

J. M. CLARK.
Lamps.

No. 140,764.

Patented July 15, 1873.

FIG. 1.

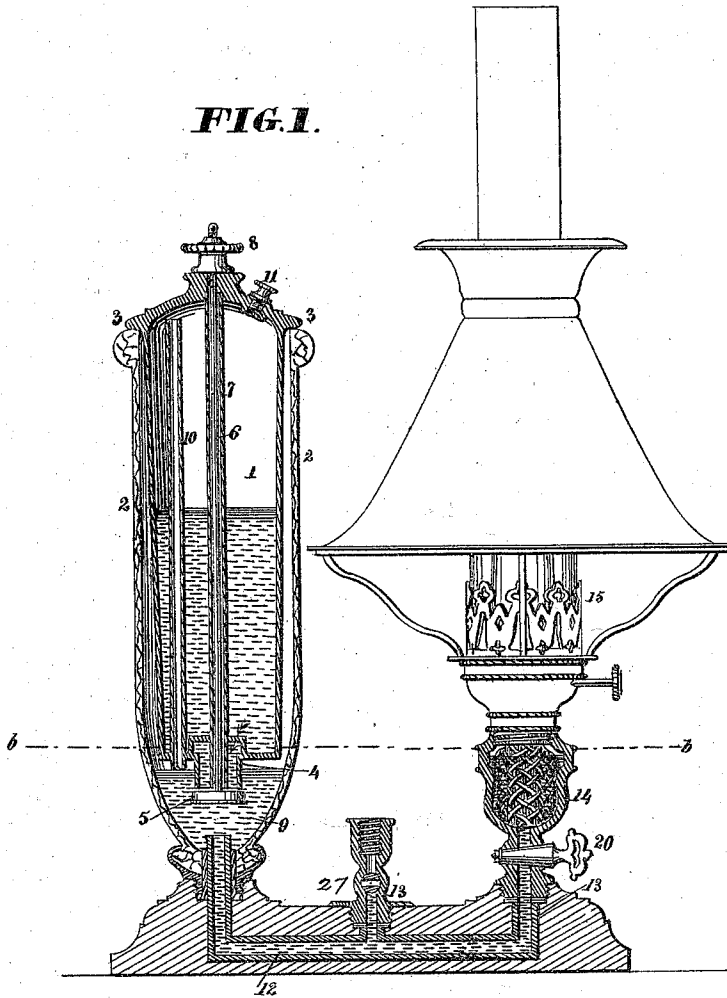
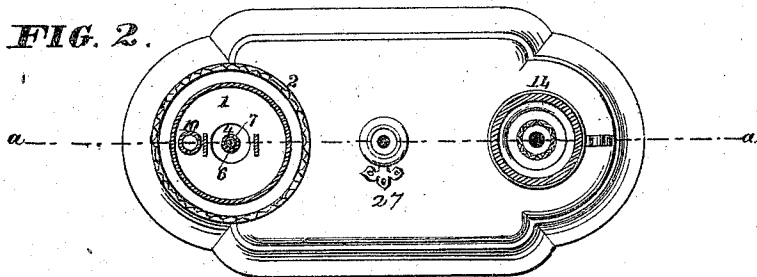


FIG. 2.



WITNESSES:

*Jas. L. Ewin
Walter Allen*

INVENTOR:

James M. Clark
By *Bright & Co.* Attorneys.

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FIG. 3.

