

(No Model.)

B. F. SUTTON.

ATOMIZER.

No. 318,930.

Patented May 26, 1885.

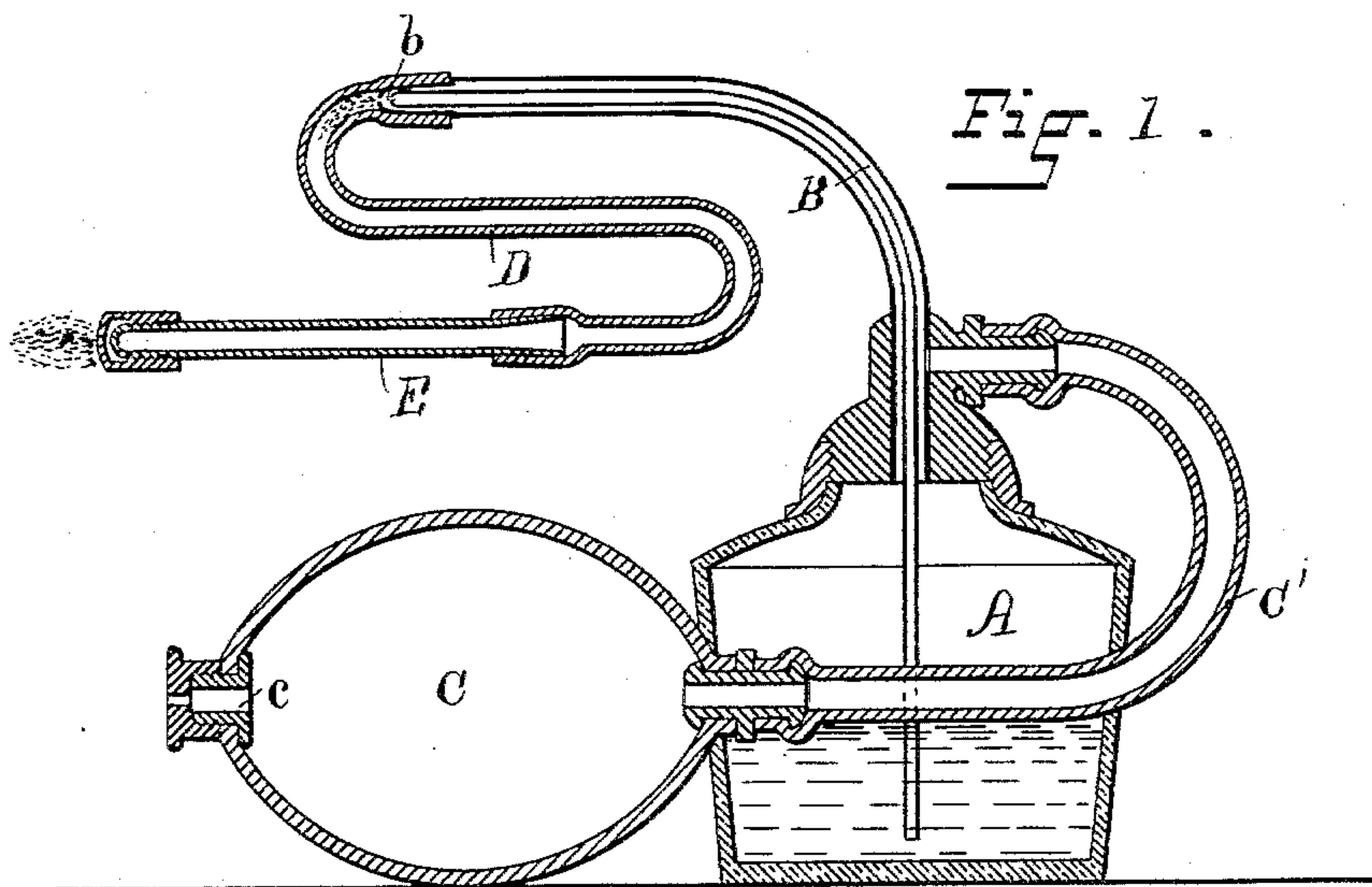


Fig. 2.

