

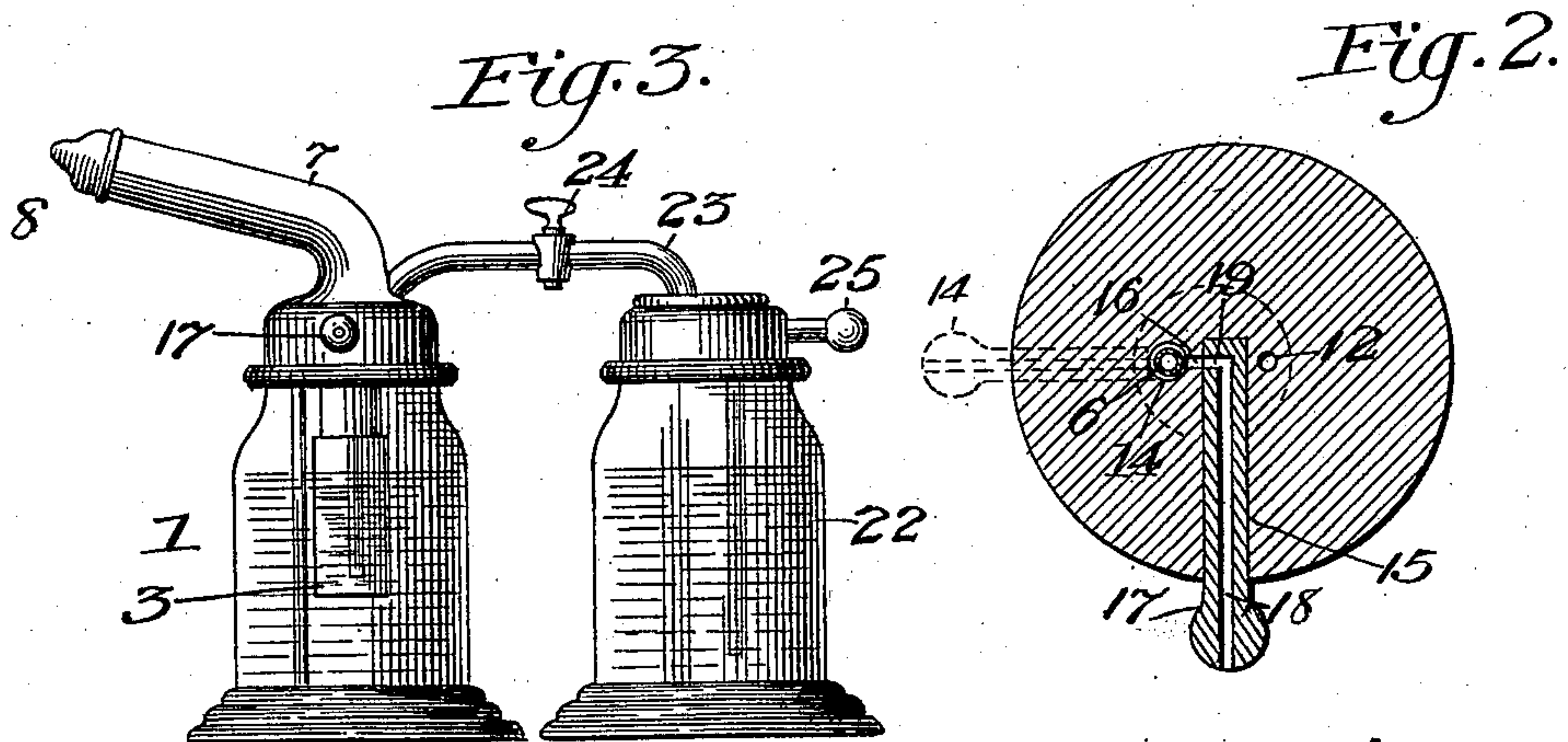
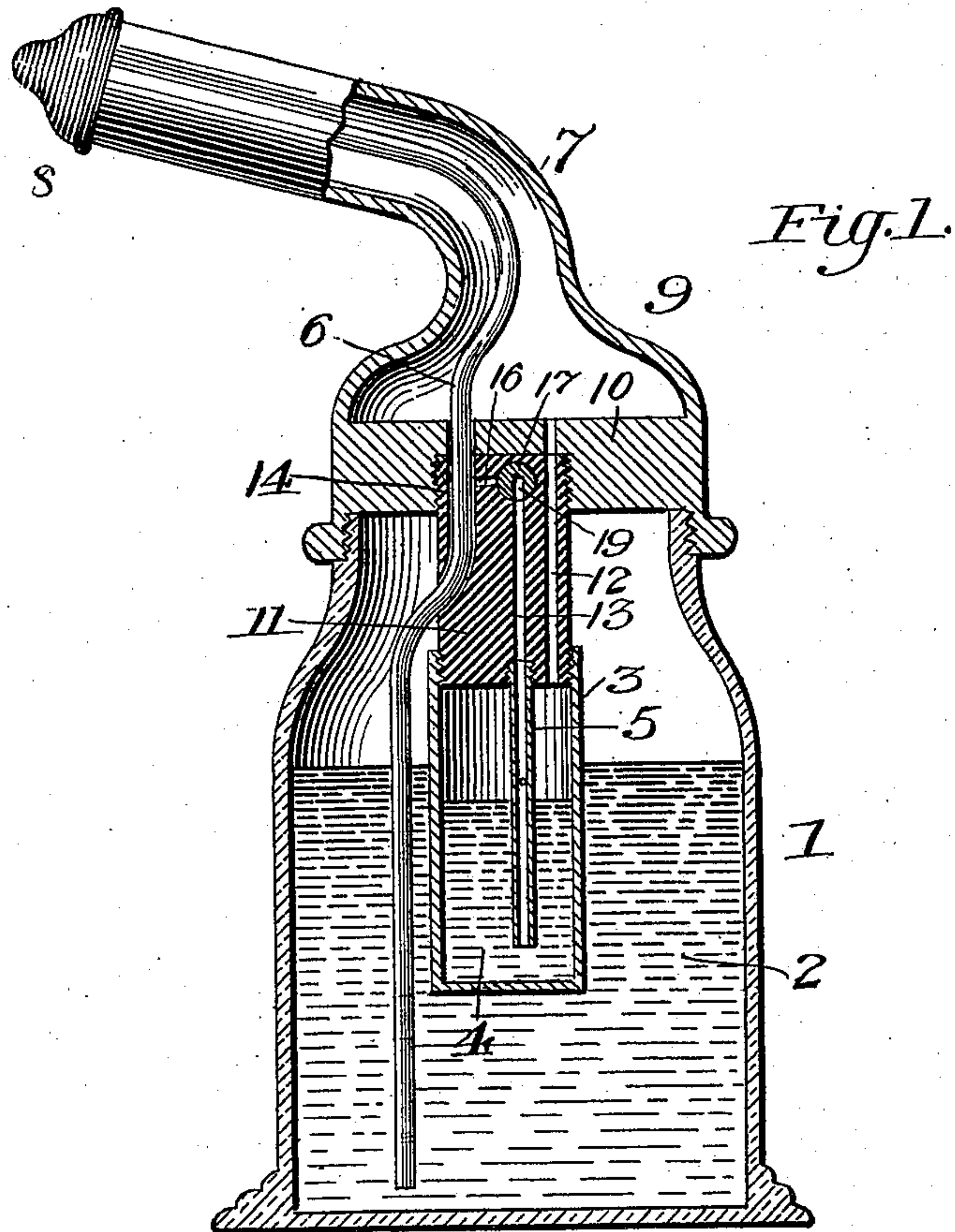
No. 692,721.

