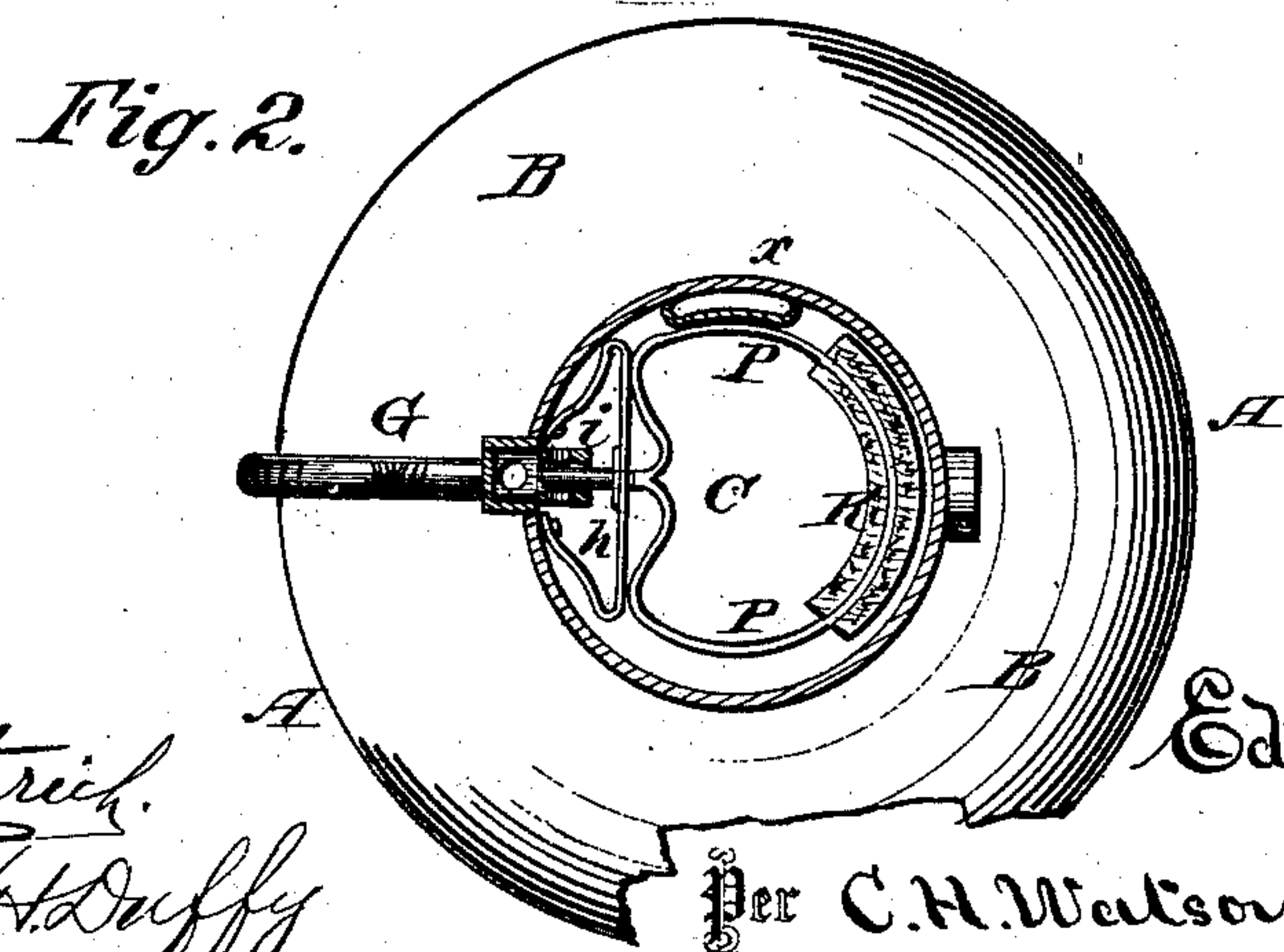
