

No. 121,521.

Fig 1



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MARK WIGGINS HOUSE, OF CLEVELAND, OHIO, ASSIGNOR TO CLEVELAND NON-EXPLOSIVE LAMP COMPANY, OF SAME PLACE.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. 121,521, dated December 5, 1871; antedated November 18, 1871.

To all whom it may concern:

Be it known that I, MARK WIGGINS HOUSE, of Cleveland, in the county of Cuyahoga and State of Ohio, have made an invention of certain new and useful Improvements in Lamps; and that the following is a full, clear, and exact description and specification of the same.

This invention relates to the construction of lamps for burning kerosene and other oils; and it consists of certain improvements, by means of which a better light is obtained than from the lamps in general use. The improvements are specified at the close of this specification, and in order that their practical application may be fully understood a lamp embodying them is represented in the accompanying drawing, and a description of said lamp is hereto subjoined.

Figure 1 is a vertical section dividing the lamp at the center. Fig. 2 is a detached view of the wick-elevating tube. Fig. 3 is a detached view of the central or draft tube, upon which slides the wick-sleeve.

A, Fig. 1, represents the body or fount of a lamp, in and through the central part of which is a large tube, B, which forms a part of the lamp fount A. Within the tube B and parallel therewith is the wick-tube C, which is smaller than the tube B, so that an air space, D, Fig. 1, is left between them. The tube C and the fount A are connected by a small supply-tube, S, through which the oil from the fount is fed to the wick. The top or open end of the wick C is connected to the top of the fount A by a small capillary gas or vent-tube, V. The center draft-tube E, open at both ends, is placed concentrically within the wick-tube C, and is soldered fast to its lower end, thus forming an annular space between them for the cylindrical wick. A groove, *h*, is formed in the outer surface of the tube E, Fig. 3, longitudinally therewith to prevent the wick-sleeve *g* from turning around while it is raised and depressed for the purpose of raising or depressing the wick to adjust the light. Instead of the groove *h* a spline could be formed upon the tube E, and in effect would be a mechanical equivalent of this groove. In order that the wick-sleeve with the wick may be raised and depressed, the lower end of the wick-sleeve is fitted with a slotted flange, *i*, and a movable spiral-threaded tube, F, is provided to operate upon the said flange. This tube, as represented more fully at

Fig. 2, has a projecting spiral thread formed upon its interior by grooving its exterior in a corresponding manner; it is inserted in the wick-tube C and is connected by the conical piece *n* with the chimney-holder K, which receives and holds the chimney of the lamp, so that the turning of said chimney-holder causes the spiral tube to turn correspondingly. The flange *i* at the bottom of the wick-tube is slightly smaller in diameter than the interior of the thread-tube F so as to move freely therein, and it is slotted at one side, as seen at Fig. 2, to permit the projecting thread of the thread-tube F to screw through it. As the wick-sleeve is prevented from turning by the groove *h*, with which a spline projecting inward from the wick-sleeve engages, the turning of the thread-tube to the right or to the left screws the wick-sleeve and the wick secured to it up or down in the wick-tube.

The above-described mechanism for raising the wick is an improvement upon the old system, in which the fixed draught-tube is threaded, and the wick-sleeve is turned round it by a movable slotted tube. In the new system above described the spiral-threaded tube being external is of larger diameter than the fixed draught-tube, and consequently the inclination of the thread can be more gradual; the threaded instrument being movable can be readily withdrawn from the lamp and replaced by the user when worn, which was impracticable with the old system; as the spline or groove upon the wick-sleeve is, in the new system, at the inside of the wick-sleeve, it may be made to extend throughout its entire length, instead of being a small projection as was necessary in the old system to prevent it from interfering with the wick, inasmuch as it must necessarily be made to project from the exterior of the wick-sleeve. Moreover, with the old system the wick must necessarily be turned when it was raised or depressed; with the new, the wick is raised and depressed without turning it. My new mechanism also possesses advantages over a system in which a spirally-slotted external tube is used to screw up the wick-sleeve, because in the latter system the construction of the spiral slot necessarily divides the tube in which it is cut from top to bottom, so that the portions of the tube at opposite sides of the slot are disconnected, and consequently do not strengthen each other; hence the tube must be made of a thick

material in order that it may possess the requisite rigidity. In my system, on the other hand, the tube from which the spiral thread projects need not be slotted at any part of its length; hence, every portion of it tends to hold and sustain the residue and the projecting thread stiffens the tube, and consequently the thread-tube may be made of thin sheet metal and yet possess great strength to resist the twisting strain to which it is subjected.

