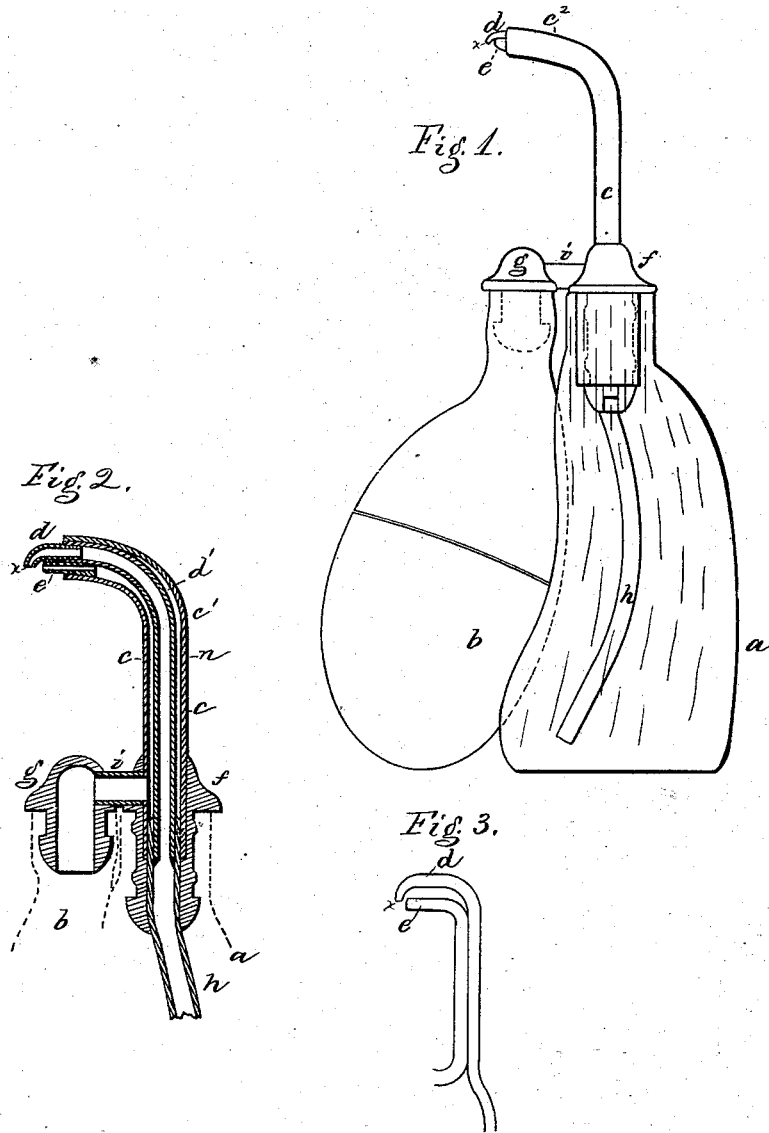


C. WEED.
Atomizer.

No. 160,802.

Patented March 16, 1875.



WITNESSES.
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IMPROVEMENT IN ATOMIZERS.

Specification forming part of Letters Patent No. **160,802**, dated March 16, 1875; application filed February 3, 1875.

To all whom it may concern:

Be it known that I, CHARLES WEED, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Atomizer, of which the following is a specification:

My invention relates to that class of atomizers, in which the current of air for atomizing fluid contained in a vessel or bottle is produced by an elastic bulb, and is an improvement on Patent No. 117,651.

My invention consists in the arrangement, with relation to the bottle or liquid-containing vessel, of the air or atomizing tube and liquid-discharging tube, so that the atomizing-tube, when in operation and held in substantially a vertical position, or slightly inclined from a vertical position in the direction of the bulb, will direct a current or blast of air across the open end of the liquid-discharging nozzle, which is made to slightly overhang the atomizing-tube, and remove the liquid suspended at the discharging end of the fluid-tube; also, in the arrangement of the air or atomizing and liquid tubes within a tube rising from the bottle-stopper, substantially as hereinafter described; also, in the combination, with a liquid-containing vessel and elastic bulb, arranged as herein shown and described, of a pipe rising from the vessel, and projecting forward to any desired distance, and having at its end an atomizing-pipe and an overhanging fluid-discharging pipe, whereby it is possible to introduce the mouth of the atomizer and liquid pipe to any desired position for medical purposes, as in the mouth or nostrils.

Figure 1 is a side view of an atomizer provided with my improvements, and Fig. 2 is an enlarged sectional view of a part of the same, the lower portions being broken away.