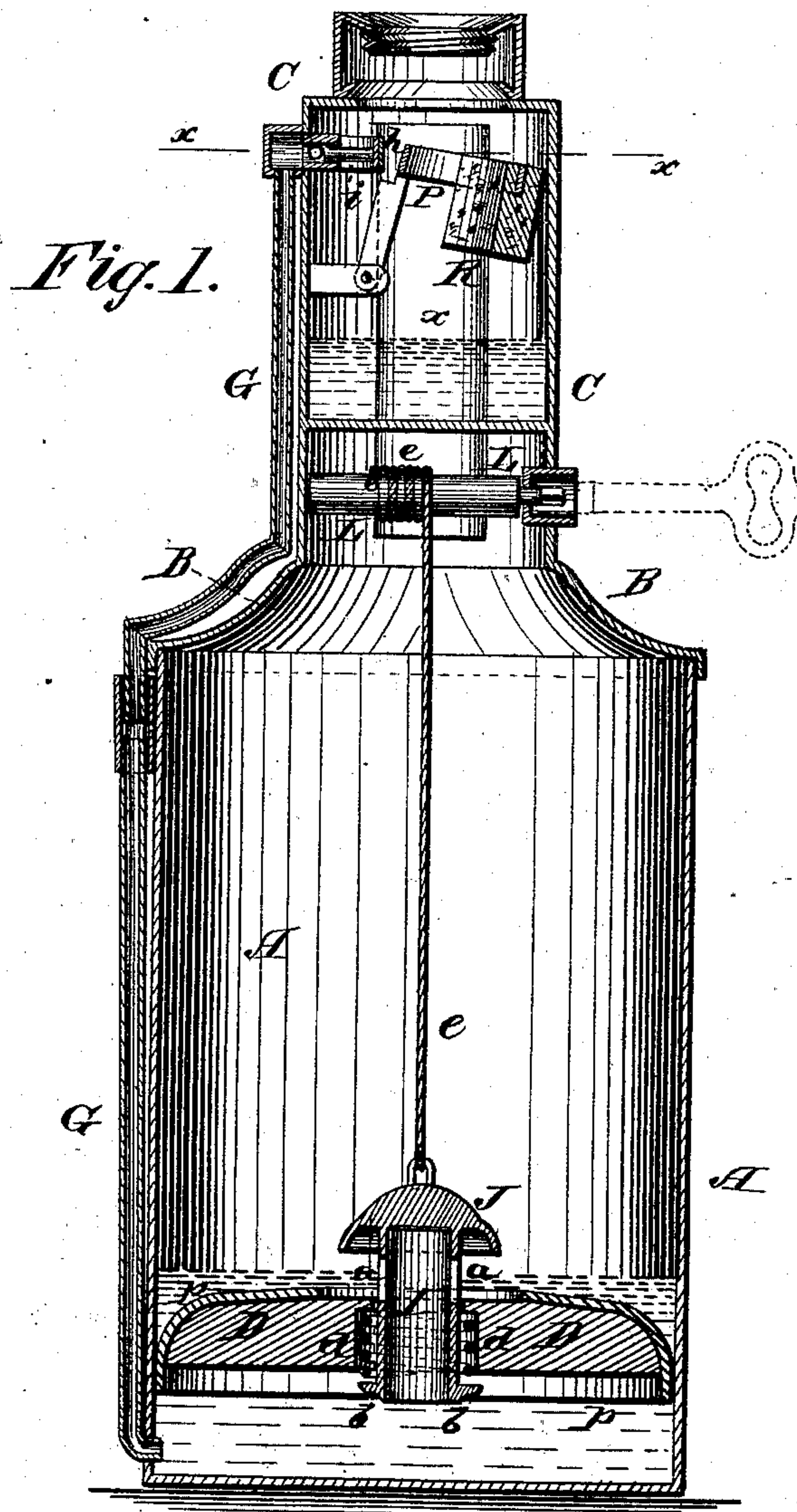