The chimney-holder K may be made of any convenient size and form to hold the chimney; and in order that it may be turned conveniently it is fitted with a milled rim, O. The wick-tube C is enlarged at its upper end, as seen at *a*, Fig. 1, to permit the entrance of any surplus oil that may escape from the wick; and the internal draught-tube E is extended slightly above the head of the exterior tube F, so as to prevent the surplus oil from running down the interior of the draught-tube. By these improvements the overflow of oil at the interior wick-tube is prevented in a lamp having an external screwing-tube to raise the wick; consequently the use of a cup at the lower end of the internal tube is dispensed with, and whatever oil may overflow at the wick-nozzle is caught and returned to the fount through the enlarged head of the stationary wick-tube. The top of the lamp is made with a flange, L, shown in Figs. 1 and 4. A notch, *m*, Fig. 4, and a corresponding projection on the base, *p*, Fig. 2, of the chimney-holder is provided to pass through the notch and under the flange L. As this base is connected rigidly with the spiral-threaded tube, the operation of the projection and flange is to lock the spiral-threaded tube to the fount, so that the tube cannot move up and down when the tube is turned for the purpose of moving the wick. The tripod brace U, Fig. 1, is attached to the lamp-fount A, and a female-threaded screw, T, made therein. As this device has nothing to do with the transmission of the burning fluid from the fount to the wick-tube, which transmission takes place through the tube S, it may be constructed with solid arms all cast in one piece; it also may be secured to the fount in any position required to rectify any irregularity in the fount, or in the base to which the fount is to be applied; and it furnishes a cheap and efficient mechanical device for connecting the fount with bases, chandeliers, and gas-fixtures. The fount is provided with a filling-hole, X, to which I prefer to apply a tube, J, and cup-seal Y, extended into the body of the fount, as seen in Fig. 1. The filling-hole is closed by a screw-cap, Fig. 5, to which a leather

washer, *w*, is applied, so that when the cap is screwed down the escape of oil is prevented. The body of the fount is extended above the level H of the mouth of the filling-hole so as to furnish an expansion chamber, Z, into which the oil may pass when it expands by reason of a rise of temperature after the lamp is filled, because of the position of the communication between the fount and the wick-tube, viz., the vent-tube V, above the level of the filling-hole, permits the vapor or air in the chamber Z to escape, and consequently permits the fluid when it expands to rise above the filling-hole and enter said chamber. This expansion chamber is of great importance to the practical value of the lamp, because it is the custom of careless users to fill the lamp-fount full, and if no expansion-chamber was provided the expansion of the liquid by the ordinary changes of temperature which frequently occur in houses would in such cases cause the liquid to overflow at the wick-tube. The expansion-chamber, by providing a space for expansion which cannot be filled when the fount is filled, obviates the danger and inconvenience of an overflow at the wick-nozzle of the lamp.

What is claimed as the invention to be secured by Letters Patent, is—

1. The combination of the interior draught-tube and its longitudinal groove, the wick-sleeve, and the interior turning spiral-threaded tube, the whole constructed to operate substantially as before set forth.
2. The combination of the exterior spiral-threaded tube, operating upon the exterior of the wick-sleeve, with an external stationary tube constructed with an enlarged head, substantially as before set forth.
3. The combination of the interior draught-tube and its longitudinal groove, the wick-tube, the exterior spiral-threaded tube, the wick-sleeve, and the fount, substantially as before set forth.
4. The fount constructed with an expansion-chamber extending above the level of the filling-hole, and also with a vent from said chamber, substantially as before set forth.
5. The combination of the movable spiral-threaded tube with the fount by means of a locking device so as to prevent the upward movement of the threaded tube when it is turned, substantially as before set forth.

In testimony whereof I have hereto set my hand this 11th day of July, A. D. 1870.

MARK W. HOUSE.

Witnesses:

E. S. RENWICK,
W. L. BENNEM.

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