W. C. COLEMAN.

LAMP.

APPLICATION FILED JULY 7, 1909.

965,878. Patented Aug. 2, 1910.

2 SHEETS—SHEET 1.

FIG. 1.

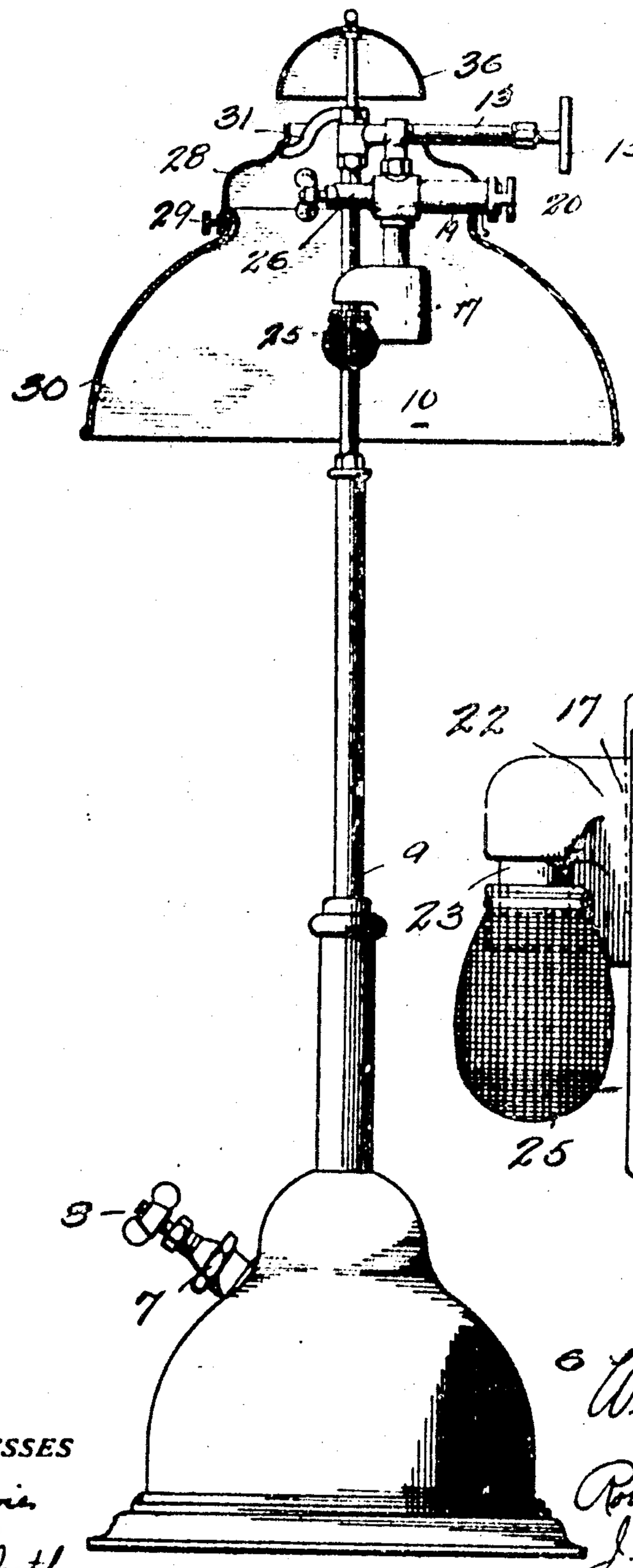

FIG. 2.

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FIG. 2.

