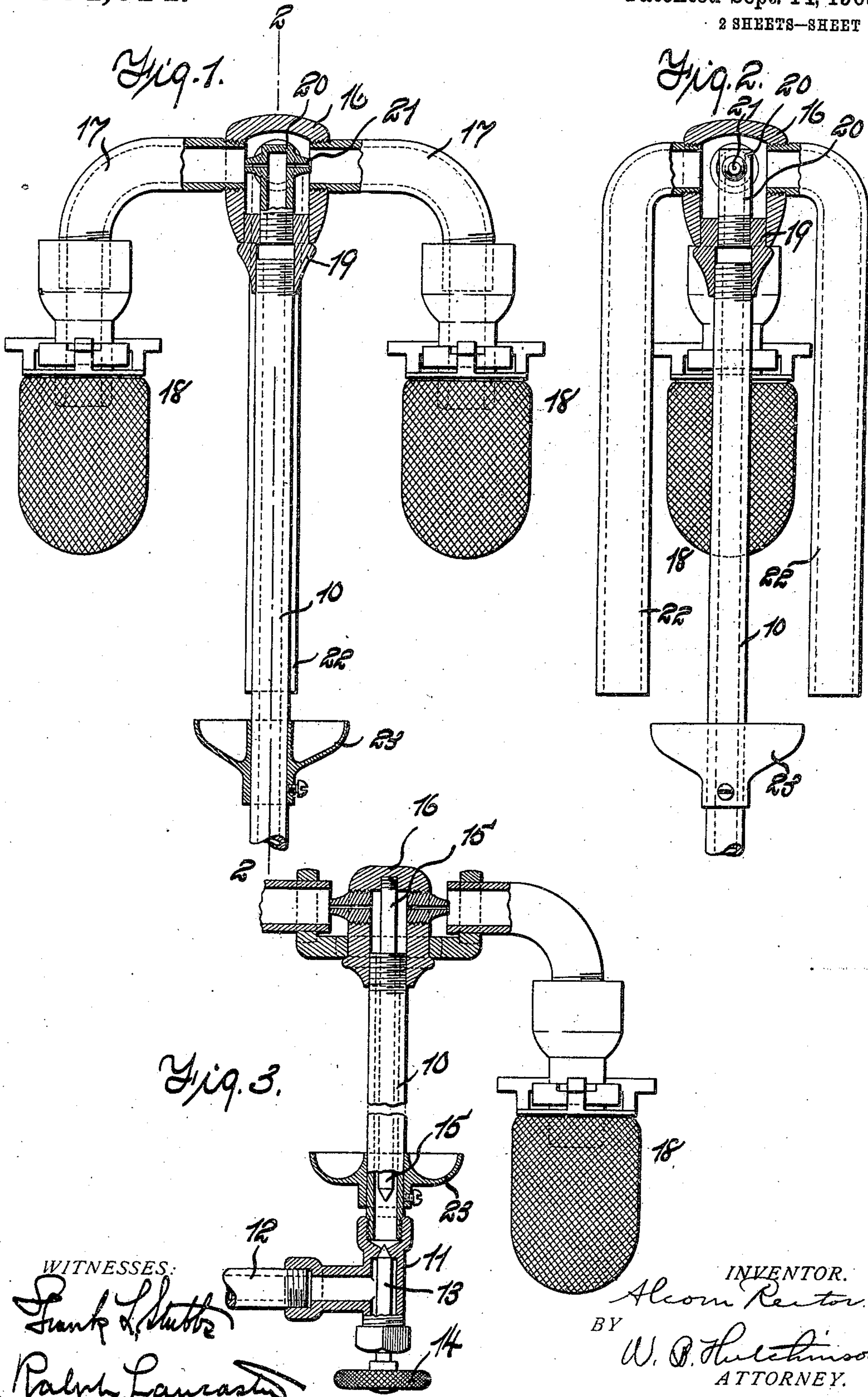


A. RECTOR.  
ALCOHOL LAMP.  
APPLICATION FILED MAR. 26, 1907.

934,014.

Patented Sept. 14, 1909.  
2 SHEETS—SHEET 1.



WITNESSES:

*Frank L. Luntz*  
*Ralph Lancaster*

INVENTOR.

*Alcorn Rector*  
BY *W. O. Hutchinson*  
ATTORNEY.



