

R. NUTTING.
Lamps.

No. 152,002.

Patented June 16, 1874.

Fig. 2.

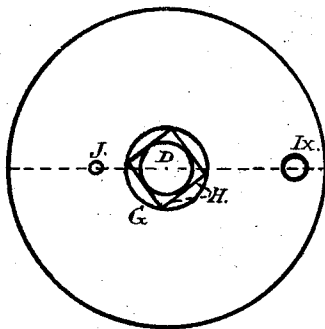


Fig. 4.

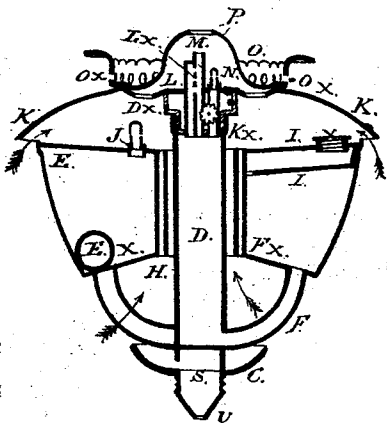
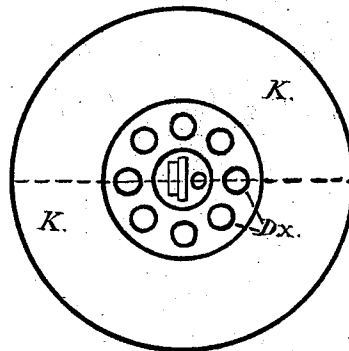
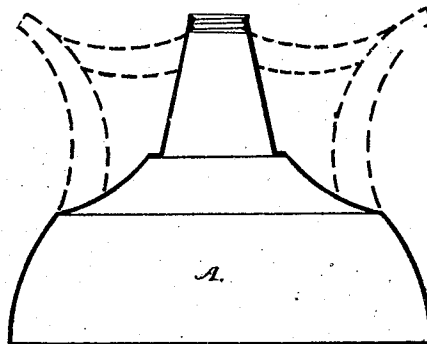


Fig. 1.

Fig. 3.



Witnesses,
John D. Nutting.
Lester Martin.

Inventor,
Rufus Nutting.

UNITED STATES PATENT OFFICE.

RUFUS NUTTING, OF WHEATON, ILLINOIS.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **152,002**, dated June 16, 1874; application filed June 18, 1873.

To all whom it may concern:

Be it known that I, RUFUS NUTTING, of Wheaton, county of Du Page, Illinois, have invented certain Improvements in Lamps, of which the following is a specification:

The invention will first be described, and then specifically set forth in the claims.

A is the stand, of any desirable pattern, so constructed and connected with the pipe, pin, or peg of a lamp-fount that the drippings therefrom shall be concentrated to drip or run into or be held within the stand, instead of running down externally, as with other lamps. Its capacity may be about one quart, more or less; it may be connected with the fount by a screw, in the usual manner of connecting the burner with the fount, or any desirable way; and it is especially designed for the convenience of self-supporting students and others who wish to buy but a small quantity of oil at a time. It may be made with hollow handles, as shown, which may be used as filling-spouts; but they are unnecessary, as the fount is necessarily removed from the stand before filling—when it is convenient, pouring the oil from the top of the stand into the fount. Thus constructed and arranged with a fount and burner for lighting students' rooms and others, my stand answers the quadruple objects of stand, oil-can, lamp-filler, and drippings-holder. The wick-pipe D (a dropped or drawn metal tube) has a tight bottom, as seen at X, but extends a short distance lower, as shown, and may be connected with the stand or other drippings-holder by a screw or other means. To its lower end is soldered the drippings-funnel V for conducting the drippings to the center of the stand, and preventing the liability of capillary leakage around the joint. The drippings-cup C is soldered to the wick-pipe D a short distance below its bottom X, or to the top of the stand, and oil collecting in it passes through the hole S in the pipe D and the funnel V into the receptacle below. The connecting-pipe F is soldered to the funnel-shaped bottom F*, curved toward the lower end of the pipe D, and soldered at nearly right angles with and to each, and at the greatest practicable distance from the heat of the flame, (pipe D being longer than others chiefly for that object,) and so as to be more affected