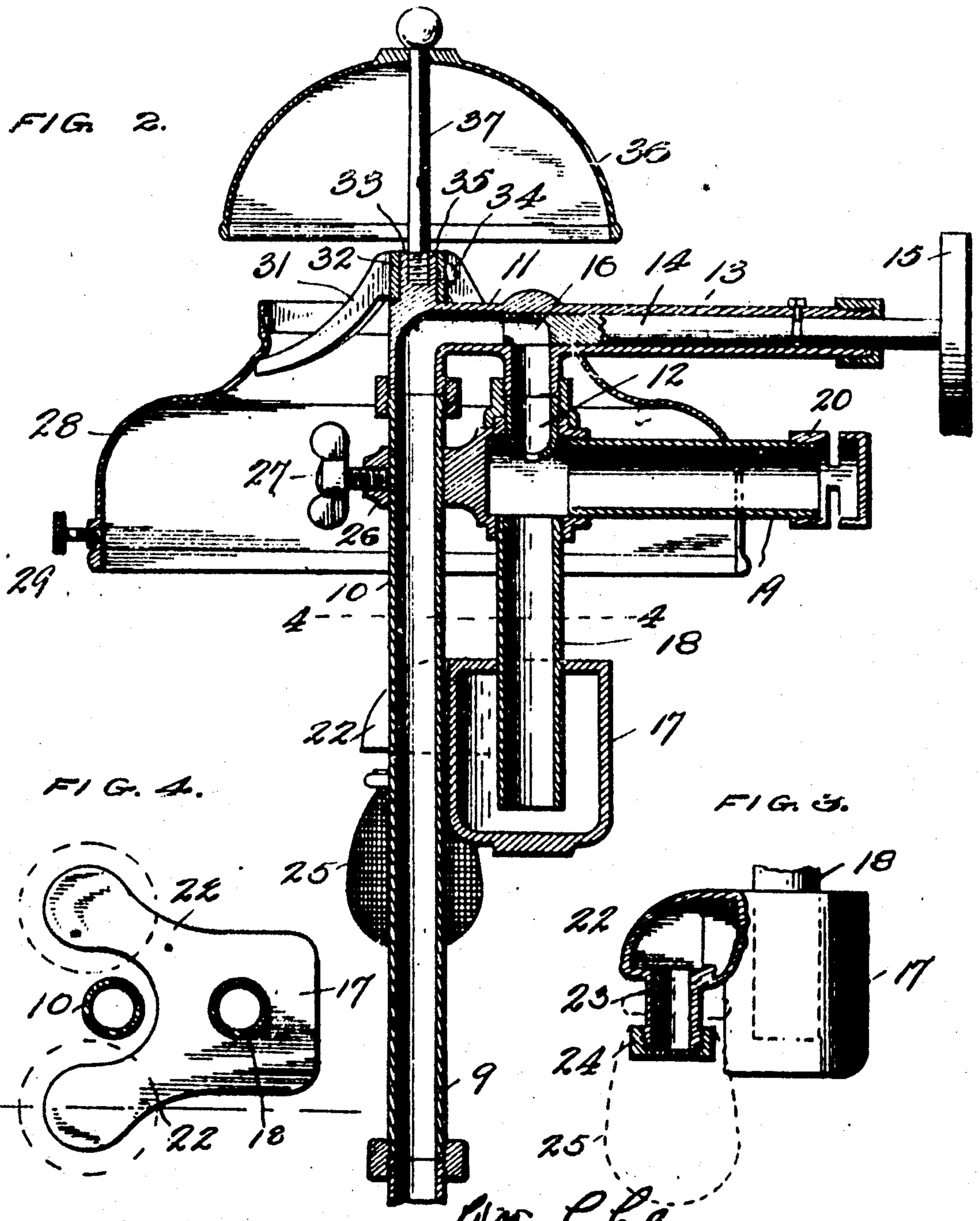

FIG. 4.

FIG. 3.

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LAMP.

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Application filed July 7, 1909. Serial No. 506,295.

To all whom it may concern:

Be it known that I, WILLIAM C. COLEMAN, a citizen of the United States, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

The present invention relates more particularly to portable reading lamps that burn vaporized alcohol, gasolene or other hydrocarbons.

One of the primary objects of the present invention is to provide a practical structure of a novel character, which is exceedingly compact, so that the parts occupy but little space, and the clumsy appearance which is ordinarily a feature of this type of structure is obviated.

