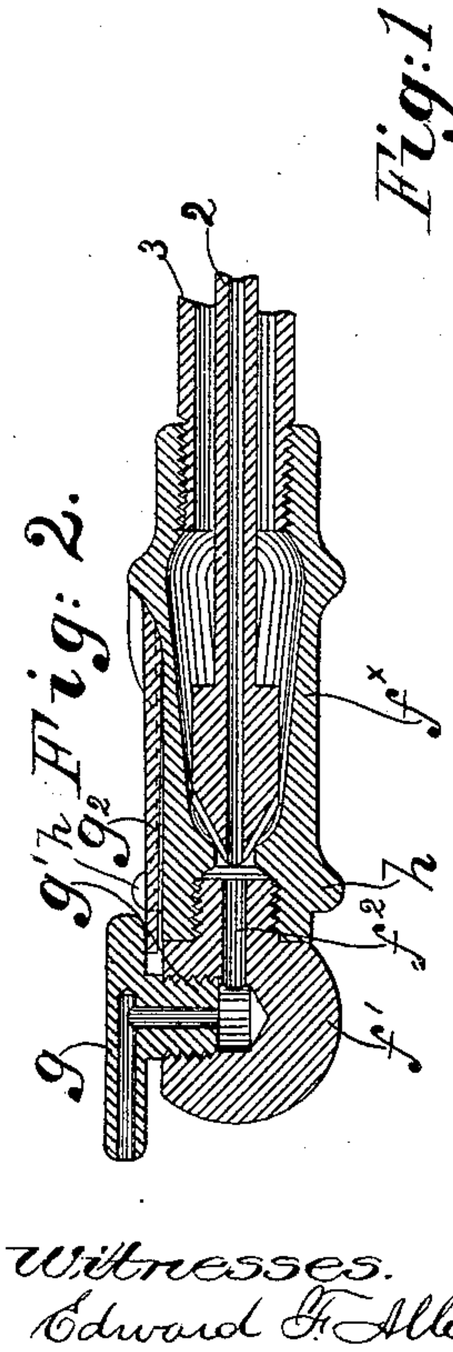

Fig: 2.

Witnesses.
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Inventor.
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UNITED STATES PATENT OFFICE.

RHODES LOCKWOOD, OF BOSTON, MASSACHUSETTS.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 454,055, dated June 16, 1891.

Application filed January 26, 1891. Serial No. 379,089. (No model.)

To all whom it may concern:

Be it known that I, RHODES LOCKWOOD, 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.

In accordance with this invention a liquid-receiving chamber is located above the bottle and connected therewith by a conducting-tube, and means are provided for forcing the liquid in the bottle up into said liquid-receiving chamber, that it may be delivered to the atomizing-nozzles, which are provided more easily than heretofore. An air-forcing device of any usual or suitable construction is also provided. An independent delivery-nozzle is provided, whereby the spray may be directed as desired.

Figure 1 shows in side elevation and partial vertical section an atomizer embodying this invention; Fig. 2, a longitudinal section of the atomizing-nozzles and delivery-tube on an enlarged scale.