In the drawing, *a* represents the liquid-containing bottle or vessel; *b*, the elastic bulb for producing a blast or current of air, both of ordinary construction. A neck-piece, *g*, is fitted in the end of bulb *b*, and is connected by connecting-pipe *i* with the bottle-stopper *f*, preferably having an outer lining of india-rubber. The end *h* of the liquid-tube *d* descends nearly to the bottom of the bottle, and is curved, as shown, so that the bottle may remain in a vertical position, or be somewhat tipped

toward the bulb *b*, and allow the bottom of the tube to remain in the liquid, and it will be noticed that the tube will remain in the liquid until the bottle is turned toward the bulb into almost a horizontal position, and yet the fluid or liquid will not run out of its own accord until the bottle is turned to a horizontal position. Rising from the stopper is an inclosing-tube, *c*, bent at *c'*, and projecting forward substantially in a horizontal position, such horizontal part being designated by the letter *c''*, and it may be of any desired length. Within the inclosing-tube *c* is arranged the liquid-tube *d'*, its discharging-nozzle *d* projecting beyond the inclosing-tube *c*, and being bent downward so as to come opposite or nearly so to the open end of the atomizing-tube *e*, which is located immediately below the liquid-tube, substantially as shown, and yet within the inclosing-tube *c*. The tubes *c d e* are united at the end of *e*, by means of solder or otherwise, so as to furnish a perfectly tight joint. By arranging the end *d* and atomizing-pipe *e* as shown, it will be noticed that the liquid coming from the discharging end *d* will be suspended while it is acted on by the blast of air issuing from the atomizing-tube *e*, and the air will completely and easily detach substantially all the liquid; and there is, it will be also noticed, no opportunity for any liquid to settle down or flow or run back on the liquid-discharging pipe, and there is no opportunity for the liquid to gum or foul on the liquid-discharging pipe, or at the mouth of the atomizing-tube *e*; and as the suspended drops of liquid are easily and effectually removed by the atomizing-tube *e*, arranged just below its overhanging end, it follows that there is no opportunity for the liquid to run back and down on the pipe leading to the bottle. This fouling of the bottle and stopper is a very serious evil in atomizers as heretofore constructed, and by this my arrangement of parts this evil is avoided. The liquid used is often of a very disagreeable nature. These atomizers are often used for treatment of various diseases, wherein it is desirable to apply medicinal liquid or wash to interior portions of the person, and by my new arrangement of parts the horizontal part *c''* need only to be extended or curved in any desired shape, the small over-

hanging discharge-pipe and the atomizing-tube projecting from the end working equally well no matter what is the length of the pipe *c*. There is an air-space, *n*, between the outside of liquid-tube *d'* and inclosing-tube *c*. The atomizing-tube *e* communicates with this space, and air forced from the bulb *b*, through the connecting-pipe *i*, passes through the space *n*, and issues from the atomizing-tube *e*.

The operation of the atomizing-tube to form a vacuum in the tube *d'*, and allow the liquid to rise, is too well understood to need further description.

My invention, as to the location of the discharging-outlet of the liquid-tube with relation to the atomizing-tube, may be carried out by arranging the atomizing-tube *e* as a separate pipe under the liquid-tube *d'*, as in Fig. 3.

The bottle when in use will almost always be kept in a vertical position, or nearly so, as shown in Fig. 1. The liquid is discharged as a spray substantially at right angles to the length of the bottle, and by an atomizing-tube arranged beneath the overhanging end of the liquid-tube. The outlet of the fluid-tube is bent sufficiently below that portion of the tube just back of it, that when the bottle is in a vertical position a drop of fluid at the end of the tube, if not blown off, would not run back on the tube and down to the bottle. The extreme point of the liquid-tube *d* is depressed or turned down so as to overhang the opening in the atomizing-tube. This extreme point I designate as depressed point *x*, and it will be

seen that liquid cannot run back up and outside of it.

Having described my invention I claim—

1. The combination, with the bottle and a fluid-tube rising therefrom, and bent or curved substantially as described, of an atomizing-tube arranged below the overhanging liquid-tube, and adapted to discharge the fluid as a spray, in a direction inclined to the length of the bottle, or the main portion of the tube, substantially as described.

2. The combination, with the bottle, of an atomizer of a fluid-tube having its extreme or outlet end *x* depressed with relation to the remaining portion of the tube, substantially as described, to prevent the flow of the liquid along the outer side of the tube to the bottle, substantially as described.

3. The combination, with the bottle-stopper and the inclosing tube rising therefrom, of the liquid-tube and atomizing-tube, arranged inside the inclosing tube, but projecting from it at top, substantially as shown and described.

4. In combination, the neck *g*, connecting-pipe *i*, stopper *f*, inclosing tube *c*, liquid-tube, and atomizing-tube *e*, substantially as described.

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

CHARLES WEED.

Witnesses:

S. B. KIDDER,

G. W. GREGORY.