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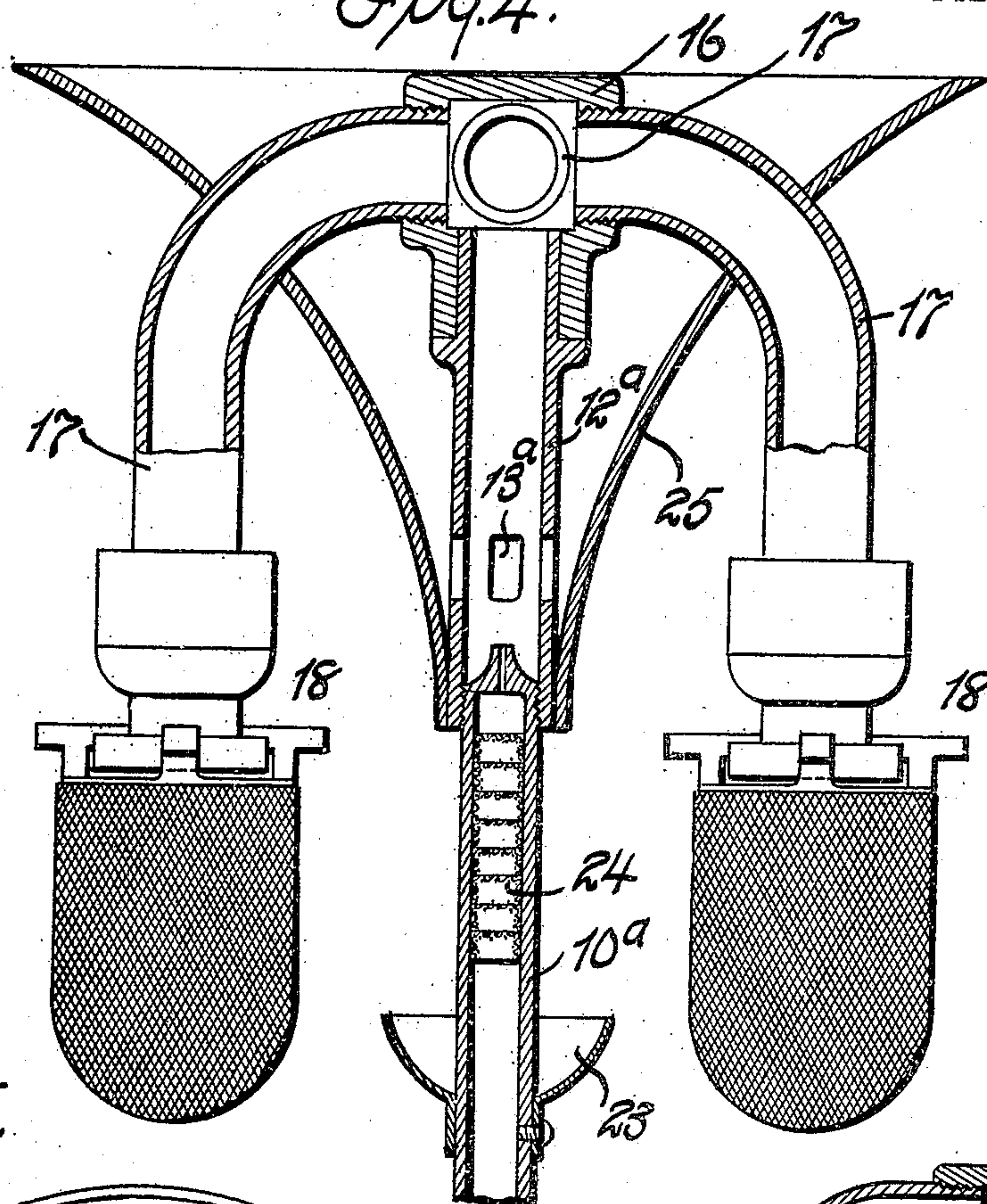
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