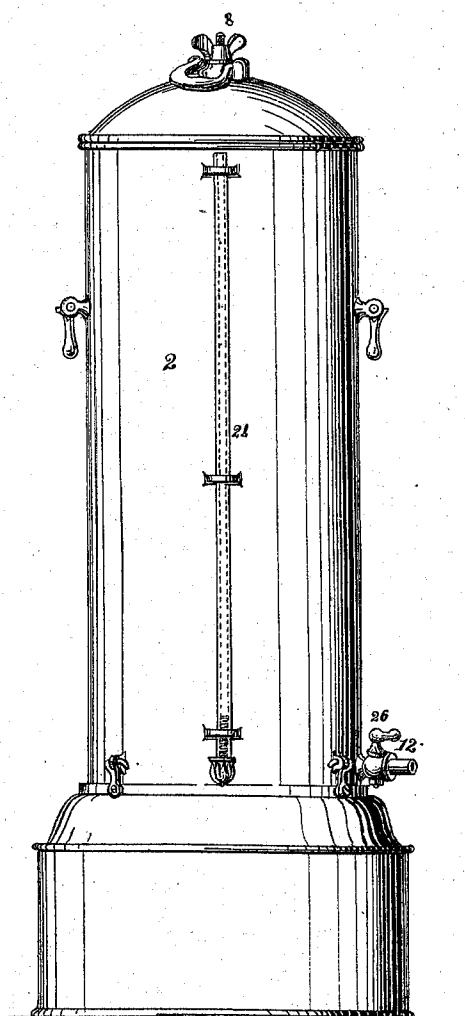
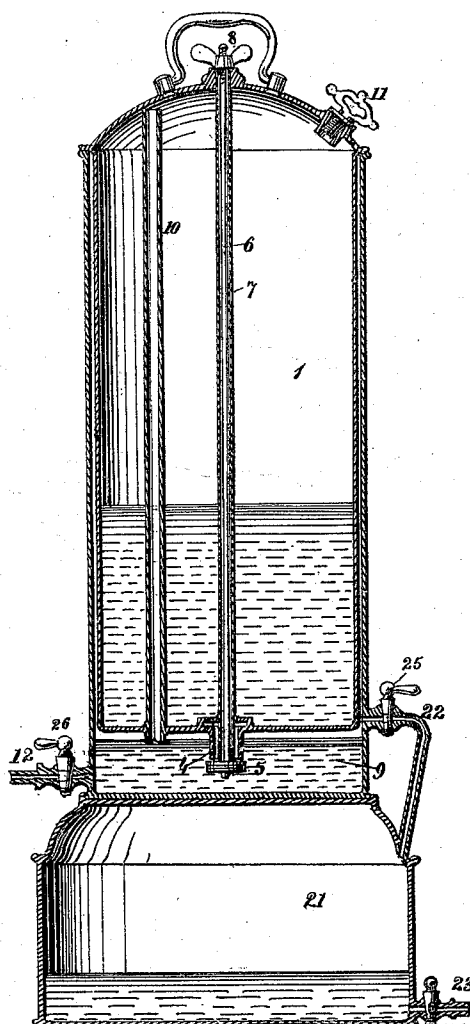


FIG. 4.



WITNESSES:

Geo. L. Cwin
Walter Allen

INVENTOR:

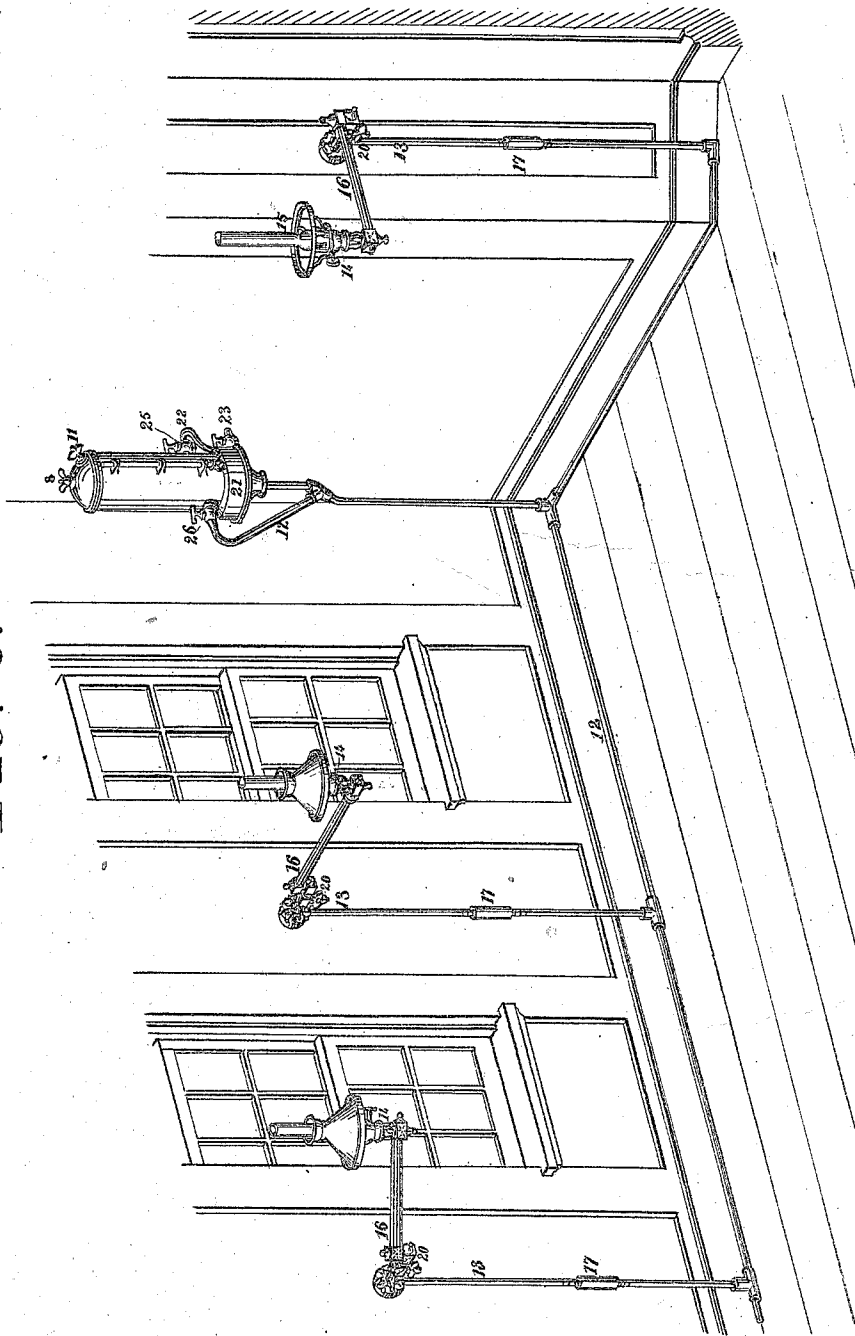
James M. Clark
Bush & Knight Attorneys.

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FIG. 5.



WITNESSES:

Gas. L. Ewing
Walter Allen

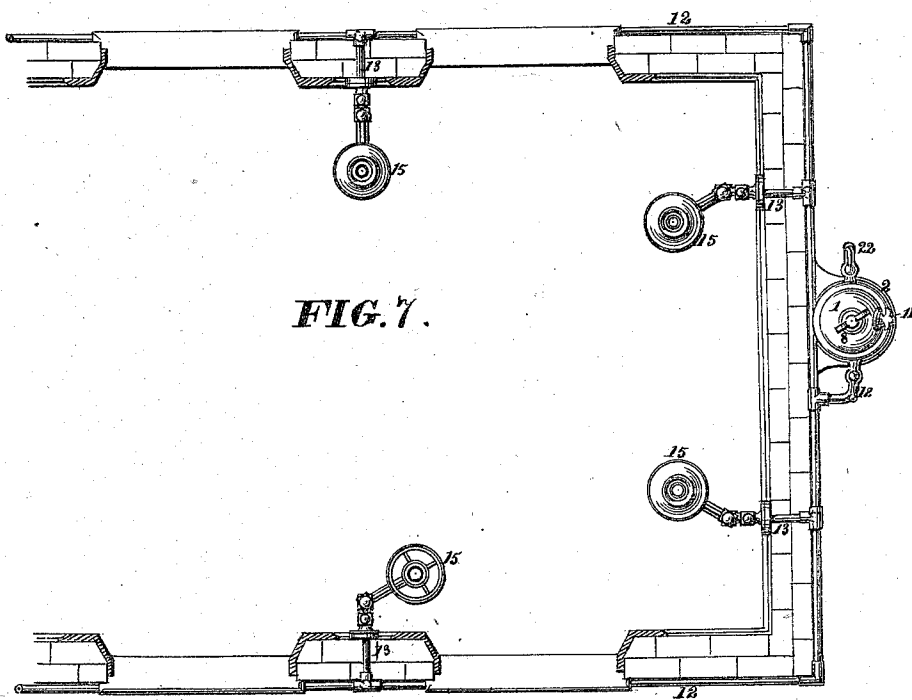
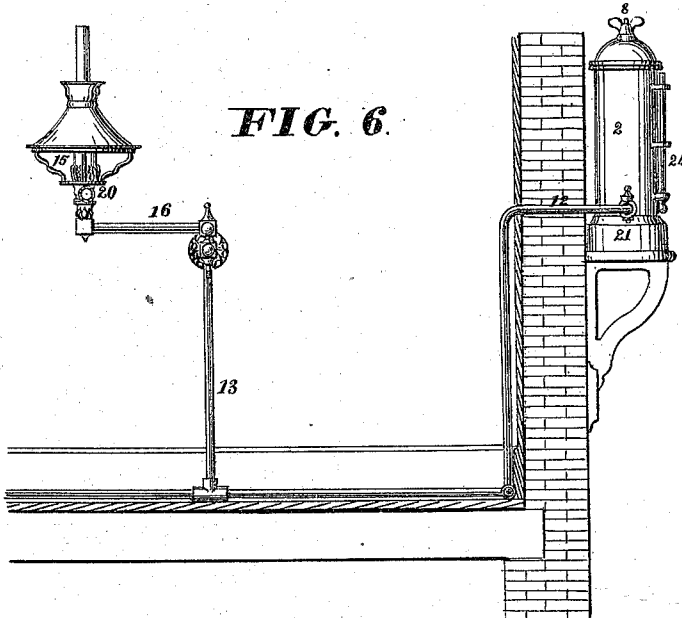
INVENTOR:

James M. Clark
By *Knights & Potts* Attorneys.

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WITNESSES:

Geo. L. Quinn
Walter Allen

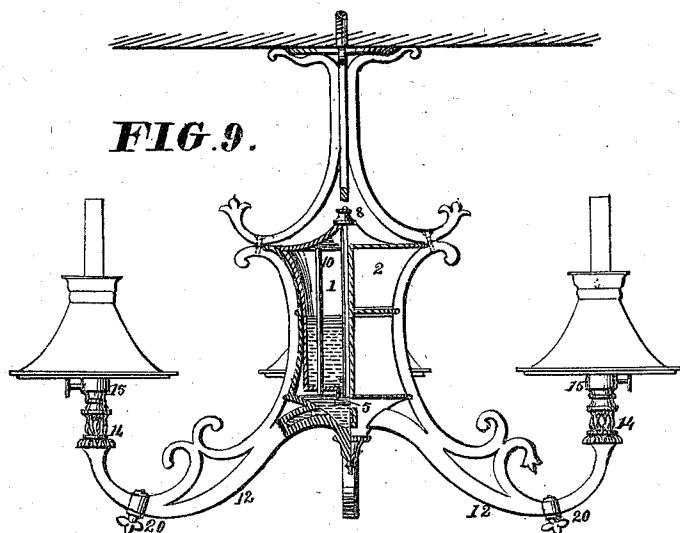
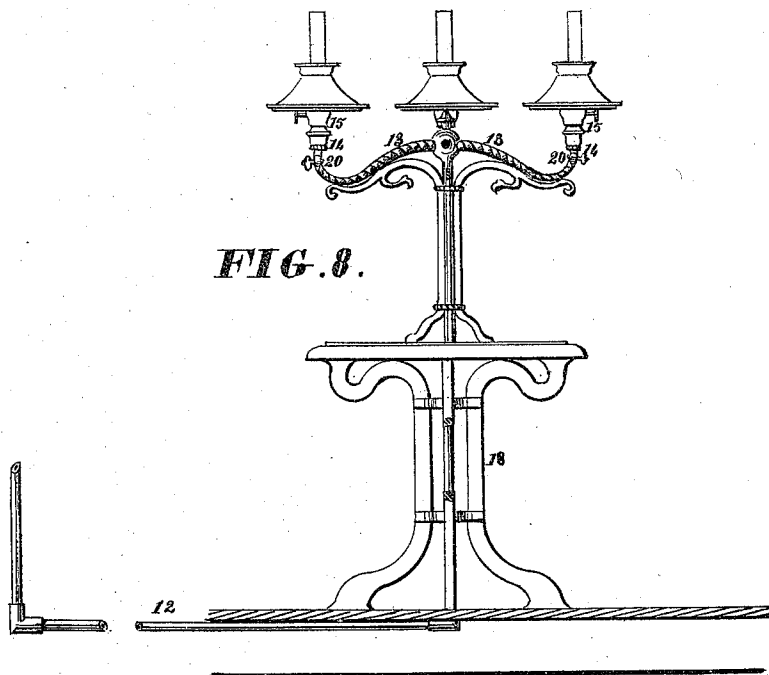
INVENTOR:

James M. Clark
By *Knights & Co.* Attorneys.

