(No Model.)

F. A. REICHARDT.

ATOMIZER.

No. 345,659. Patented July 13, 1886.

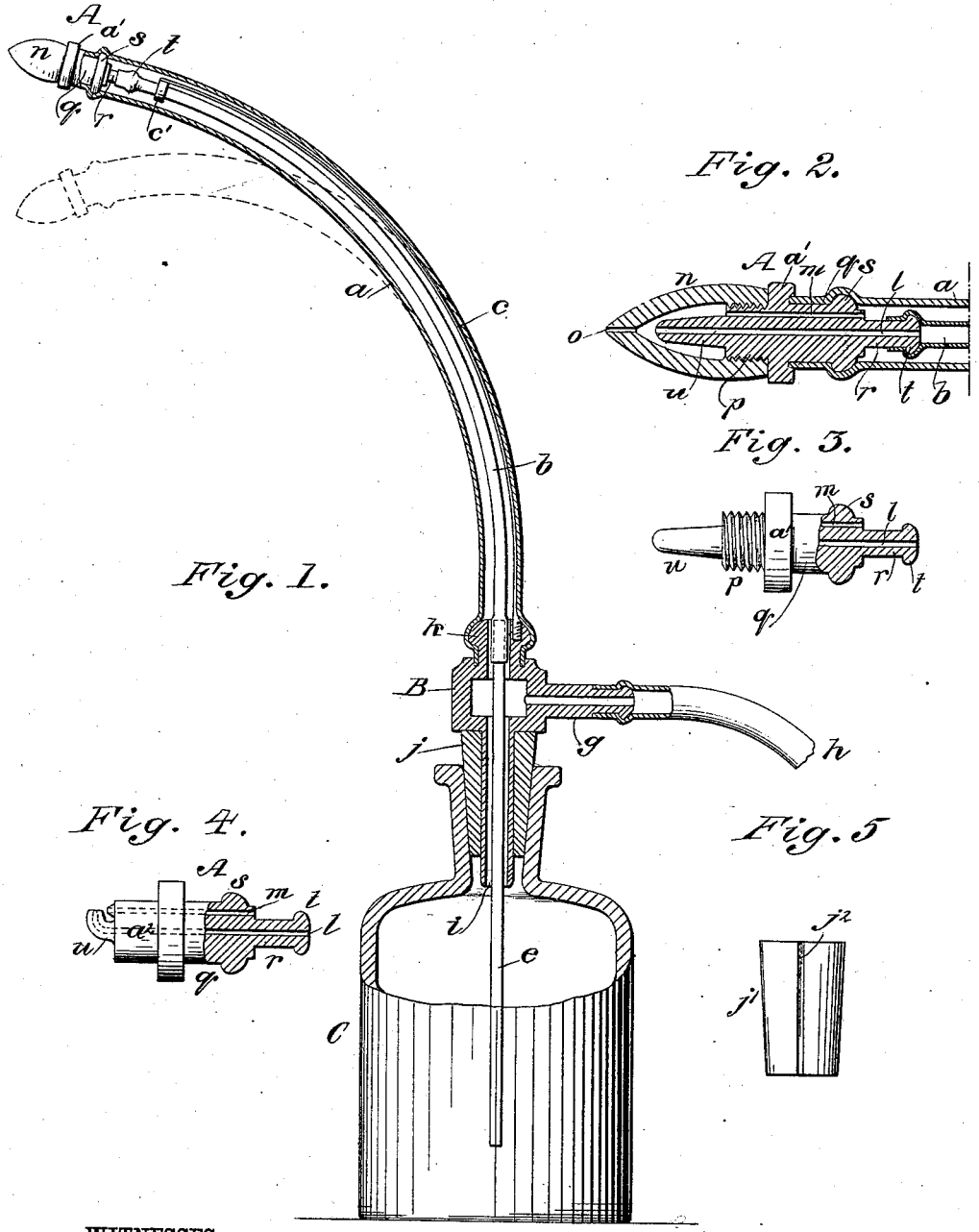

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5

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ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 345,659, dated July 13, 1886.