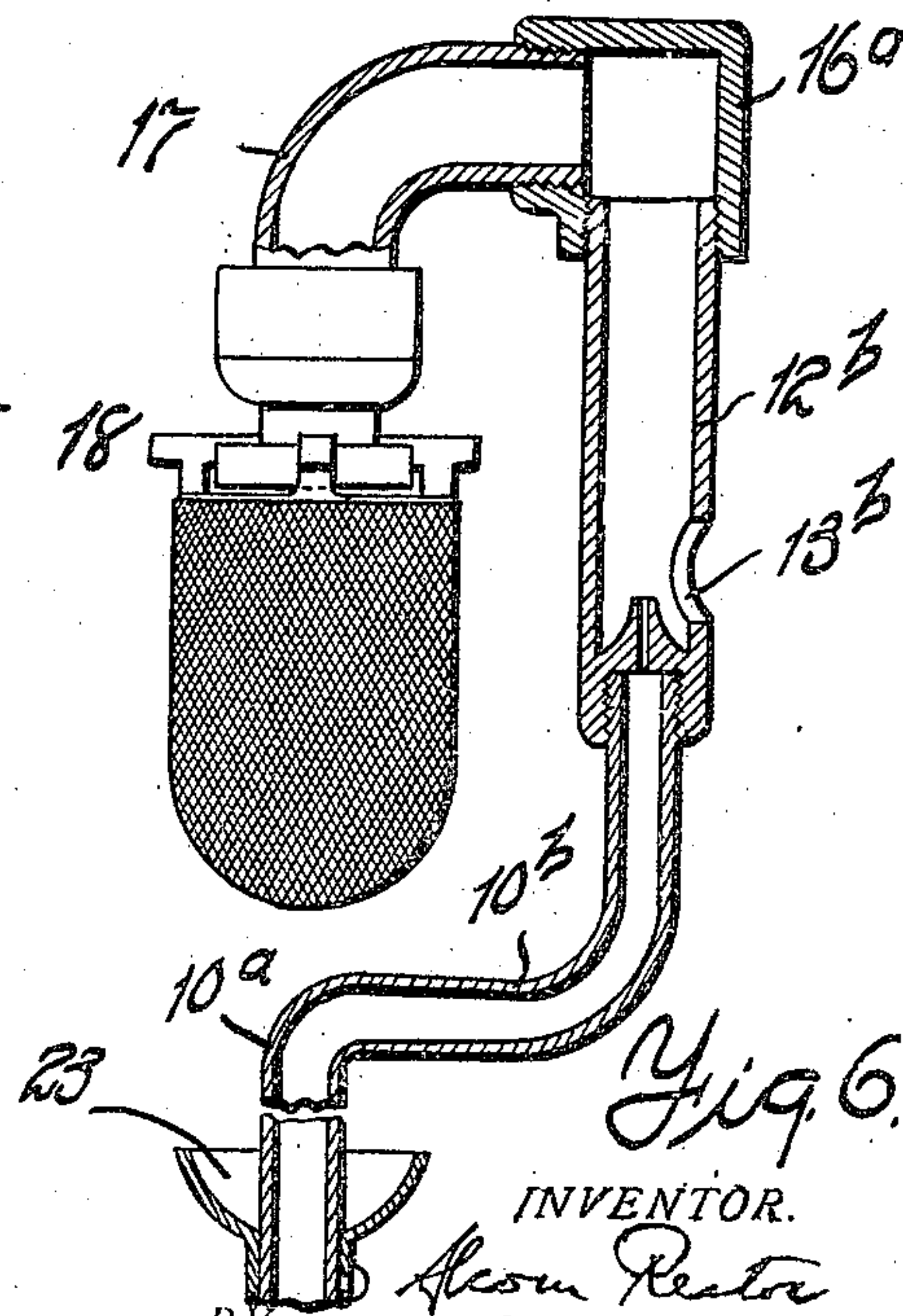
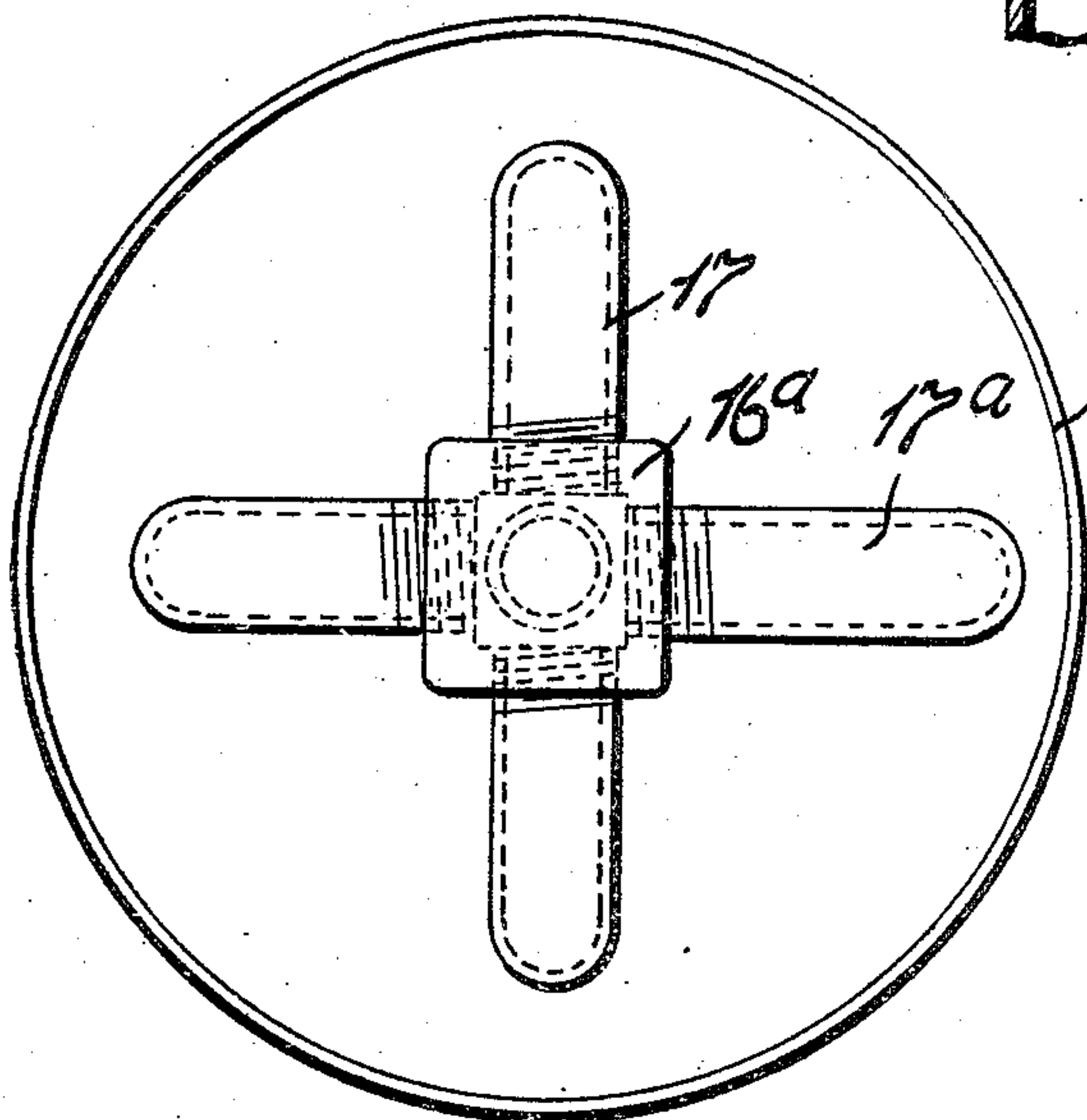
Patented Sept. 14, 1909.