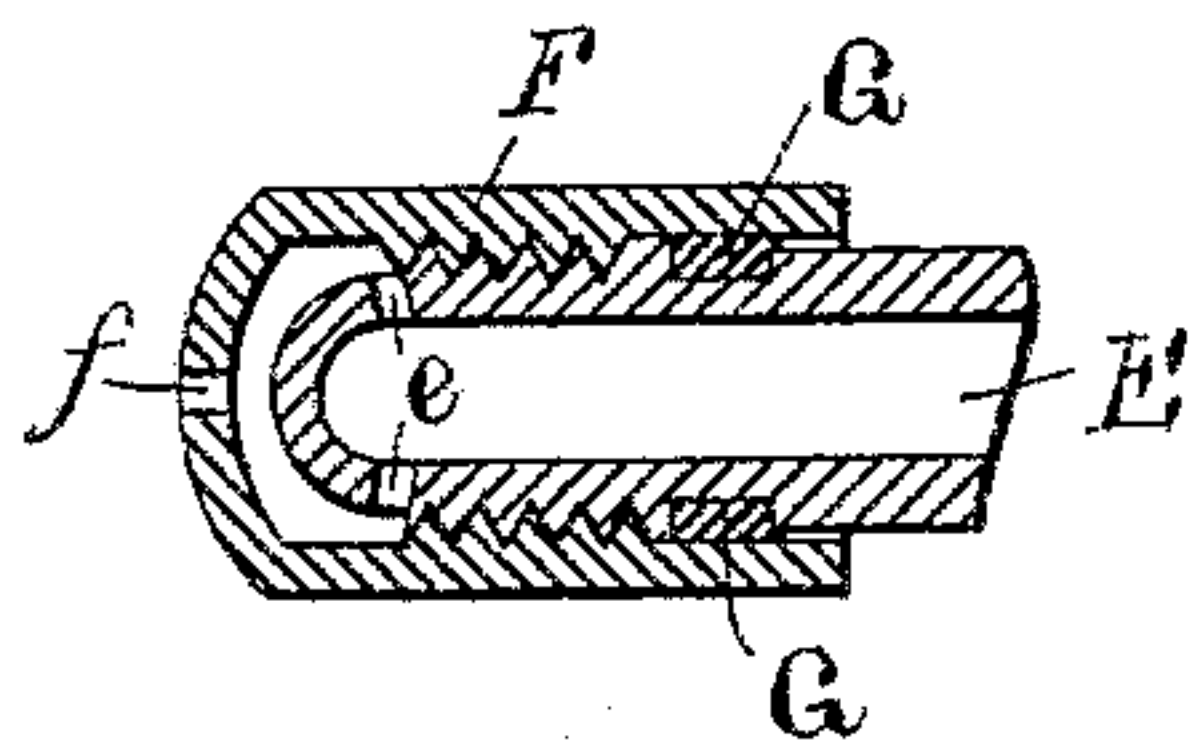


Fig. 3.