by the cooling currents of air toward the center of the fount, concentrated by the concave bottom F*. The greater distance of its connecting-joint with pipe D from the flame, in connection with the cooling currents, also renders it practicable to drop the burner safely from a sixth to a fourth nearer the surface of the oil, thus improving the light, there being no other direct connection between the fount and wick-pipe, the usual gas-vent being located elsewhere. One connecting-pipe only is described, but two or more are generally used, for symmetry and firmness. The fount E is intended to be spun, stamped, or pressed, so that its sides, bottom F*, and cooler G shall be constituted of one and the same piece of metal; but if this shall be impracticable the cooler G may be made of a dropped or drawn tube, and connected with the bottom and top. The bottom of the fount F* is made funnel-shaped, its central part being raised about half an inch higher than its periphery, and in a straight line direct from its outer to its inner edge, as shown in the drawing, this fount concentrating air more freely than any other. The top of the fount rests upon a bead or shoulder, formed near the upper edge of the sides, and is soldered or otherwise joined thereto, and is slightly depressed toward its center to cause oil collecting thereon to flow through the central opening to the dripping-cup, rather than down the outside of the fount. To isolate the fount from the heat of the upper part of the wick-pipe D, instead of having the usual direct heat-conducting gas-pipe connection between them, I have my gas-vent in the top of the fount, which is equally safe and efficient. J, the fount gas-vent, consists of a tube, extending vertically half an inch or more, closed at its upper end, and having several small horizontal vent-holes about midway of its length, and fitting tightly within a hole or socket in the top of the fount, for the purpose of emitting explosive gas from the space above the oil in the fount when kerosene is used; but it is so constructed that it fits the socket equally well, either end up, so that when gasoline is used, and it is desired to close the vents to prevent evaporation, the tube is put in with its tight or closed end down. The indicator E* consists of

any light sonorous ball or figure, which will float invisibly and freely upon the oil in the fount, and by gently shaking the lamp be caused to strike against the cooler G, the sides or top of the fount, and indicate, approximately, by sound, the height of the oil. It may be made of glass, metal, or other material. The filling-duct I is a trough or duct attached to the under side of the top of the fount, and extending from its outside under the filling-hole I^x to within about one-sixteenth of an inch from the cooler G, for indicating to the sight of the one filling the lamp when it is so full, by the oil spreading over its bottom, which is sufficient distance below the top of the fount to allow the oil to rise, when it expands by increased heat after the fount is filled, without running out of the hole I^x, thus making an expansion-chamber of the top of the fount. This duct also prevents the slopping up of the oil against the filling-hole I^x, causing leakage when the lamp is being carried or being inclined to one side for lighting, and, being internal and firmly attached to the top and sides of the fount, is not liable to disarrangement. The filling-hole I^x may be closed by a packed valve, opening to one side somewhat as a guard over a key-hole, instead of the usual screw, if preferred. The brace-cooler H is a square tube or box, whose smallest diameter is the same as that of the wick-pipe D, which fits within it, and its length about the same as the vertical diameter of the central part of the fount E, and its office is to brace or stay the wick-pipe D at the desired distance from the inner surface of the cooler G, and afford a permanent, though loose—i. e., not rigid—connection of the fount E with the pipe D, as it is not soldered either to the cooler G or fount E, and only slightly to the pipe D at its lower end. It may be made of common or perforated sheet metal, wire-gauze, or other material, so as to secure the loose connection at a fixed distance of the pipe D and fount E without preventing the vertical current of air. The cooler G may be enlarged, and the pipe D contracted, so as to increase the distance between the oil in the pipe D and fount E, and afford a wider space for the vertical current of air between them by varying the cooler H accordingly, if desired. K, the inductor, consists of a circular plate, four to six inches, or about a fourth-inch more in diameter than the fount on which it is to be used, spun, or pressed in a conical form, with several apertures D^x near its center, through which air may pass to the flame, to the under side of which the ratchet-chamber K^x, constructed and provided with screw and wick-mover in the usual manner, is firmly attached, and through the center of which the wick-tubes L and M pass. Its objects are to protect the fount from injury when dropped on its side, or from blows on its top, or from heat expansion, by covering and projecting out farther than the fount, and concentrating a current of air close to it; to furnish a firm