Patented Feb. 4, 1902.

C. J. SELTZER.  
ATOMIZER.

(Application filed May 11, 1900. Renewed Dec. 24, 1901.)

(No Model.)



Witnesses:  
D. W. Edelin.  
Chas. H. Baker.

Inventor:  
Cyrus J. Seltzer  
by E. W. Ayres atty



# UNITED STATES PATENT OFFICE.

CYRUS JAY SELTZER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
GEORGE WOODWARD, OF PHILADELPHIA, PENNSYLVANIA.

## ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 692,721, dated February 4, 1902.

Application filed May 11, 1900. Renewed December 24, 1901. Serial No. 87,048. (No model.)

*To all whom it may concern:*

Be it known that I, CYRUS JAY SELTZER, of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in a Combined Atomizer and Nebulizer, of which the following is a specification.

My invention relates to a combined atomizer and nebulizer—that is to say, to an apparatus from which liquid may be ejected either in the form of a jet or spray or in a nebulous or cloudy condition; and it consists in the mechanism as hereinafter described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a central vertical sectional view of my combined atomizer and nebulizer. Fig. 2 is a horizontal section on the line *x x* of Fig. 1. Fig. 3 shows an attachment to my combined atomizer and nebulizer by means of which oxygen or other gas or a vapor may be commingled with either the atomized or the nebulized fluid.

Like figures of reference indicate like parts in each view.

1 is an outer receptacle for the liquid 2 to be atomized.

3 is an inner receptacle for the liquid 4 to be nebulized.

5 is any usual form of nebulizing-tube.

6 and 7 are respectively the well-known form of inner and outer atomizer-tubes and are provided with a detachable tip 8.

