

No. 639,783.

Patented Dec. 26, 1899.

W. SOMERVILLE & A. PULLIS.
VAPOR LAMP.

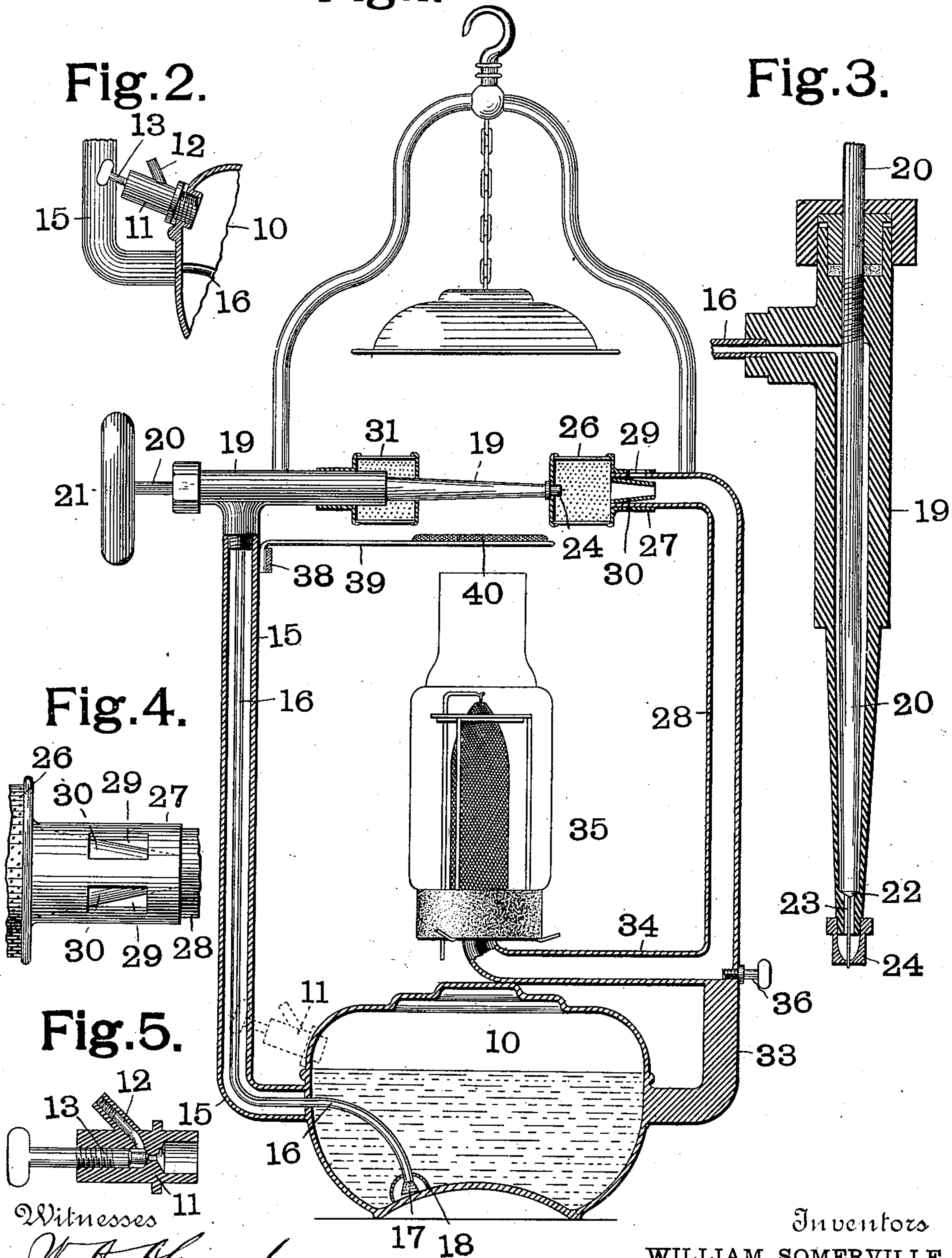
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(No Model.)

Fig.1.

Fig.2.

Fig.3.



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VAPOR-LAMP.

SPECIFICATION forming part of Letters Patent No. 639,783, dated December 26, 1899.

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To all whom it may concern:

Be it known that we, WILLIAM SOMERVILLE and AUGUSTUS PULLIS, citizens of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Vapor-Lamp, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Our improvement relates to that class of lamps in which a vapor-producing oil is driven by air or other pressure through a vaporizer and is then burned in an incandescent burner arranged below said vaporizer; and our invention is designed to provide a lamp of this class which will be economical and safe in burning and not likely to get out of order.

To these ends the invention consists in the peculiar construction hereinafter more particularly described and then definitely claimed at the end hereof.

In the accompanying drawings, which illustrate one form of lamp made in accordance with our invention, Figure 1 is a view, partly in elevation and partly in section. Fig. 2 is a section showing a detail of construction. Fig. 3 is a longitudinal section of the generator. Fig. 4 is an enlarged side view of a portion of the air-mixer, and Fig. 5 is a section of a detail.

Like marks of reference refer to similar parts in the several views of the drawings.

10 represents the oil-fount. In a suitable opening some distance below the top of the oil-fount 10 is screwed a plug 11. Projecting from the plug 11 is an air-tube 12, which is closed by a suitable valve 13. Secured to the fount 10 is a tube 15, in the interior of which is a smaller pipe 16. The pipe 16 enters the oil-fount 10 and terminates in a perforated end 17. The perforated end 17 is preferably inclosed in a covering 18, of wire-gauze or similar material. The pipe 16 communicates with the generator 19, which is carried by the tube 15. Passing through the generator 19 is a valve-stem 20, which is operated by a suitable hand-wheel 21. The end of the valve-stem 20 seats against a valve-seat 22 in the generator 19 and is provided with a pin or needle 23, which projects through an opening

in the generator-cap 24 when the end of the valve is in position against its seat 22.