foundation to which the ratchet-chamber K^x, connecting the burner with the fount, is attached, and upon which the cone-pedestal rests; and also to increase the draft or amount of oxygen brought to the flame, by concentrating the vertical currents of air on all sides of the fount directly to the burner, instead of the usual dependence upon forcibly sucking in a supply from air rapidly ascending at a distance, the air surrounding a burning lamp being always in a vertical motion toward the top of the chimney. The auxiliary wick-tube L, for holding the main wick-feeder, extends from the under side of the ratchet-chamber K^x, up through it, to nearly the same height within the cone P as the main wick-tube, to which it is attached. Near its closed upper end are several holes or slots, L^x, which afford a free passage for the heated oil drawn up by the feeding-wicks in the tube L, the upper portion of which is heated by the flame, to the main wick M; also, by bringing an extra amount of oil, and that more rarefied, to the flame, a much smaller burning-wick may be used to give an equal amount of light, and, when combined with the extra draft of the inductor R, the flame may be turned down much smaller, for night use, without emitting deleterious odors or gases.

The orifices O^x in the cone-pedestal O admit horizontal currents of air under the edge of the chimney, which rests upon vertical projections for the purpose, which concentrate to and impinge the cone so as to be deflected upward, in connection with the draft, most favorably to improve the flame without striking against any part of the chimney, or other deflecting-surface, and thus preventing equal expansion, or dividing, or distracting the current under the inductor to the inside of the cone, as would be the case if the orifices were in the horizontal bottom of the pedestal, as usual. N, the wick-pipe gas-vent, is of similar construction as the vent g in the fount, for emitting explosive gas from the wick-pipe D, the small horizontal jet-holes in both being much safer than the usual oblong vertical mouth, admitting the exit of gas with equal freedom, while presenting a greater hinderance to the descent of fire from the flame to the gas above the oil.

I claim—

1. The detachable stand A, in connection with a lamp fount and burner, to answer for a lamp-filler, oil-can, drippings-holder, and lamp-stand, substantially as described.
2. The funnel b, in combination with the cap C, pipe D, having the orifice S, and the stand A, or other drippings-holder, substantially as described.
3. The cup C, in combination with the pipe D, having the orifice S, pipe F, and funnel V, substantially as described.
4. The funnel-shaped fount bottom F^x, in combination with the coolers G and H and pipe D, substantially as and for the objects described.

5. The brace-cooler H, in combination with the wick-pipe D and cooler G, substantially as and for the purposes described.

6. The sonorous, invisible, and freely-floating indicator E^x, in combination with an annular lamp-fount, substantially as and for the purpose described.

7. The horizontal filling-duct I, in combination with or within an opaque lamp-fount, for an eye-indicator and leak-preventer, substantially as and for purposes described.

8. A vertical tube having horizontal jet-holes for the emission of vapor or explosive gas from a wick-pipe or lamp-fount, in combination with a burner or fount, substantially as described and shown.

9. A reversible gas-vent, for a plug or stopper, in combination with a lamp or lamp-fount, substantially as described and shown.

10. An annular fount having its bottom funnel-form, as and for the object specified, and a burner having a deflecting inductor, K, as

and for the objects described, arranged and combined together for causing currents of air to impinge or pass closely over or around all sides of all parts of the lamp holding oil, to cool them in going to the flame, substantially as described and shown.

11. The deflecting inductor K for deflecting under its projecting periphery the vertical currents of air impinging it on all sides of the fount, and drawing them to the flame, and to guard the fount from injury from blows and unequal expansion of its top, or from injury from falling on its side, in combination with a ratchet-chamber having a screw for firmly connecting it with common lamps and wick-movers, as usual, substantially as and for the purposes described.

RUFUS NUTTING.

Witnesses:

S. H. NUTTING,
R. F. NUTTING.