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Geo. L. Ewin
Walter Allen

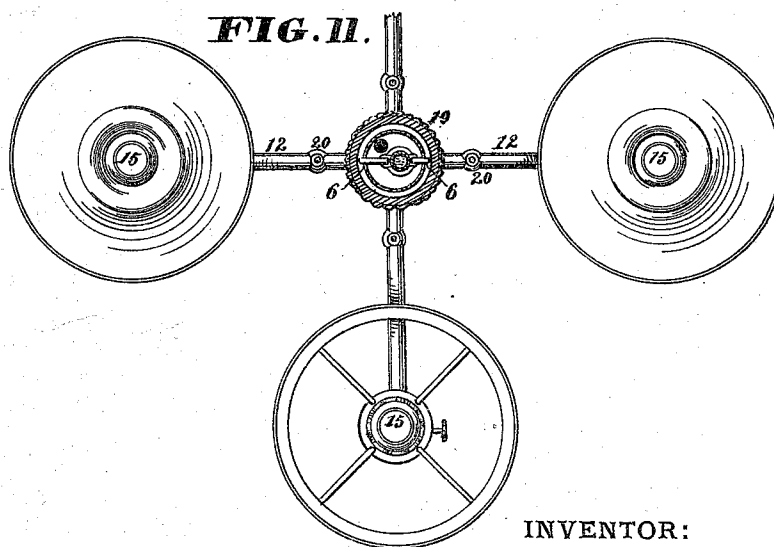
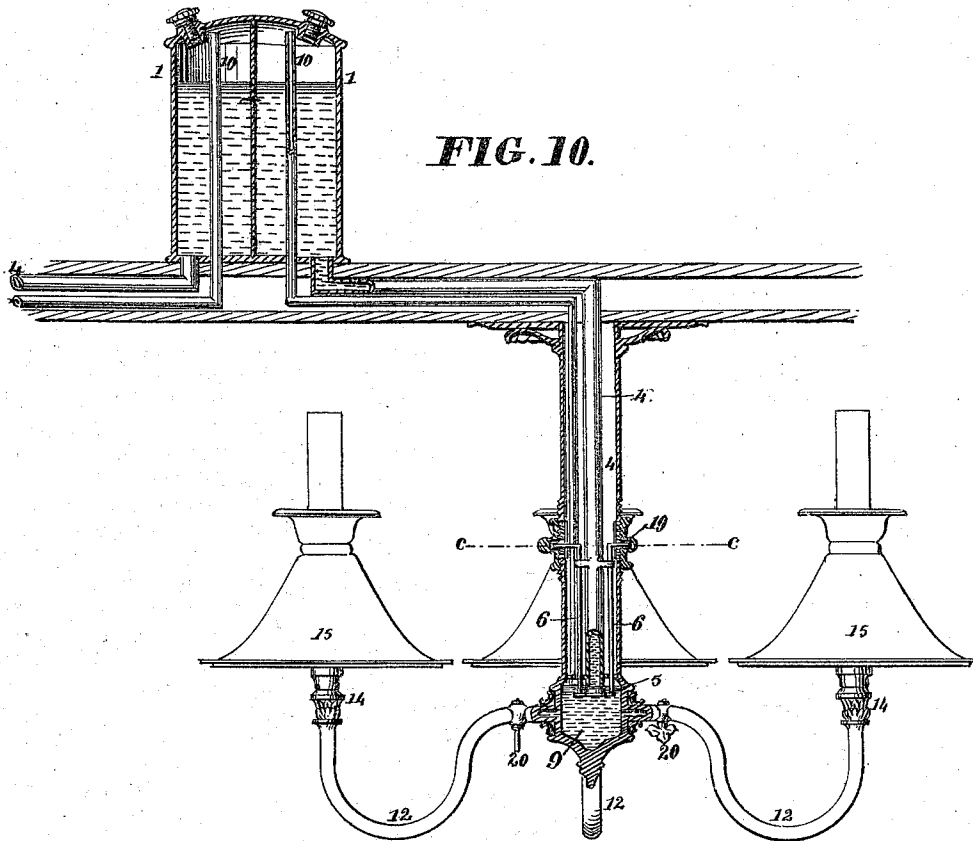
INVENTOR:

James M. Clark
By *Knights* Attorneys.