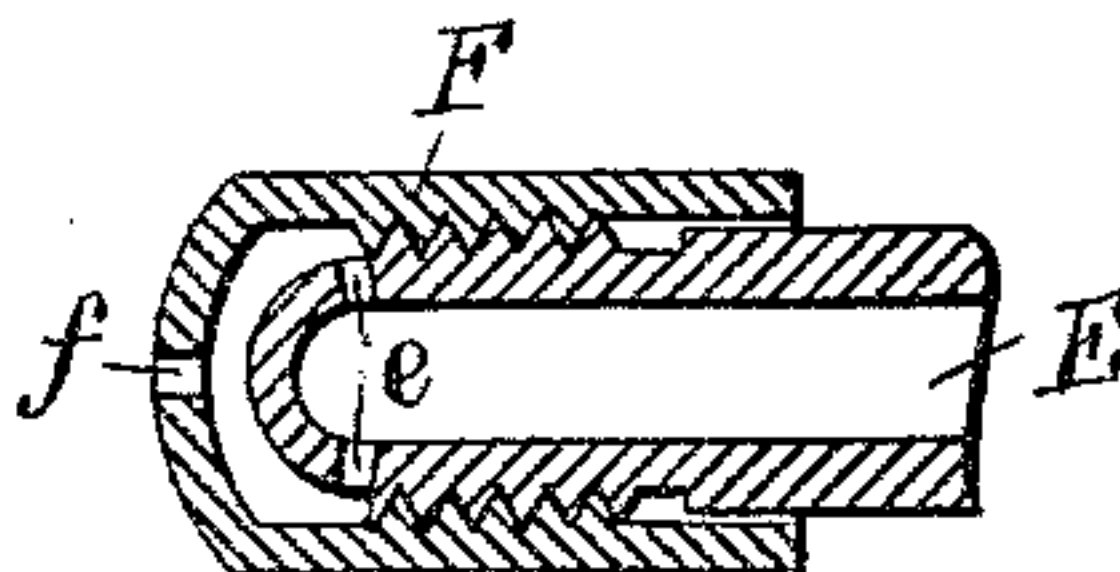
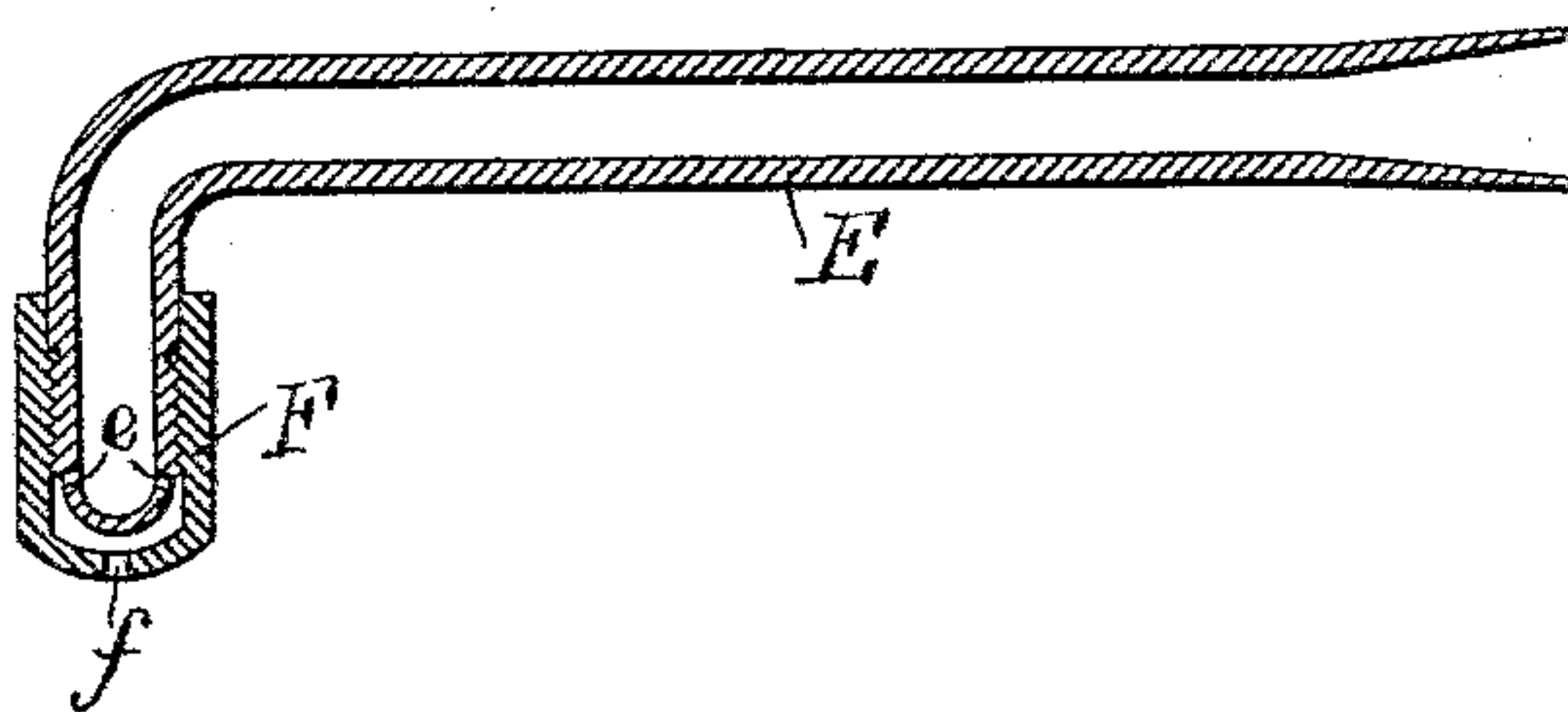


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

BENJAMIN F. SUTTON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE
DAVOL RUBBER COMPANY, OF SAME PLACE.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 318,930, dated May 26, 1885.

Application filed February 17, 1885. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. SUTTON, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Atomizers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The various uses to which atomizers are applied in surgery, dentistry, and other practices, render it desirable that the spray from the atomizer should be varied in fineness and that the mere working of the atomizer be intrusted to an assistant, while the surgeon or dentist devotes his attention solely to the application of the spray to the parts under treatment. Heretofore it has been impossible to vary the fineness of the spray, and the surgeon or dentist has had to work the atomizer as well as apply the spray.

