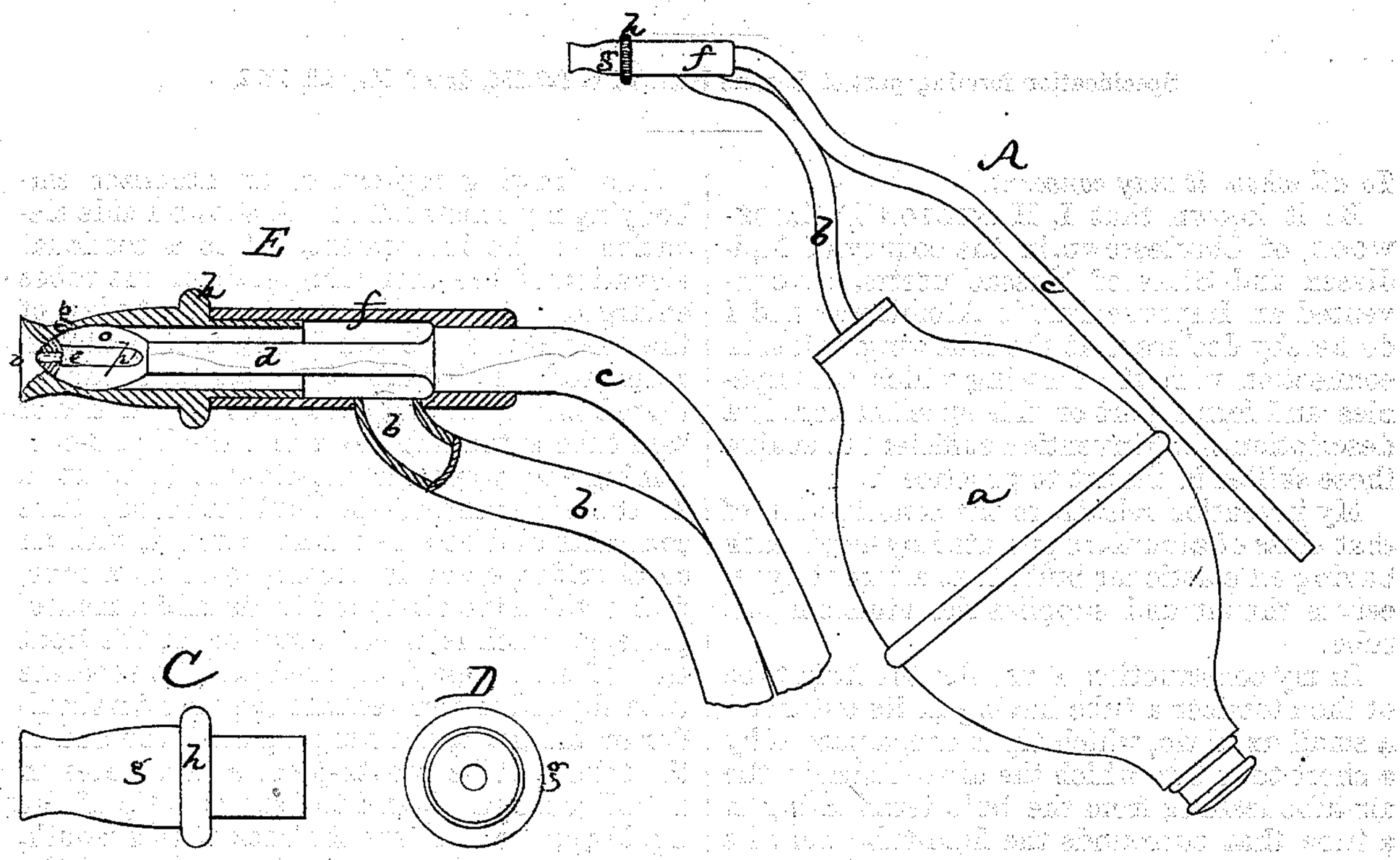
H. D. LOCKWOOD.

Improvement in Atomizers.

No. 127,356. Patented May 28, 1872.



Witnesses.

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127,356

UNITED STATES PATENT OFFICE.