26 is a perforated cylinder, one end of which is entered by the end of the generator-cap 24. The opposite end of the cylinder 26 is provided with a sleeve 27, which slides over the end of a tube 28. The sleeve 27 and tube 28 are provided with openings 29, which can be brought into and out of register by rotating the sleeve upon the tube. In the interior of the tube 28 is a cone-shaped member 30, which projects a slight distance beyond the end of the openings 29. We prefer to place upon the generator 19 a perforated cylinder 31, similar to the cylinder 26, in order to give the lamp a more symmetrical appearance. This cylinder, however, is of no use and is placed upon the lamp merely for appearance. The tube 28 is carried by an arm 33, which is attached to the oil-fount 10. A tube 34 projects laterally from the tube 28 and carries upon its upturned end a suitable burner 35, preferably of the Welsbach type.

The burner 35 is preferably made to slip over the end of the pipe 34 so as to be readily removable. In the lower end of the tube 28 is a screw-plug 36, which may be removed to drain the tubes 28 and 34. On the tube 15 is secured a suitable loop 38, in which can be placed the end of a wire 39, to which is secured a pad 40 of some suitable material, such as asbestos, inclosed in wire-gauze, which can be saturated with oil and ignited to start the generator 19.

The operation of our lamp is as follows: The plug 11 is unscrewed from the fount 10 in order to fill the lamp. Gasolene is then poured into the lamp. The fount, however, cannot be filled above the bottom of the opening left by unscrewing the plug 11, and hence there will be ample space above the oil for sufficient compressed air to drive all the oil to the generator. The plug 11 is then replaced and air is forced into the fount 10 through the air-tube 12 by means of a suitable air-pump, such as an ordinary bicycle-pump. As soon as a pressure of about four or five pounds per square inch is obtained the tube 12 is closed by means of the valve 13. To start the lamp, the pad 40 is saturated with gasolene or other suitable oil and secured under the generator 19 by inserting the end

of the wire 39 in the bracket 38. The pad can now be ignited and be allowed to burn under the generator until the generator is hot enough to vaporize any gasoline passing through it. The pad 40 may now be removed. By now rotating the wheel 21 the end of the valve-stem 20 is withdrawn from the seat 22, and the pressure in the fount 10 drives the gasoline up through the pipe 16 and into the generator 19, where it is converted into vapor. The vapor passes from the small opening in the cap 24 through the cylinder 26, where it is to a certain extent mixed with air. As it passes through the cone 30 it draws in more air through the openings 29 and passes down the pipe 28 and through the pipe 34 to the burner 35, where it is ignited. The heat from the burner 35, which is directly under the generator 19, will be sufficient to keep the generator hot. By rotating the sleeve 27 on the tube 28 the amount of air admitted through the openings 29 can be regulated to produce the best results. In case any of the oil should pass into the pipe 28 in an unvaporized condition it can be removed by unscrewing the plug 36. Each time the valve-stem 20 is seated against the valve-seat 22 the needle 23 passes through the opening in the generator-cap 24, and thus insures that this opening will be kept free from dirt, paraffin, or other impurities. By sliding the sleeve 27 to the right on the tube 28 the air-mixer 26 can be disengaged from the generator-cap 24 to give access to the same. By placing the oil-fount below the burner, which we are enabled to do by the use of compressed air to force the oil up to the generator, we avoid heating the fount and the consequent danger of explosion. We also avoid heating the fount by arranging the pipe conveying the hot vapor entirely independent of the fount. As our oil-fount must be absolutely air-tight on account of containing compressed air, no vapor can escape from the fount, as is the case with lamps feeding the oil of the generator by gravity, as the fount in that case must necessarily communicate with the external atmosphere.

Our lamp makes a very bright light, owing to the perfect combustion obtained by means of the control of the admixture of air with the vapor.

Having fully described our invention, what

we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a vapor-lamp, a burner, a generator arranged above said burner, an oil-fount below said generator and communicating therewith, means for applying pressure to the oil in said fount to force it up to said generator, a suitable pipe leading from said generator to said burner, a suitable perforated cylinder for admitting air to the vapor escaping from said generator, a sleeve carried by said perforated cylinder and sliding on said pipe, and openings in said sleeve and pipe adapted to be thrown in and out of register.

2. In a vapor-lamp, a generator, an air-mixing tube, a perforated cylinder having an opening fitting the end of the generator, a sleeve connected to the cylinder and sliding on the air-mixing tube to expose the end of the cylinder, substantially as described.

3. In a vapor-lamp, a vaporizer having a perforated arm substantially at right angles to its length adapted to receive an inner oil-tube and an outer supporting-tube, substantially as described.

4. The vapor-lamp herein described, comprising a fount, a bracket 33 attached to one side thereof, a supporting-tube 15 attached to the opposite side, a generator 19 having a perforated arm inserted in the top of said supporting-tube, an oil-pipe 16 inclosed in said supporting-tube and entering the perforation in the arm of the vaporizer, an air-mixing tube connected to the bracket 33, and having at its lower end a burner and at its upper end an air-inlet, all substantially as described and shown.

5. In a vapor-lamp, a generator 19, a perforated air-mixing tube 28, a cone 30, at the entrance to said tube, a sleeve 27 having perforations adapted to register with the perforations in the air-mixing tube, and a perforated cylinder 26 attached to said sleeve, substantially as described and shown.

In testimony whereof we have hereunto set our hands and seals in the presence of the two subscribing witnesses.

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Witnesses:

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