The object of my invention is to provide attachments for atomizers, whereby the spray may be readily varied in fineness, and also whereby the atomizer may be removed sufficiently from the point of application of the spray to permit of an assistant to work the atomizer without interfering with the application of the spray by the surgeon or other person.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a sectional view of an atomizer with my improvements applied. Fig. 2 is a detached sectional view of the adjustable spray-nozzle. Fig. 3 is a similar view of a modified form of the spray-nozzle. Fig. 4 is a similar view of a rigid tube bent at an angle and provided with the adjustable nozzle.

In the said drawings, A designates the bottle or receptacle for holding the liquid, and B designates the pipes through which the liquid is forced out of the receptacle.

C designates the bulb, which is provided

with the induction air-valve *c*, and C' designates the flexible tube leading from the bulb to the pipes B. The outer end of pipes B is contracted and formed with an ordinary spray-nozzle, *b*.

D designates a flexible tube, one end of which is fitted or sprung over the outer end of pipes B, and the opposite end of which is similarly fitted or sprung over one end of a rigid tube, E. The opposite end of tube E is formed with a series of holes, *e*, bored at about right angles to the axis of said tube, so as leave its extremity closed. The outer portion of this end of tube E is screw-threaded, and upon said end is screwed a cap, F, having a single hole, *f*, formed in its end and in line with the longitudinal axis of the cap. As shown in Fig. 2, the tube E is of equal diameter throughout its entire length, and is formed with an annular transverse groove, in which is placed a washer, G. The inner portion of the interior of cap F is smooth and extends over upon washer G, so as to form a tight connection. As shown in Fig. 3, the externally-threaded portion of tube E is reduced in diameter and the internal plain or smooth portion of cap F is enlarged in diameter, so that the enlarged plain portion of the cap works tightly upon the tube E. In Fig. 4 the end of tube E is bent at an angle, so as to throw the spray laterally, and this tube may be provided with either of the arrangements shown in Figs. 2 and 3.

It is essential that the holes *e*, whatever their number, should be bored at an angle to the axis of tube E, and that the hole *f* of cap F should be bored in line with the axis of cap F.

The operation is as follows: When the bulb is squeezed, the liquid and air are forced out of the pipes B and enter the flexible tube D in the form of a partially-condensed spray. In this form the liquid and air also pass through the tubes D and E till they reach the adjustable spray-nozzle, where their passage is resisted by the closed end of the latter tube, and they are abruptly forced out through the holes *e* and into the cap F, by which means the liquid and air are more thoroughly mixed and broken up into a finer spray, in which form they escape through the hole *f*. The nearer the cap

F is adjusted to the end of tube E the finer will be the spray. In the case of volatile liquids the cap may be screwed well up against the end of tube E, and thus tightly close the same, so as to prevent leakage or evaporation. By thus connecting the rigid tubes B and E by the flexible tube D, a length of several feet can be attained without impairing the action of the atomizer.

10 In cases of throat diseases the rigid tube E may be connected directly to the pipes B, the flexible tube D being dispensed with.

Thus the fineness of the spray may be readily increased or decreased, and the atomizer is 15 capable of operating in varying conditions of treatment.

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

1. An improved spray-nozzle for atomizers, 20 composed of a discharge-nozzle having one or more lateral openings, and a cap having a perforation in its end, the said nozzle and cap with their perforations being constructed to break up the combined air and liquid, as described. 25

2. The combination, with the tube E, pro-

vided with one or more lateral openings, of the adjustable perforated cap F.

3. The combination, with the tube E, provided with one or more lateral openings and 30 the perforated cap F, of the flexible tube D, constructed to connect the said tube E with an atomizer, as described.

4. The combination, with a tube having a spray-nozzle and attached to an atomizer receptacle, of a second tube having also a spray-nozzle and a flexible extension-tube for connecting the two tubes together, substantially 35 as described.

5. The combination, with the atomizer having the discharge-pipes with the spray-nozzle, of the flexible tube fitting at one end over the spray-nozzle, the rigid tube closed at one end and formed with the holes *e*, and the screw-cap working upon the closed end of the rigid 45 tube and formed with a hole, *f*, as specified.

In witness whereof I have hereunto set my hand.

BENJAMIN F. SUTTON.

Witnesses:

J. A. MILLER, Jr.,
M. F. BLIGH.