Application filed January 10, 1884. Renewed January 6, 1886. Serial No. 187,824. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND A. REICHARDT, of the city, county, and State of New York, have invented a new and Improved Atomizer, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of my new and improved atomizer. Fig. 2 is a similar view, enlarged, of the tip of the atomizer-tube. Fig. 3 is a broken side elevation of the body of the atomizing-tip. Fig. 4 is a sectional elevation of a modified form of tip, and Fig. 5 is a front elevation of a grooved stopper to be used with the tip shown in Fig. 4.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

In the drawings, *a* represents an outer tube of soft rubber. Inclosed within this tube *a* is the small tube *b*, also of soft rubber, and the narrow strip *c*, of copper or other flexible non-elastic substance. The outer end of this strip *c*, of metal, is, by preference, formed or provided with the small ring *c'*, which serves to hold the outer end of the inner tube, *b*, in place, as shown in Fig. 1, while at its lower end the strip *c* is screwed into, or otherwise made fast to, the upper end of the shell B, of metal or hard rubber. The lower end of the inner small tube, *b*, is, by preference, attached to the tube *e*, of hard rubber, which reaches down through the shell B into the liquid to be atomized contained in the vessel C. The shell B is formed with the side beaded extension, *g*, to which is attached the tube *h*, coming from a rubber bulb or other air-forcing device, the downward extension *i*, on which the stopper *j* is placed, and the beaded upward extension *k*, on which the lower end of the outer tube, *a*, is placed, as shown in Fig. 1. The outer ends of the tubes *a b* are both adapted to be connected to and detached from the tip A, which is formed with the central passage, *l*, for the liquid and side passage, *m*, for the jet of air.

In the form of tip shown in Figs. 1, 2, and 3, the passages *l* and *m* are covered at their outer ends by the removable cap *n*, which is formed with the orifice *o*, (shown clearly in Fig. 2,) and to facilitate the attachment of the tubes *a b* to the body *a'* of the tip the said body is twice reduced in size, at *q* and *r*, and these reduced portions are formed with the beads *s t*, and the reduced portion *r* is extended backward, as shown clearly in the drawings. At its forward end the body *a'* of the tip A is reduced and extended, as shown at *u*, for carrying the central passage, *l*, in front of the side air-passage, *m*, for atomizing and making a suitable clearance or space within the cap *n* for the mingling of the air and liquid.

In the form of tip shown in Fig. 4 the cap *n* is omitted, and the reduced portion *u* is upturned to bring the outer end of the liquid-passage *l* in front of the air-passage *m* to meet the jet of air forced through passage *m*.

By employing the strip or wire *c* of metal, and making the inner and outer tubes, *a b*, of soft rubber, it will be seen that, by simply bending the strip of metal and tubes, the tubes may be held at any desired curve, as indicated in dotted lines in Fig. 1, and it will be seen that the liquid being atomized cannot come in contact with the strip of metal; and by employing the separate inner and outer tubes, *a b*, and making them separate from and easily detachable from the shell B and tip A, it will be seen that in case either tube becomes damaged or worn out it can be replaced at small cost. Furthermore, by making the tip A separate and easily detachable from the tubes *a b*, the tip may be easily removed for cleaning, or its place easily supplied with a new one when it becomes worn or destroyed from use; and by making the tip A a separate article by itself, and easily applied to the tubes of the atomizer, and making the tubes separate from the shell B, the atomizer as a whole is made very simple and cheap, and the tips and tubes and shell may be manufactured and sold upon the market as separate articles, to be combined by the purchaser.

Instead of employing a jet of air for atomizing the liquid, a steam-jet may be used with my invention with like results, and the separate tip A may be used with metal tubes, if desired.

When the tip shown in Fig. 4 is used, the stopper *j* will be replaced by the stopper *j'*,

(shown in Fig. 5,) which is grooved, as shown at j^2, to admit air to the vessel C to supply the exhaust.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The separate body a' of the atomizing-tip, formed with liquid and air passages l m, and adapted to be attached to and detached from the soft-rubber liquid and air tubes of the atomizer, substantially as set forth.

2. The combination, with the separate tip A and separate tubes a b, of the separate shell B, provided with the upper beaded extension, k, the side beaded extension, g, and the downward extension i, substantially as described.

3. The shell B, provided with the strip c, of flexible non-elastic material, in combination with the flexible tubes a and b and tip A, the tube b and strip c being inclosed in the tube a, substantially as and for the purposes set forth.

4. The body a' of the tip, having the reduced extension r made integral with the tip, substantially as herein shown and described.

5. The body a' of the tip, formed with the reduced portions q r, formed with the beads s t, to receive the soft-rubber air and liquid tubes, substantially as herein shown and described.

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