H. T. HANKS.
Oil-Chamber for Lamps.

No. 199,201. Patented Jan. 15, 1878.

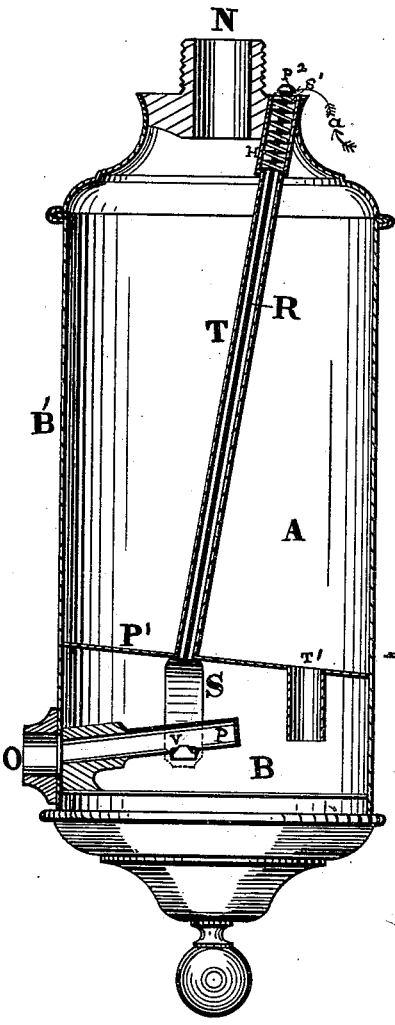

FIG. 1.

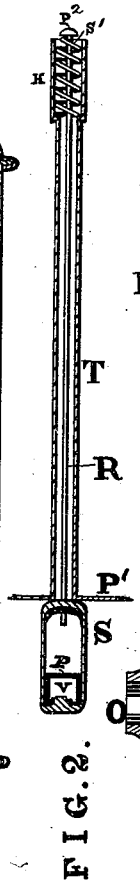

FIG. 2.

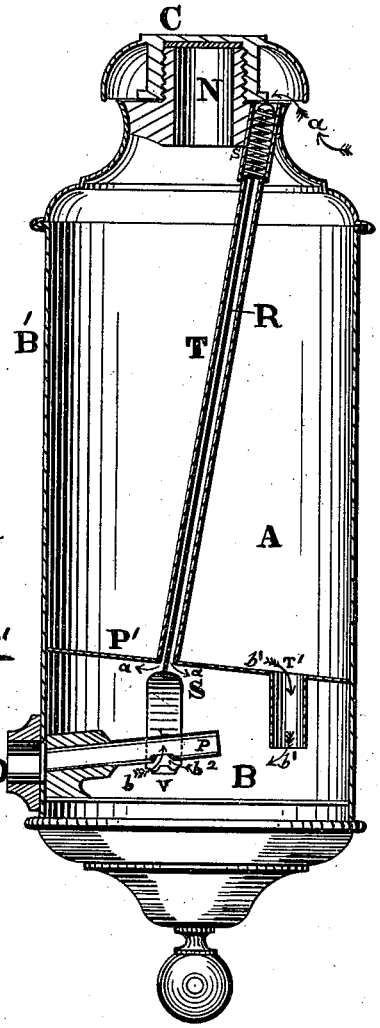

FIG. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

HORACE T. HANKS, OF NEW YORK, N. Y.

IMPROVEMENT IN OIL-CHAMBERS FOR LAMPS.

Specification forming part of Letters Patent No. **199,201**, dated January 15, 1878; application filed December 10, 1877.

To all whom it may concern:

Be it known that I, HORACE TRACY HANKS, of No. 149 Lexington avenue, in the city, county, and State of New York, have invented a new and useful Improvement in Oil-Chambers for Student and other Lamps, of which the following is a specification:

My invention relates to the method of controlling the flow of the oil from an elevated upper chamber down through a lower chamber toward the burner-tube.

The usual method of accomplishing this object is to employ a separable or movable chamber provided with an opening in the bottom only, surrounded with a short tube or neck, and also provided with a valve and stem, arranged so that on removing, turning the chamber upside down, filling it through the opening, and then reversing it, the valve will prevent the escape of any considerable part of the oil until the elongated stem strikes the bottom of the main or lower chamber, when the valve will be pushed up and the oil will escape from the upper into the lower chamber until the lower end of the tube or neck of the opening becomes submerged in the oil, when further escape is prevented until, by the gradual consumption of the oil, the level of the oil falls below the neck again, when air will again pass up through the valve-opening and a proportionate quantity of oil will again escape from the upper into the lower chamber.