A further object is to provide a structure in which the amount of light can be varied, as desired, the valve being such that danger of clogging and inoperativeness is completely overcome.

A further object is to provide a structure, in which the vital parts of the lamp are readily accessible, for the purpose of cleaning and repair.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the lamp, the shade and its support being illustrated in section. Fig. 2 is a vertical sectional view through the upper portion of the lamp, the same being shown on an enlarged scale. Fig. 3 is a detail sectional view partially in section of the mixing chamber and one of the mantle supports. Fig. 4 is a horizontal section on the line 4—4 of Fig. 2. Fig. 5 is a rear elevation of the structure disclosed in Fig. 4.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a base 6 is employed that is in the form of a reservoir or font, being provided with a suitable filling nipple 7 having a coupling 8, to which an ordinary air pump may be connected. A tubular standard 9 rises from the font or reservoir, and constitutes means for conducting the fuel from said reservoir to the illuminating means, as will be obvious. This standard carries at its upper end a vertical vaporizing tube 10 having an offset upper end 11, which is provided with a depending vapor discharge nipple 12, located along one side of the tube 10 in spaced relation thereto. The offset portion 11 is extended, as shown at 13 beyond the nipple 12, and forms a bearing for a rotary cut-off valve 14 having an exposed handle 15, and being provided at its inner end with a controlling port 16 that is movable into and out of register with the nipple 12.

A vertical mixing chamber is located alongside the vaporizing tube 10, and comprises a main body 17 and a vertical Bunsen tube 18 that extends downwardly into the body 17, and terminates contiguous to the lower end thereof. The upper end of this Bunsen tube is disposed in line with the nipple 12, and it is furthermore provided with a right-angularly disposed pipe section 19, forming an air inlet, the outer or open end of which is controlled by an adjustable cap 20, said cap constituting means for varying the supply of air, as will be apparent. The body 17 is furthermore provided with divergent arms 22 carried by the upper portion of said body, and having depending nipples 23, the lower ends of which are covered by perforated caps 24. These nipples constitute supports for inverted mantles 25 of the usual type. The mixing chamber is vertically adjustable on the tube 10, and therefore the upper end of the Bunsen tube 18 has an offset collar 26 slidable upon the tube, and normally held in position thereon by a set screw 27.

With this construction, it will be obvious that the mantles are disposed on opposite sides of the vaporizing tube, and consequently if the mantles are made incandescent, the fuel flowing upward through the tube 10 will be vaporized and will be expelled downward through the nipple 12 into the Bunsen tube 18. The flow of the vapor will cause an inrush of the air through the pipe 19, and this air mixing with the vapor, will create a gaseous fuel in the mixing chamber 17. The fuel will be conducted through the arms 21 to the mantles.

It will be obvious by reference to Fig. 2 that the structure is exceedingly compact, and yet the necessary length of Bunsen tube 18 is secured. Furthermore it will be noted that in this structure the working parts of the lamp most liable to clog, are readily accessible, inasmuch as by loosening the set

screw 27, the mixing chamber with its associated parts can be moved downwardly, and the nipple examined, cleaned, or if necessary, replaced by a new one. It is desired to lay particular stress upon the use of the rotary cut-off valve between the vaporizing tube and the discharge nipple.

By employing a combined cut-off and controlling valve at the point disclosed, the light may be turned up and down by operating the valve, or immediately extinguished. This is exceedingly important, inasmuch as it eliminates entirely the necessity of a cut-off valve below the vaporizer. Such a valve cannot be employed for controlling the light, and when closed, all the fuel above the same has to be vaporized. As a result, the lamp gradually goes out with a consequent gradual decrease in the heating capacity, resulting in a decrease of vaporization, and a final smoking of the mantle. Furthermore it is to be noted that in the structure disclosed, the valve is arranged transversely to the structure, so that the handle and packing gland are arranged outside the range of heat. It will also be observed that in this structure, a straight vaporizing tube is employed, and inasmuch as the valve structure and nozzle are detachably coupled to said tube, by removing the same, the tube can be easily and completely cleansed.