2 SHEETS—SHEET 2.

*Fig. 4.*



*Fig. 5.*



*Fig. 6.*

WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALCORN RECTOR, OF NEW YORK, N. Y., ASSIGNOR TO WARREN B. HUTCHINSON, TRUSTEE, OF NEW YORK, N. Y.

## ALCOHOL-LAMP.

934,014.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed March 26, 1907. Serial No. 364,612.

*To all whom it may concern:*

Be it known that I, ALCORN RECTOR, of the city, county, and State of New York, have invented a new and useful Improvement in Alcohol-Lamps, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of lamps which is adapted to burn alcohol or other liquid, and which is constructed so as to vaporize the liquid and burn it in gaseous form.

The object of my invention is to produce a simple device of this character, which utilizes an incandescent mantle such as is used in incandescent gas lamps, and I have shown means for carrying out my invention in connection with a simple form of mantle lamp.

A further object of my invention is to provide a simple and efficient means of initially vaporizing the liquid so as to start the lamp, and to provide an efficient means of continuing the vaporization so that the liquid will be highly heated and consequently highly gasified so that it will burn readily in the mantles in the form of a gas.

With these ends in view and with the general object of producing an efficient alcohol burning lamp, my invention consists of certain features of construction and combinations of parts which will be hereinafter described and claimed.

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

Figure 1 is a sectional elevation with parts broken away, of the lamp showing my improvements. Fig. 2 is a side elevation partly in vertical section, the view being taken at right angles to that shown in Fig. 1, and partly on the line 2—2 of Fig. 1. Fig. 3 is a broken vertical section of the lamp showing means for regulating the in-flow of alcohol or other liquid or fluid. Fig. 4 is a vertical section of a modified form of the lamp. Fig. 5 is a plan of the lamp shown in Fig. 4, and Fig. 6 is a broken vertical section of another modification of the lamp.

