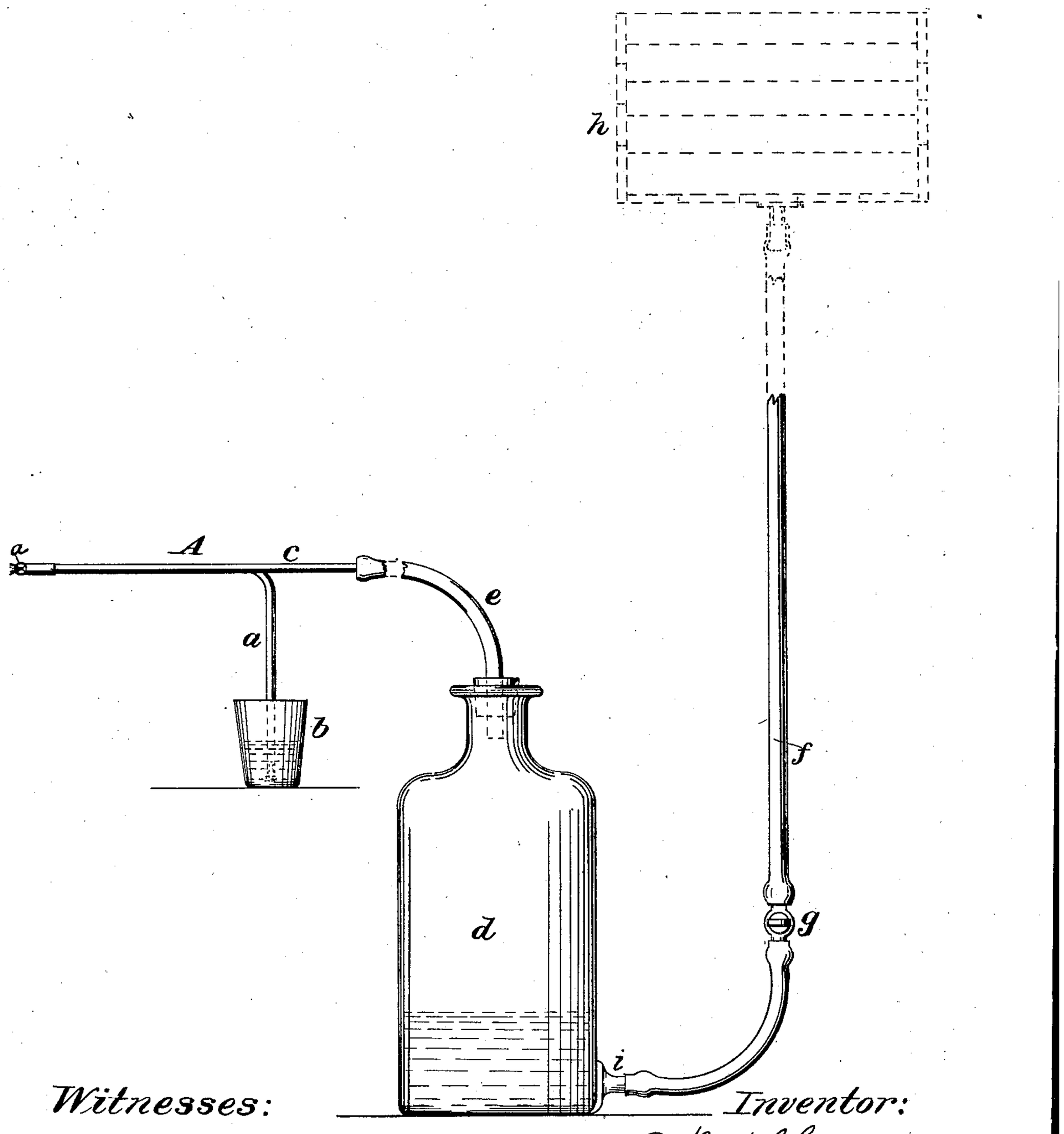
A. M. SHURTLEFF.

APPARATUS FOR ATOMIZING LIQUIDS.

No. 75,208. Patented Mar. 3, 1868.



Witnesses:

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Letters Patent No. 75,208, *dated March* 3, 1868.

IMPROVED APPARATUS FOR ATOMIZING LIQUIDS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, A. M. SHURTLEFF, of Boston, in the county of Suffolk, and State of Massachusetts, have invented an Improved Apparatus for Atomizing Fluids; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

The construction and operation of apparatus for atomizing or nebulizing liquids is now well known to physicians and surgeons, and this invention relates to the method of driving air through the air-tube of such apparatus, to produce the atomization of the fluid at the eduction-orifice of the fluid-tube.

The means now generally employed for this purpose, and in which the forcible expulsion of air at the eduction-orifice of the air-tube effects the atomization of the liquid, are the pressure produced by an air-pump, directly or indirectly connected with the air-tube, which is generally either a piston-pump or an elastic bulb, having suitable inlet and outlet-valves, and sometimes, for simple operations, a simple bulb without valves is connected with the air-tube. These means, however, require more or less manipulation of the operator, and an apparatus has become a desideratum, in which the atomization produced by the ejected air shall be uniform, continuous, and automatic.

For this purpose I connect the atomizing-tubes with the top of an air-vessel, and this vessel with a head of water, in such manner that the pressure of the water from this head, when introduced into the vessel and against the body of air therein, drives the air through the air-tube, and thus atomizes the fluid, and it is in this arrangement or combination of devices, or the method of supplying the current of air to atomizing-tubes, that my invention consists.

The drawing represents an apparatus embodying the invention.

A denotes the atomizing-tubes, made not unlike those in common use, *a* being the fluid-tube, shown as having its induction-mouth in a vessel, *b*, containing the liquid to be atomized, and *c* the air-tube, the outer points of these two tubes having their air and fluid-apertures arranged in immediate juxtaposition, in the well-known manner. The opposite end of the air-tube is connected to an air-vessel, *d*, by a pipe, *e*, or leads directly from said vessel, the joints being made air-tight. Communicating with this air-vessel is a water or fluid-pipe, *f*, whose source of supply is at such distance above the vessel *d* as to create a considerable pressure upon the body of air in the vessel *d*, when a controlling-cock, *g*, is opened. In cities having a supply of water under pressure, the pipe *f* may be a branch from or a continuation of any supply-pipe, and in cities and towns having no such water-pressure, a water-tank, *h*, may be suitably located, and the pipe *f* led directly therefrom to the vessel *d*.

In operating with the apparatus, the cock *g* is opened, when the pressure of the liquid entering the vessel *d* expels air therefrom through the atomizing-tube *c*, and thereby draws the fluid from the vessel *b*, through the tube *a*, and atomizes it at the point of said tube, the atomization going on so long as air is contained within the vessel *d*, and the communication with the water-source is kept open. To re-supply the air-vessel after the air is expelled therefrom, the pipe *f* may be drawn off from the nozzle *i*, or the air-vessel may have a draw-off cock.

It will be obvious that the pipe *f* may enter the vessel *d* at its top, or at any other point, means being of course provided for drawing off the liquid when the air is exhausted. The tubes *a b* are represented in the drawing as of about half the usual size, but the vessel *d* is preferably very much larger in proportion to such tubes than is shown.

I claim, in combination with atomizing-tubes, an air-vessel having means of connection both with the atomizing-tubes and a stationary liquid-head, substantially as set forth.

A. M. SHURTLEFF.

Witnesses:

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