The objections to this system are that a separate removable reservoir, closed at the top, is required, which allows more or less of the oil to pour out when reversed for insertion into the main or lower chamber or reservoir. The filling requires such careful handling as many servants are not competent for; and the flow of oil is intermittent to such an extent as to distort the flame of the burner under some circumstances.

The object of my invention is to provide a stationary upper chamber, to be filled from above without removal and without overflow through the burner-tube.

My invention consists in a stationary upper oil-chamber, provided at bottom with a free opening into the lower chamber, surrounded by a neck, and at top with an opening for filling, to which is fitted an air-tight screw-cap, which, when screwed down, presses upon the top of a valve-stem, so as to open an outlet from the lower chamber into the passage leading to the burner-tube or chamber.

It also consists in a lower chamber, the opening from which into the connecting parts and the burner-chamber is closed with a valve, the stem of which projects upward to a screw-cap, and is operated by a spring to close the valve, and by the screw-cap to open it when the cap is in place only.

It also consists in the stem of the valve, operated by a spring and cap, as described, located in or passing through an air-tube which extends from the bottom to the top of the upper chamber, without any opening into the same.

In the accompanying drawings, Figure 1 is a vertical sectional view cut through the operating parts, and showing them in position for filling with oil. Fig. 2 is a sectional view of the air-tube valve, valve-rod, feed-pipe, and rod-spring, substantially cut at right angles to the line of the other two views; and Fig. 3 is the same as Fig. 1, with the top closed and the valve open as when the lamp is in operation.

The upper chamber A is provided with a neck, N, through which the oil is poured in filling it. The neck N is covered by a cap, C, provided with packing in the top, to make an air-tight joint when screwed down. The lower edge of this screw-cap, when completely screwed on, strikes and forces down the valve-rod R, which is located in the air-tube T, and thereby moves the valve V from its seat on the under side of the pipe P. The chamber A is formed in the upper part of the space inclosed by the body B′, and is separated from the lower chamber B by the diaphragm P^1, which is preferably made sloping toward the tube T′, and has two perforations, one in which the air-tube T is soldered, and another in which the short tube T′ is also soldered. The valve-rod R operates the valve V through the stirrup S, which straddles the pipe P, and carries the valve V to and from its seat on the under side of the pipe P. The upper part of the tube T is enlarged to receive the spring S′ at H. The rod R is provided with a head or button, P^2, against which, for convenience, one end of the spiral spring S′ acts so as to

lift the rod R, the other end resting on the bottom of the enlarged part of the air-tube.

The spring S′ might be located at any other point on the rod R above the valve with the same effect—as, for instance, within the stirrup; but I prefer to locate it as shown in the drawing, for convenience in repairing.

The parts are so adjusted that at all times air can pass through the tube T, as indicated by the arrows *a a;* and oil may also pass through the tube T′, as indicated by the arrows b^1 b^2, Fig. 3, whenever the level of the oil in the chamber B falls below the lower end of that tube, so as to admit the necessary air to cause the displacement thereof.

It is evident that with the cap C removed the valve V will be raised and held to its seat by the spring S′, and that the oil, being poured through the neck N, will flow into and fill the chambers A and B and the tube T to the same level as the chamber A. It is also evident that on screwing down the cap C fully the valve V will be opened, allowing oil to escape through the pipe P and the outlet to the burner O, as indicated by the arrows *b b*, Fig. 3, and causing that in the tube T to drop, followed by the air entering through the same tube, until the space below the diaphragm P^1 is filled with air down to about the level of the lower end of the tube T′, where the level of the oil will fluctuate, according to the automatic action of the oil and air, which action will go on as the oil is consumed until the upper chamber A becomes empty, when it may be filled again, and the several operations described will be repeated.

The pipe P should properly be located as low down in the chamber B as possible, in order that the oil therein may be made to pass through it, and not remain in the bottom of the chamber unused.

The air-tube T may be made to pass vertically through the chamber A, with the valve-rod therein, provided the pipe P be suitably extended and connected therewith.

I claim as my invention—

1. In a fountain-lamp, a stationary upper oil-chamber, A, separated from a lower chamber, B, by a diaphragm, P^1, perforated for the outlet and inlet, respectively, of the tubes T and T′, provided at top with an opening and an air-tight cap, C, and traversed by a valve-rod, R, which is operated by a spring, S′, to close, and the cap C to open, a valve, V, for the passage of the oil from the lower chamber B to the burner.

2. In a fountain-lamp, a lower oil-chamber, B, provided with an outlet-pipe, P, opened and closed by a valve, V, under the control of a spring, S′, and a cap, C, as shown and described.

3. The valve-rod R, for operating the valve V, located in the air-tube T, and operated by a spring, S′, and cap C, as set forth.

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Witnesses:

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