HAMILTON D. LOCKWOOD, OF CHARLESTOWN, MASSACHUSETTS.

IMPROVEMENT IN ATOMIZERS.

Specification forming part of Letters Patent No. 127,356, dated May 28, 1872.

To all whom it may concern:

Be it known that I, HAMILTON D. LOCKWOOD, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Atomizers; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to the construction of that class of atomizers operated by hand, each having an elastic air-bulb, that alternately receives the air and supplies the atomizer air-tube.

In my construction, I use for the fluid-tube of the atomizer a tube having at its outer end a small axial tip, which tip is encompassed by a short tube into which the air-tube leads, the air-tube leading from the bulb terminating in a tube that surrounds the fluid-tube near its end, and having a tubular mouth-piece that encompasses the fluid-tip, the delivery-point of the fluid-tip extending just through the orifice of the air or mouth piece, so that the air ejected by the tube is expelled in fine jets or in a fine annular current around the fluid-orifice, thereby not only causing the rise of the liquid from the liquid-cup into and through the liquid-tube, and its atomization at the mouth of the mouth-piece, but its ejection in more of a diverging sprayey form than in atomizers in which the two orifices are equal in size, or substantially so, and arranged at right angles, or in other atomizers where the air-orifice and liquid-orifice are equally minute and in the same axial line, the liquid-tube leading into a tube into which the air-tube leads, but the axial outlet-orifice from such tube being the orifice alike for ejection of the air and liquid.

My invention consists primarily in an atomizer having, at the atomizing points of the liquid and air tubes, an axial liquid-tip encompassed by a tubular air-tip or mouth-piece, which terminates in a flaring mouth, into the back of which mouth the liquid-orifice enters, leaving around it a thin annular passage or a series of orifices for expulsion of the air, and the atomization and dissipation of the liquid by such expulsion of the air.

The drawing represents an atomizer embodying my construction. A shows a side elevation of the instrument. B is a sectional elevation of the atomizing ends of the tubes enlarged. C is a side and D a front view of the mouth-tube. E and F show modifications. *a* denotes the air-bulb; *b*, the air-tube leading therefrom; *c*, the liquid-tube, the lower end of said tube extending down into the liquid-containing cup when the atomizer is to be used. At the upper end of the liquid-tube said tube contracts and becomes a fine tube, *d*, with an axial orifice, *e*, and is encompassed by a tube, *f*, into which the air-tube *b* leads, and a mouth-piece, *g*, which is a continuation or the front end of said tube *f*, or, preferably, a separate tube slipped or screwed into the tube *f*, a shoulder or flange, *h*, abutting against the end of the tube *f*. The mouth-piece *g* terminates in a flaring mouth, *i*, and the extreme tip of the liquid-tube just enters the back of this mouth, as seen at B, the size of the opening of the throat of the air-tube into its mouth being slightly greater than the diameter of the liquid-tube, tip, or orifice point, leaving a thin annular space around the tip, between it and the inner surface of the air-tube throat. Air being driven from the bulb through the air-tube is ejected through this annular orifice, causing the liquid to rise in the liquid-tube and to pass from its orifice, at which point it is met by the annular current of air which atomizes it, and divergingly spreads the atomized spray or vapor. Instead of this annular orifice, however, the tip of the liquid-tube is preferably made with scores or air-passages parallel to the axis, the tip being enlarged for this purpose, as seen at *a*, or the tip being made without such enlargement, the air-passages may be made through the mouth-piece. At B I show the thin annular passage and the air-outlets *q* slotted down into the mouth-piece. At E I show the air-passages made as grooves, *p*, sunk into the bulb or enlargement *o*. At F I show the air-passages made as holes, *r*, drilled through the bulb or enlargement *o*.

I claim—

1. An atomizer, having an axial liquid-tip, encompassed by an air-expelling tube and

opening into the flaring mouth of such tube, substantially as shown and described.

2. In combination with the axial and encompassed liquid-tip, the air-grooves *q*, holes *r*, or slots *p*, substantially as shown and described.

3. In combination with the axial liquid-tip, the removable air or mouth piece *g*, substantially as shown and described.

H. D. LOCKWOOD.

Witnesses:
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