The bottle a has a cap or stopper b, into which is screwed a hollow cylindrical shell b^2, divided about midway its length by a suitable horizontal partition or wall b' to present two compartments or chambers c d. The upper end of the chamber d is closed by a screw-cap d', and the lower end of the chamber c is substantially closed by an end piece or portion c^2, preferably formed integral with the shell. A tube e extends from at or near the upper end of the chamber d to at or near the lower end of the bottle a, passing down through the wall b', chamber c, and end portion c^2 and being supported by said wall b' and end portion c^2. An air-tube f, leading from an air-forcing device of any usual or suitable construction, is secured to the cylindrical shell b^2, communicating with the chamber c, as shown, and through the end portion c^2 of said chamber c a small hole c' is formed, through which the air may be forced to drive the liquid contents of the bottle up through the conducting-tube e into the upper chamber or receiver d. Concentrically-arranged tubes 2 3 lead from the cylindrical shell b^2, the inner tube 2 communicating with the liquid chamber or receiver d at its lower end and the outer tube 3 communicating with the air receiver or chamber c at its upper end, and said tubes 2 3 terminate at the outlet of the chambered nozzle $f^\times$. A block f' is secured to the end of the chambered nozzle $f^\times$, which has a passage or chamber f^2 through it, which passage or chamber receives the spray directed from the nozzle $f^\times$, and the said block also has a delivery-nozzle g, having on one side of it a screw-threaded hub g', which enters an internally-screw-threaded socket in the block f', the delivery-nozzle g and its hub g' having a passage through them which communicates with the passage or chamber f^2, so that the spray formed in the said passage or chamber will pass through said delivery-nozzle g. A spring g^2 on the nozzle $f^\times$ bears frictionally against the under side of the delivery-nozzle to prevent it turning too easily, although it is obvious that such detail construction may be easily modified. By providing a delivery-nozzle that may be turned, as shown, the spray issuing therefrom may be directed in any way desired. A projection h is formed on the nozzle $f^\times$, which rises above the plane in which the nozzle g turns when rotated in its screw-threaded socket in the block f', so as to obstruct the movement of said nozzle g, preventing it making a complete rotation. By this means the nozzle g cannot be removed unless the block f' supporting it is removed. It will be noticed that the rear part of the nozzle g, upon which the spring g^2 bears, is not so long as the other part, (clearly shown in Fig. 2,) the rear part clearing the projection h, as shown, but the front part will contact therewith when the nozzle g is partially rotated in its socket, as described.

The operation of the device is as follows: The air-forcing device being operated, air is forced into the air-receiving chamber c, a portion passing down through the hole c' into the bottle a' to drive the liquid contents of the bottle up through the tube e into the liquid receiver or chamber d, and the remainder passing through the air-tube 3. The liquid contained in the liquid receiver or chamber d runs down the liquid-tube 2 by gravity, from which it is drawn by the air from the air-tube 3. By arranging the liquid receiver

or chamber above the entrance to the liquid-tube 2, as shown, the liquid may be taken very easily from the said liquid-tube, being assisted by gravity.

The concentric tubes 2 3 are slightly inclined, as represented, with relation to the cylindrical shell b^2, so that when the bottle a is not in use and is placed in its upright position the liquid contained in the liquid-tube 2 will run back into the liquid receiver or chamber d, and any liquid that may have obtained entrance to the air-tube 3 will run back into the air receiver or chamber c, and thence through the hole c' into the bottle. This construction enables the parts to be very readily cleansed in addition to the other advantages before set forth.

Were it not for the fact that the liquid contained in the bottle would be liable to enter the air-tube 3, the plate c^2 might be omitted; or if the device were used by a person understanding its construction this plate c^2 could be omitted, as its only use is to keep the liquid from entering the air-tube.

I do not desire to limit my invention to the particular construction herein shown, as it is obvious that several features may be slightly modified and still retain the spirit and scope of my invention.

I claim—

1. In an atomizer, the combination of the bottle, the liquid-receiving chamber above it, and the connecting conducting-tube, an air-forcing device for forcing the liquid from the bottle into the liquid-receiving chamber, liquid and air atomizing tubes, and atomizing-nozzles, substantially as described.

2. In an atomizer, the combination of a bottle, an air-forcing device, atomizing tubes and nozzles, with the block f', having a passage through it for the spray from the atomizing-nozzle, and the rotatable delivery-nozzle g, borne by said block, substantially as described.

3. In an atomizer, the combination of a bottle, liquid and air receiving chambers, a conducting-tube extending from the bottle up into the liquid chamber, atomizing-tubes leading one from the liquid and the other from the air receiving chamber, and an air-forcing device, substantially as described.

4. In an atomizer, the bottle, liquid and air receiving chambers arranged above it, the upwardly-inclined rigid liquid and air atomizing tubes communicating, respectively, with the said liquid and air receiving chambers, and an air-forcing device, substantially as and for the purpose set forth.

5. In an atomizer, the bottle, atomizing tubes and nozzles, and the projection h, combined with the block f', and rotatable delivery-nozzle g, substantially as described.

6. In an atomizer, the bottle, atomizing tubes and nozzles, and the projection h, combined with the block f', the rotatable delivery-nozzle g, and the spring g^2, located beneath the nozzle g for frictionally holding the nozzle in position, substantially as described.

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

RHODES LOCKWOOD.

Witnesses:
GEO. W. GREGORY,
A. S. WIEGAND.