J. M. CLARK.
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WITNESSES:

Das. L. Quinn
Walter Allen

INVENTOR:

James M. Clark
By [Signature] Attorneys.

UNITED STATES PATENT OFFICE.

JAMES M. CLARK, OF LANCASTER, PENNSYLVANIA, ASSIGNOR TO FRANKLIN L. CLARK, OF SAME PLACE.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **140,764**, dated July 15, 1873; application filed April 12, 1873.

To all whom it may concern:

Be it known that I, JAMES M. CLARK, of the city and county of Lancaster, in the State of Pennsylvania, have invented certain Improvements in Illumination, of which the following is a specification:

My invention relates to a system and apparatus by which common coal-oil or other burning fluid contained in a reservoir of any desired capacity may be supplied to one or any number of burners with a flow regulated automatically to correspond with the demand and consumption. The invention further relates to details and appliances to facilitate the filling of the reservoir, to regulate the supply of oil to the burners, and to prevent its overflow.

In applying my invention, in connection with a number of burners, the oil may be conducted through a system of pipes concealed within the walls and beneath floors, or otherwise conveniently arranged after the manner of gas-pipes.

In the accompanying drawing, Figure 1 is a vertical longitudinal section on the line *a a*, Fig. 2, showing my improved reservoir and its accessories with one lamp-burner connected therewith, and with a branch adapted for the attachment of a conducting-pipe for the supply of other burners. Fig. 2 is a horizontal section on the line *b b*, Fig. 1. Fig. 3 is a side elevation of the reservoir detached, showing it under the modified form preferably adopted for reservoirs of large size. Fig. 4 is a vertical section of a reservoir of the form shown in Fig. 3. Fig. 5 is a perspective view of the interior of a room, illustrating (on a smaller scale) a mode of supplying the oil from a main reservoir to a number of burners. Fig. 6 is a sectional elevation of the said reservoir with one burner and the connecting-pipe attached. Fig. 7 is a plan view. Fig. 8 is an elevation of a candelabra illustrating the invention. Figs. 9 and 10 are sectional elevations illustrating modes of applying it to chandeliers. Fig. 11 is a longitudinal section on the line *c c*, Fig. 10.

The oil-reservoir consists of a cylinder, 1, closed at top and fitted within an open cylin-

der or casing, 2, on the margin of which it rests by a flange, 3, as represented. The cylinder 1 connects at bottom with a discharge pipe or nozzle, 4, guarded by a valve, 5, attached to a rod, 6, passing up through a central sleeve, 7, and projecting through the top of the cylinder 1, its projecting end being screw-threaded and fitted with a nut, 8, by means of which the valve may be opened and closed, as required. When open it allows the oil to flow into the supply-chamber 9 at bottom of casing 2, the level of the oil in the chamber 9 being regulated by means of an air-tube, 10, fixed in the bottom of the reservoir, and open at both ends, its lower end being at the level at which it is desired to keep the oil, and its upper end near the top of the reservoir. 11 represents an air-tight screw-plug in the top of the reservoir, which may be taken out for filling the said reservoir with oil, the valve 5 having first been closed. From the chamber 9 the oil is conducted by a pipe, 12, and as many branches, 13, as may be necessary to the wick-chambers 14 of the burners 15, which may be of any common or suitable form.

Figs. 1 and 2 illustrate more especially the application of the invention to a portable or hand-lamp, for the purposes of which the branch 13 and stop-cocks 20 and 27 may be omitted. The cock 20 under the burner is, however, useful for closing the connection when the light is out of use.

For the supply of a number of burners the pipes 12 and 13 may be carried down and up again within or beneath the walls or floors, or located and arranged in any suitable and convenient manner; but the several wick-chambers 14 are arranged on a level with the supply-chamber 9 and the connecting-pipes should not be placed above this level at any point.