The cap 9 is provided with a portion 10, having an aperture in which is secured the block 11. The block 11 is provided with three substantially longitudinally arranged passages 12, 13, and 14 and also with a recess or passage 15, intersecting the passage 13 at its top. The block is also provided with a short passage 16, connecting passages 14 and 15 and arranged with its axis in the plane containing the axes of passages 13 and 14. A three-way cock 17 is rotatably mounted in the passage 15 and is provided with a passage 18 and an orifice 19, opening from the periphery of the cock to the passage 18. The orifice 19 is so arranged or positioned that by rotating the cock 17 communication can be established either between the passages 18 and 13 or between passages 18 and 14. The

usual inner atomizer-tube 6 passes through the passage 14, sufficient space being left between the exterior of the tube and the walls of the passage to provide an air-passage. 55

The operation of my above-described modified form of combined atomizer and nebulizer is as follows: When operating as a nebulizer, the tip 8 is removed. The cock 17 is turned in the position shown in Fig. 1 of the drawings, with the inner end of passage 18 communicating through orifice 19 with passage 13, the outer end of passage being arranged in communication with the ordinary form of atomizer-bulb or other suitable air-supply. Air 65 is then forced in through passage 18, orifice 19, and passage 13 to the nebulizer-tube 5 and nebulizes portions of the liquid in receptacle 3. The nebulized liquid then issues from said receptacle through passage 12 and tube 7. 70 When it is desired to use the apparatus as an atomizer, the tip 8 is secured in place. The cock 17 is turned through an angle of ninety degrees from the position shown in Fig. 1, thus bringing the orifice 19 into position to establish communication between passages 18 and 14. (See Fig. 2.) Air is then forced through passage 18 and orifice 19 into the passage 14. Here a portion of the air flows upwardly through the outer tube 7 and escapes 80 through the tip by means of the passages provided by the flattened sides of the end of tube 6. The other portion of the air passes downwardly through passage 14 into the receptacle 1, where it exerts a sufficient pressure on the liquid contained therein to force a portion of it up through tube 6 into the tip 8. The air passing through the tip sprays the liquid in the well-known manner. If desired, the element can be rigidly secured in the position 90 illustrated in Fig. 1, in which case it could be employed only for supplying air to the nebulizer-tube 5. This would necessitate the use of an additional nipple 21 (shown in broken lines in Fig. 2) for establishing connection between the air-supply and the channel 14. With this arrangement of two nipples the nipple not in use should be stopped with the hand or by a plug to prevent a wasteful escape of air therethrough. 100

Referring to Fig. 3, the left-hand receptacle is identical with that shown in Fig. 1, the



corresponding parts in the two figures being designated by similar numerals. At the right in Fig. 3 I show an attachment by means of which a gas or vapor may be commingled with the atomized or nebulized liquid issuing, respectively, from receptacles 1 or 3. If it be desired to employ a gas, such as oxygen, in this manner, suitable reagents for producing it are placed in the vessel 22, and the gas so produced is led to the interior of cap 9 by means of the connecting-tube 23, provided with a regulating-cock 24. 25 is a nipple by means of which air can be forced through tube 65 into vessel 47 whenever necessary or desirable in the production of a gas.

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

1. In a combined atomizer and nebulizer, an outer receptacle for containing liquid to be atomized, a cap secured to the receptacle and provided with an apertured portion 10, an outer atomizer-tube secured to said cap and in communication with said aperture in the portion 10, a block closely fitting in said aperture, an inner receptacle for containing liquid to be nebulized carried by the block, said block being provided with a passage connecting the inner receptacle and the aperture and with a second passage connecting the outer receptacle and the aperture, an inner atomizer-tube in the outer receptacle and passing through said second passage into the outer atomizer-tube, said block being provided with a third passage extending from the interior of the block into communication with the inner receptacle and with a passage connecting said second and third passages, a three-way cock arranged to connect a fluid-pressure supply with either said second or said third passage, and a detachable tip car-

ried at the outer ends of the inner and outer atomizer-tubes.

2. In a combined atomizer and nebulizer, a cap 9 having an apertured portion 10, a block 11 extending through said aperture and secured therein by an air-tight connection, a receptacle 1 for containing the liquid to be atomized secured to the bottom of said cap, a receptacle 3 for the liquid to be nebulized located within receptacle 1 and secured to the bottom of the block 11, said block provided with passages 12 and 13 arranged with their lower ends in communication with the interior of receptacle 3, a nebulizer-tube 5 within receptacle 3 and arranged with its air-passage in communication with passage 13, said block being provided with passages 14 and 15 and an aperture 16, the passage 14 arranged with its lower end in communication with receptacle 1, the passage 15 arranged in communication with passage 13, the aperture 16 connecting passages 13 and 14, a three-way cock 17 rotatably mounted in said passage 15 and provided with passages 18 and 19, a discharge-tube 7 carried by the cap 9 and communicating therewith above the portion 10, a liquid-tube 6 of smaller external diameter than the passage 14 and arranged to pass through said passage, said tube 6 arranged with its lower end suitably located within receptacle 1, and its upper end extending within outlet-tube 7, and a spray-tip suitably connected to the upper ends of tubes 6 and 7, substantially as described.

In testimony whereof I hereunto set my hand, this 5th day of May, 1900, in the presence of two attesting witnesses.

CYRUS JAY SELTZER.

Witnesses:

EDWARD LEWIS,

HENRY B. McLAUGHLIN.