The lamp is provided with a vertical stem 10, which can receive its supply of liquid or fluid in any convenient way, but which is preferably screwed into an elbow pipe 11, connecting with a supply pipe 12, and hav-

ing a valve 13 with a suitable handle 14 to regulate the supply to the stem 10. The stem 10 delivers at its upper end into a suitable head 16, from opposite sides of which extend the curved pipes 17 which discharge into the mantles 18, these being of the inverted type as shown, but the particular arrangement of the pipes 17 and the number of them, can be changed at will without affecting the principle of the invention, though they should curve downward so that the mantles 18 can serve as heating mediums for the fluid or liquid passing through the stem 10. I have shown the stem choked by means of a rod 15 which is secured in the head 16 and extends downward into the stem 10, but any suitable choking means can be employed.

The connection between the head 16 and the stem 10 is preferably by a suitable nipple 19, which is fastened to the top of the stem 10, preferably by screwing, and the head 16 fits on over the nipple 19 and may simply slide on as shown, or it may be screwed or otherwise fastened. Within the head 16 is a short pipe 20 which is secured in the nipple 19, and this has jet openings 21 of small size, discharging into the pipes 17, and the object of the arrangement is to cause a jet of the gaseous fuel to pass well into the pipes 17 and downward into the mantle 18 with sufficient force to burn readily in the mantle.

In order that the lamp may burn well, it is necessary to have a supply of heated air, and this I provide for by arranging drop pipes 22 adjacent to the mantles and parallel with the stem 10, the pipes being also connected with the head 16 at right angles to the pipes 17. To provide for the initial heat I arrange an alcohol cup 23 on the stem 10, at a point below the mantle and below the air in-take pipes 22. When the lamp is to be started a small supply of fuel is admitted by means of the valve 14, and the alcohol in the cup 23 is ignited. The heat from this vaporizes the alcohol or other fuel which passes up through the stem 10, and it also heats the pipes 22 and the air which passes through them. The gaseous fuel is lighted at the mantles as usual, and after a moment the heat from the mantles continues the vaporization of the fuel in the pipe 10 and the heating of air in the pipes 22, and it will be seen that the head 16 will serve as a sort



of mixing chamber, and the intruding hot air and gaseous fuel will mingle and pass through the pipe 17 together.

Obviously there can be any desired number of pipes 17 and pipes 22, and it will of course be understood that the mantles 18 can be connected to the pipes 17 in any usual or preferred way without affecting the principle of the invention. I have shown the common form of connecting the mantles to the pipes 17, but have not described it, as this has nothing to do with my present invention.

In Figs. 4 and 5 I have shown a lamp in which the stem or pipe 10<sup>a</sup> is choked with screens 24, and the pipe 10<sup>a</sup> delivers into a Bunsen tube 12<sup>a</sup>, having holes 13<sup>a</sup>, and this discharges into the head 16, as in the other structure, but the tubes 17 connect directly with the head, and the fuel is vaporized in the part 10<sup>a</sup>. A hood or shield 25 which is open at the top, and through the walls of which extend the tubes 17, is secured to the lower end of the Bunsen tube 12<sup>a</sup> beneath the air openings 13<sup>a</sup>, and this hood can be supported in any convenient way. It serves to prevent the air which enters the Bunsen tube from being vitiated by the mantles, and permits fresh air to be drawn down in through the hood 25 and into the Bunsen tube.

In Fig. 6 I have shown a slight modification in which the same effect is reached by providing the Bunsen tube 12<sup>b</sup> with an opening 13<sup>b</sup> for air, and connecting this with the bent end 10<sup>a</sup> of the pipe 10. The mantle 18 is supported opposite the closed side of the Bunsen tube 12<sup>b</sup>, and so fresh air can enter through the opening 13<sup>b</sup>, while the heat of the mantle will serve to vaporize or gasify the fuel as it passes to the lamp.

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

A lamp of the kind described, comprising a fuel supply stem, a nipple on the upper end of the stem, a head detachably secured to the nipple, said head having a chamber within it, pipes leading from the head and carrying mantles which are held in position to heat the stem, air inlet pipes held within the high heat zone of the mantles and leading into the head, and a jet pipe secured in the nipple in alinement with the stem and having jet openings discharging into the mantle pipes.

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Witnesses:

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