E. S. DRAKE.  
Lamps.

No. 219,627.

Patented Sept. 16, 1879.



Witnesses:

*J. C. Dieterich.*  
*Frank H. Duffy*

Inventor:

*Edwin S. Drake.*

*Per C. H. Watson & Co. Attorneys.*



# UNITED STATES PATENT OFFICE.

EDWIN S. DRAKE, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **219,627**, dated September 16, 1879; application filed January 25, 1879.

*To all whom it may concern:*

Be it known that I, EDWIN S. DRAKE, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Lamps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of lamps in which the oil is forced from the oil-reservoir by a piston or plunger up into an elevated auxiliary reservoir, in which latter the wick is placed; and the nature of my invention consists in the construction of the piston or plunger with a central valve, and the mode of operating the same, and also in providing the elevated or auxiliary reservoir with an automatic cut-off, all as hereinafter more fully set forth.

In the annexed drawings, which fully illustrate my invention, Figure 1 is a central vertical section of a lamp embodying my invention. Fig. 2 is a transverse section on the line *xx* of Fig. 1.

A represents the main reservoir of the lamp, provided with the top B, in which is the auxiliary elevated reservoir C. The burner is to be screwed in the top of this reservoir C, and the wick lies in said reservoir.

D represents the piston or plunger in the main oil-reservoir A. This piston is provided with suitable packing *p* around its edges, and is made of sufficient weight to force the oil under it from the reservoir A, through the pipe G, into the auxiliary reservoir C, said pipe G entering the main reservoir at the bottom and the auxiliary reservoir at or near the top.

In the center of the plunger D is a circular orifice, in which is placed a hollow stem, I, with valve J on its upper end, side openings *a* near the top, collar *b* around its lower end, and a spiral spring, *d*, surrounding the lower portion of the stem above said collar. The action of the spring *d* is to keep the valve J closed, so that any oil above the plunger cannot pass down and the oil below it cannot pass upward; but if the valve were raised the oil above the

plunger would pass through the side openings *a* into and through the hollow stem down below the plunger.

The valve J is, by a cord or chain, *e*, connected with a shaft, L, in the top B below the auxiliary reservoir C, one end of said shaft projecting outside of said top, and constructed to receive a key or crank, by means of which it may be rotated to raise the plunger.

In rotating the shaft L, the cord or chain *e* first raises the valve J to allow any oil above the plunger to pass down as well as to admit air below the plunger, when said plunger is easily raised to the desired height.

The pressure of the plunger upon the oil forces the same through the pipe G into the auxiliary reservoir C. At the entrance of this pipe into the reservoir C is a valve, *i*, attached to a spring, *h*, which valve is held open by the combined action of said spring and the pressure of the oil from below. The spring may, however, be dispensed with in some cases, it being mainly employed to prevent the valve from sticking fast.

Within the auxiliary reservoir C is pivoted a frame or lever, P, to one side of which is attached a float, R, the other side being so arranged that when the float rises to a certain height it will operate against and close the valve *i*, and thus stop the inflow of oil. As soon as the oil sinks by being consumed the float R sinks with it and releases the valve *i*, which will then open automatically and allow the oil to flow in again.

It will thus be seen that a certain quantity of oil is always automatically maintained in the elevated or auxiliary reservoir as long as there is a supply in the main reservoir.

In case that by any accident the valve should fail to close, an overflow-passage, *x*, is provided to carry all excess of oil from the auxiliary reservoir back to the main reservoir.

It will be seen that this construction of the lamp is in the nature of a safety-lamp, as but a small portion of an explosive oil is by any possibility in communication with the flame; and, further, by the use of the weight as a piston or plunger, the oil contained in the large reservoir will not be forced out when in the event of an accident the lamp was tipped over, whereas in the use of a spring above

the piston to force the oil all the oil would be forced out.

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

1. The piston or plunger D, provided with packing *p*, and central valve J, with hollow stem I, having side openings *a*, collar *b*, and spring *d*, in combination with the main reservoir A, auxiliary reservoir C, and connecting-pipe G, substantially as and for the purposes herein set forth.

2. The combination of the piston or plunger D, the central spring-valve J, cord or chain *e*, and shaft L, substantially as and for the purposes herein set forth.

3. The combination, in a lamp, of the two

reservoirs A C, connecting-pipe G, plunger D, and an automatic cut-off, for the purposes herein set forth.

4. The combination of the reservoir C, inlet-pipe G, valve *i*, with or without the spring *h*, the pivoted frame or lever P, and the float R, all constructed and arranged to operate substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EDWIN S. DRAKE.

Witnesses:

W. H. TRIPP,

G. H. BOUTON.