C. F. A. HINRICHS & C. REISTLE.
Lamp-Burner.

No. 203,342. Patented May 7. 1878.

Fig. 1.

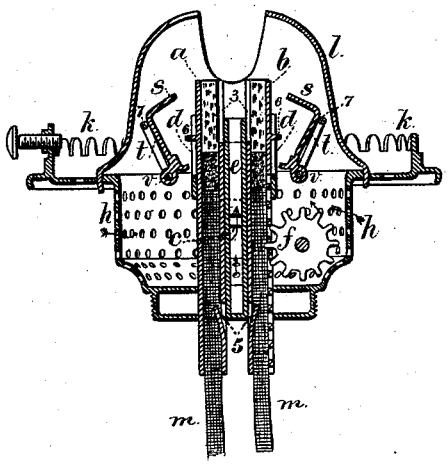


Fig. 3.

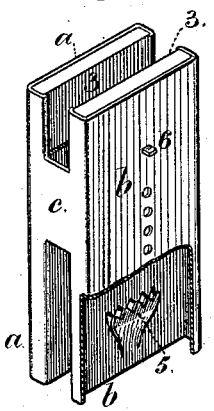
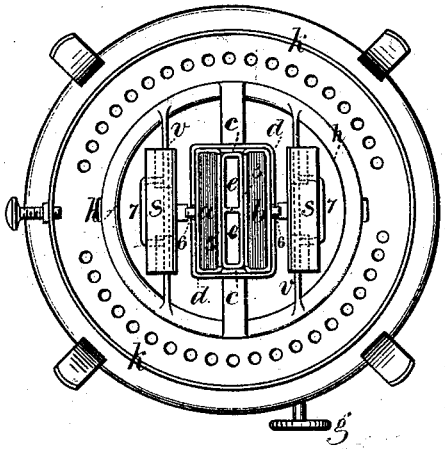


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES F. A. HINRICHS AND CHARLES REISTLE, OF BROOKLYN, NEW YORK, ASSIGNORS TO SAID HINRICHS.

IMPROVEMENT IN LAMP-BURNERS.

Specification forming part of Letters Patent No. **203,342**, dated May 7, 1878; application filed February 1, 1878.

To all whom it may concern:

Be it known that we, CHARLES F. A. HINRICHS and CHARLES REISTLE, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Burners for Illuminating and Heating Purposes, of which the following is a specification:

We make use of two flat wicks with an air-space between them, and around and between said wicks there is a case, by means of which more or less of the wick is exposed when either the case or the wick-tubes are raised or lowered. By this means the height of the flame is regulated. The amount of air admitted between the wicks is also regulated, according to the height of the flame, by cut-off plates moved up and down with the moving parts. Swinging wick-covers are applied to cover the upper end of the wicks and prevent the escape of vapors when the lamp is extinguished.

For heating purposes these pairs of flat wicks are grouped together, so as to be simultaneously operated in increasing or diminishing the flame.

In the drawing, Figure 1 is a vertical section of the burner complete. Fig. 2 is a plan of the same with the deflector removed, and Fig. 3 is a perspective view of the wick-tubes, partially in section.

The wick-tubes *a* and *b* are connected together by the cut-off plates *c*, so that there is an air-space between them, and these wick-tubes are placed within the case *d* that surrounds them. There is also a case between the wick-tubes, as at *e*, and the air passes through that case into the space between the two flames that rise from the tops of the wick-tubes.

If the wick-tubes are raised or lowered within the case, or the case raised or lowered around the wick-tubes, the wick will be exposed more or less, and the height of the flame regulated.

We have shown the case stationary and the wick-tubes movable by means of the pinion *f*, having teeth or points that enter holes in the side of the wick-tubes; and this pinion is turned by a shaft and button-head, *g*.

We have represented the pair of wick-tubes as in a burner having the foraminous air-distributer *h*, chimney-rest *k*, and cone or deflector *l*. These parts, however, may be varied according to the character of the burner, and in cases where the pairs of wicks are used for heating purposes the chimney-holder will be dispensed with, and usually several pairs of wicks will be raised and lowered simultaneously.

The inner faces of the wick-tubes are removed, as at 3, so as to expose the adjacent sides. This allows for the upper ends of the wicks being level with the tops of the wick-tubes, the vapors passing off from the sides of the wicks, as well as the tops; and we make use of mineral wicks formed of suitable non-combustible material, such as asbestus or other similar material, of a size and shape to fit accurately into the wick-tubes; or such material may be molded into the tube when in a plastic condition.

Below the mineral wicks there are fillings of mineral wool sufficient to prevent the heat charring the cotton wick *m*, which latter extends down into the oil in the lamp-reservoir.

There are spring-teeth 5 cut in the metal of the wick-tubes at the inner surfaces thereof, which teeth are bent inwardly and stand upwardly, and hold the cotton wick so that it cannot fall away from the packing of mineral wool.

In order to close the wick-tubes and prevent the escape of vapors when the lamp is extinguished, we make use of the cap-plates *s* upon vertical arms *t*, that are pivoted to the cross bearing-bars *v* in such a position that the caps *s* can be swung over the tops of the wick-tubes when the said tubes are turned down to their lowest point within the case; and in order to move such caps, there are cam-fingers 6 upon the outer surfaces of the wick-tubes, to act against the projections at the lower ends of the arms *t* and swing the cap-plates either upon the upper ends of said wick-tubes as the latter are moved downwardly, or to remove said caps from the wick when the wick-tube is raised.

The arms *t* of the cap-plates lie against the stops 7 7 when not in use, as seen in Fig. 1.

The plates *c*, that unite the two tubes, act to lessen the space for the air admitted between the wicks as said wicks are moved down-

wardly, because the distance between their lower edges and the shell of the burner is lessened.

We are aware that two ordinary wick-tubes have been used with an air-space between them, and with wick-raising pinions. A single flame-slot in the deflector has also been used with the double wicks. A movable case has been used with a single wick-tube and mineral wick, and with an Argand wick and mineral ring. The tube has been raised or lowered by a pinion. By our improvement the two flat mineral wicks are exposed more or less above the interior case *e* to regulate the flame, and the air passes directly into the flames as they burn from these mineral wicks.

We claim as our invention—

1. The combination, with the two wick-tubes, of a surrounding-case, *d*, and a case, *e*, between the two wick-tubes, and means for raising and lowering the wick-tubes relatively to the case, substantially as set forth.

2. The combination, in a burner, of two wick-tubes having an intermediate air-space, and their inner sides removed near the upper ends, the case *e*, two non-combustible mineral wicks, and two cotton or supply wicks, substantially as set forth.

3. Two flat wicks adjacent to each other, in combination with the cut-off plates *c* between them, and the case around such wick-tubes, substantially as set forth.

Signed by us this 30th day of January, A. D. 1878.

C. F. A. HINRICHS.
CHS. REISTLE.

Witnesses:
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