In order to facilitate the adjustment of the burners so that their wick-chambers will correspond in height with the supply-chambers before permanently attaching the said burners or their brackets 16 to the wall, I employ screw-couplings 17 (see Fig. 5) in the vertical part of the pipes leading to the said brackets. By turning the pipe more or less into the

coupling the burners may, one by one, be accurately adjusted to the proper height.

Where a large reservoir is employed to supply a large number of burners, as, for example, all the burners on one floor, I prefer to locate the reservoir on the outside of the house, as illustrated in Fig. 6, so as to preclude the possibility of serious accident.

Fig. 8 represents one of the branch pipes 13 carried up within an ornamental standard, 18, after the manner of a candelabra, the burners 15 being, as before, set with their wick-chambers 14 on a level with the supply-chamber with which they are connected.

In Fig. 9 the entire reservoir is represented as located within a chandelier, all essential features of the invention being as hereinbefore described.

It will be understood that the length of the pipe or nozzle 4 and the proximity of the supply-chamber 9 to the reservoir 1 are immaterial, the essential point being to have the supply-chamber below the level of the reservoir.

In Fig. 10 I have shown an elevated reservoir having a number of separate chambers, each connected by its own conducting-pipe 4 and air-duct 10 with the supply-chamber 9 of a chandelier, or with the supply-chamber of one or more burners arranged on the level of the aforesaid supply-chamber in any other manner.

In the illustration shown in Figs. 10 and 11 the rods 6 of the valve 5, to close the lower end of the conducting-pipe 4 when the reservoir-chamber is to be opened for filling, are carried up on the outside of the said conducting-pipe, and the upper ends of said rods are turned at right angles, so as to pass through vertical slots in the hollow hanger or casing of the chandelier and engage in a horizontal groove in a sleeve, 19, which works in a screw-thread on the said hanger or casing, so that by turning the sleeve in either direction the valve may be drawn up or lowered at pleasure.

An overflow-chamber, 21, may be applied below the large reservoir illustrated in Figs. 3, 4, 5, 6, and 7, with a pipe, 22, located just above the proper level of oil in the supply-chamber 9, so that in the event of the oil rising too high in the said supply-chamber from any accident it will not overflow the lamps, but the surplus will be received by the chamber 21, and may be drawn therefrom by a cock, 23.

The apparatus is adapted for use with any description of oil. The drawings illustrate

some of the ways in which the invention may be applied, and will serve to suggest other modifications which may be made without departing from the essential principles of the invention.

24 represents a transparent gage-tube connecting with the supply-chamber 9, so as to indicate if the said chamber should be over-filled. By closing the cocks 20, 25, 26 and opening the plug 11 the gage-pipe can be employed to indicate the height of oil in the reservoir at any time.

By the combination of the separate air-pipe 10, the oil-outlet 4, and the regulating-valve 5 I am enabled to entirely prevent pulsations in the flow of oil when the apparatus is in operation. The valve being adjusted to permit a flow equal to the consumption a slight influx of air will constantly occur through the pipe 10 and a constant outflow of oil through the nozzle 4, while at the same time the automatic regulating device will instantly check any excessive flow which may occur from the shutting off or extinguishing of any of the burners. To provide for an equable flow without pulsations, especially when a large number of burners are in operation, is a leading purpose of my invention, and the separate air-pipe 10 is essential to its most effective operation.

The pipe 7, through which the valve-rod 6 passes, serves the useful purpose of isolating the said rod from the air-tight chamber 1, so as to avoid the necessity of using an air-tight valve in connection with the nut 8 at the top of the reservoir.

The following is claimed as new:

1. The regulating-valve 5 operated by a nut, 8, through the medium of a rod, 6, inclosed in a pipe, 7, in combination with the nozzle 4, regulating-chamber 9, conducting-pipe 12, and separate air-pipe 10, all arranged to operate as herein described, for the purposes set forth.

2. The overflow-receptacle 21, in combination with the reservoir 1, supply-chamber 9, and pipe 22, substantially as and for the purposes set forth.

3. The combined apparatus, consisting of the reservoir 1, chamber 9, valve 5, feeding-plug 11, overflow-receptacle 21, connecting-pipes 22, 12, 13, and burners 14, all arranged to operate as specified.

JAMES M. CLARK.

Witnesses:

OCTAVIUS KNIGHT,
H. C. SMITH.