A further and important feature resides in the juxtaposition of the burners with the mixing chamber as well as with the vaporizing tube. This becomes of considerable importance when kerosene oil is used as the illuminating fluid, for such oil is apt to become condensed in the mixing chamber, but in the present structure, the mixing chamber being highly heated, prevents such condensation.

In connection with the above described structure, novel means is employed for supporting the shade and canopy. A metallic shade support 28 of any well known form is employed, and is provided with screws 29 to hold the shade 30. This support 28 is provided with a spider 31 terminating in a central collar 32 that is fitted upon an upstanding stud 33 forming a part of the upper end of the vaporizing tube. The collar is held in the stud, preferably by a set screw 34, and said stud also is provided with a central socket 35, and the canopy bell 36, located over the vaporizing tube, has a central stem 37 detachably fitted in the socket.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a lamp of the character set forth, the combination with an upright vaporizing tube, constituting the standard of the lamp, of a mixing chamber located at one side of the vaporizing tube, spaced burners between which the tube is located, a Bunsen tube connected to the mixing chamber at its lower end and having an inlet at its upper end, a downwardly extending nozzle delivering into the upper end of the Bunsen tube, an angular connection between the vaporizing tube and nozzle, and a combined cut-off and regulating valve located in said connection and disposed in angular relation to the tube and nozzle.

2. In a lamp of the character set forth, the combination with an upright vaporizing tube, of a mixing chamber, a burner alongside the tube and chamber that heats said tube and chamber, a Bunsen tube having a delivery end connected to the mixing chamber and having an upper inlet end, a nozzle delivering into the Bunsen tube, means connecting the upper end of the vaporizing tube and nozzle, and a combined cut-off and regulating valve located in the connection and extending in angular relation thereto.

3. In a lamp of the character set forth, the combination with a substantially vertical vaporizing tube, of a mixing chamber located alongside the same, a depending burner for an inverted mantle connected to the upper portion of the mixing chamber and disposed alongside said chamber and alongside the vaporizing tube to heat both, and means for directing the vapor from the upper end of the vaporizing tube and also directing air into the mixing chamber.

4. In a lamp of the character set forth, the combination with a base font constituting a lamp support, of an upright vaporizing tube extending centrally therefrom and constituting the standard of the lamp, a downturned nozzle connected to the upper end of the vaporizing tube and located alongside the same, a transversely disposed cut off and regulating valve located adjacent to the nozzle, air inlet and mixing means located alongside the vaporizing tube below the nozzle and receiving the vapor from said nozzle, and a burner connected to the mixing means and disposed adjacent thereto and to the vaporizing tube.

5. In a lamp of the character set forth, the combination with an upright straight vaporizing tube, of a cut-off and regulating valve structure and vapor delivery nozzle detachably connected to the upper end of the tube, air inlet and mixing means detach-

ably associated with and receiving the vapor from the nozzle, and being furthermore movably mounted on and supported by the tube, and a burner connected to the mixing means and associated with the tube.

6. In a lamp of the character set forth, the combination with a vaporizing tube having an offset upper end, of a mixing chamber associated with the tube, said tube having an upstanding stud, a shade support fixed to the stud, and a canopy bell arranged over the tube and having a stem mounted on the stud independently of the shade support.

7. In a lamp of the character set forth, the combination with a base comprising a font or reservoir, of a tubular fuel conducting standard projecting above the base, a vaporizing tube carried by the upper end of the standard and having an upstanding stud on its upper end, a shade supporting spider surrounding and clamped on the stud, said stud being provided with a socket, a canopy bell arranged over the tube and having a depending stem engaged in the socket, and vaporizing, air mixing and mantle supporting means mounted on the vaporizing tube.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM C. COLEMAN.

Witnesses:

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