W. STAEHLEN.

LAMP.

No. 186,765. Patented Jan. 30, 1877.

Fig. 1.

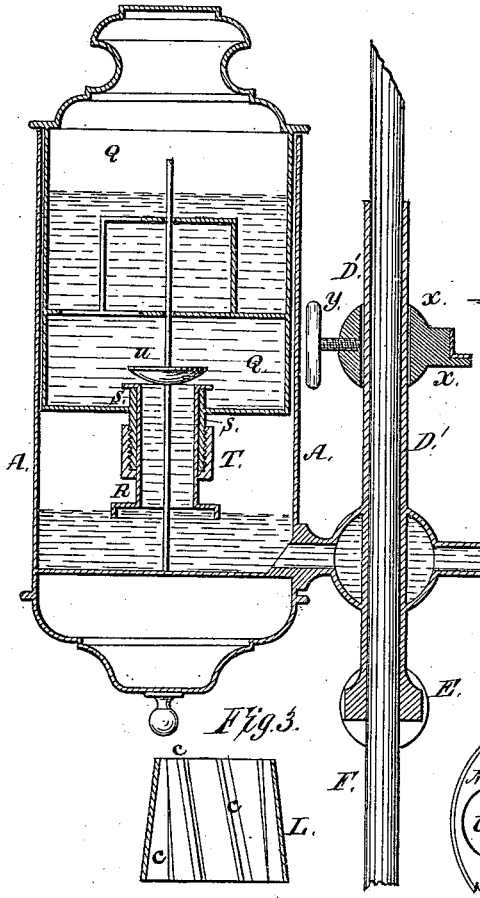
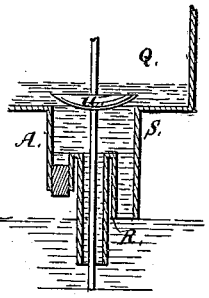


Fig. 7.



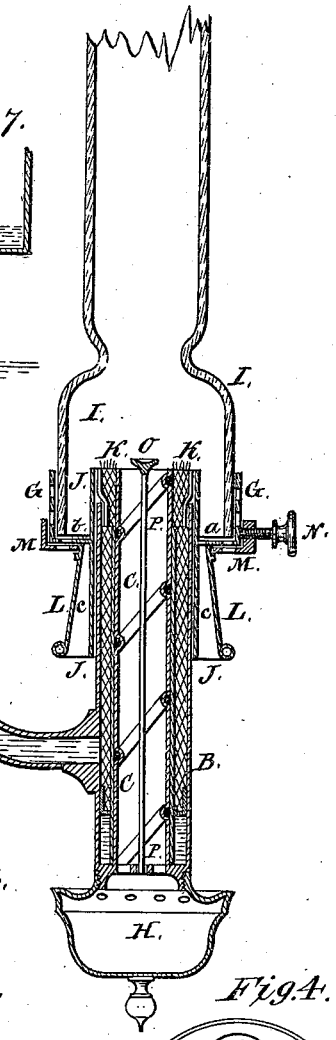


Fig. 3.

Fig. 6.

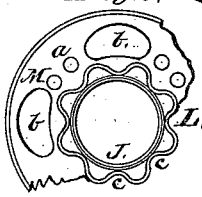


Fig. 5.

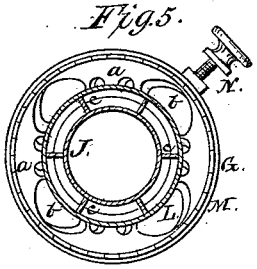


Fig. 2.

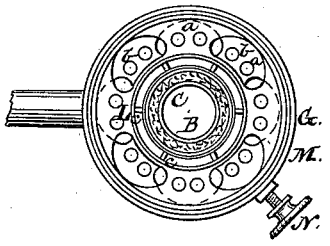
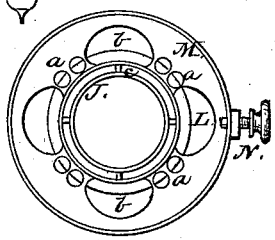


Fig. 4.



Witnesses:

J. Donovan

Geo. T. Pinckney

Inventor:

W. Staehlen

UNITED STATES PATENT OFFICE.

WILLIAM STAEHLEN, OF BROOKLYN, NEW YORK, ASSIGNOR TO CHARLES F. A. HINRICHS, OF SAME PLACE.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **186,765**, dated January 30, 1877; application filed November 1, 1876.

To all whom it may concern:

Be it known that I, WILLIAM STAEHLEN, of the city of Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Study and other Lamps, which improvements are fully set forth in the following specification:

The object of these improvements is, first, to provide the lamp with means for changing the oil-level higher or lower, suitable for burning the light as well as the heavy illuminating-oils, so that the lamp can be used in localities in which light oil is allowed to be used as well as in localities in which the heavy oil is required to be employed. Said object is, secondly, to provide the burner with means for obtaining a powerful draft, and with adjustable air-passages suitable for burning various kinds of oils, and for obtaining a brilliant light; and said object is, finally, to adjust the shade-holder attached to the lamp, so that the shade-holder will move up or down with the lamp; nevertheless, said holder is adjustable separately in its height to the flame or lamp.

In the drawing, Figure 1 represents a vertical central longitudinal section of a study-lamp with my improvements. Fig. 2 is a top view of the lamp-burner. Fig. 3 is a detached vertical section of the draft-cone for said burner. Fig. 4 is a detached top view of the register-plate for regulating the outer draft-passages of the burner. Fig. 5 is a bottom view of the deflector and register-plate. Fig. 6 is a top view of a modification of said deflector and the burner-tube to which it is attached. Fig. 7 is a vertical section of a modification of the changeable outlet of the feed-cup of the lamp.

A represents the oil-reservoir of the lamp. B is the wick-tube furnished with the usual spiral-grooved inside air-tube C, and said reservoir is connected by the usual pipe D to the wick-tube B. Said pipe D has the vertical sleeve D′ through it, which is provided with the usual collar and set-screw E for securing the lamp to its vertical standard F. Said sleeve D′ extends a considerable distance upward, and the shade-holder X has a vertical hub with a set-screw, Y, which is fitted to slide up or down on the sleeve. By these means the shade and holder are readily moved up or down with the lamp upon the standard F, without the set-screw of the shade-holder being released. The shade and holder, however, can be moved and secured higher or lower, in relation to the flame to condense or spread the light of the lamp.

The lower end of the wick-tube is furnished with the usual perforated waste-cup H, through which the air passes into the inside air-tube C to the inner periphery of the flame. G represents the chimney-holder, in which the chimney I is held. The chimney is shaped with a neck to contract the air and flame in the usual manner. The wick-tube B is furnished with the usual wick-raising device. J represents the burner-tube, which is fitted to turn freely or loosely over the side and top edge of the wick-tube. It has the usual downward overlapping rim K over the inside top edge of the wick-tube. Said rim has on its lower end notches engaging and turning the wick-raising device. Upon the tube J is secured a cone or deflector, L, and around its upper part is secured the bottom of the chimney-holder.

In the space between the tube J and the cone L are equally distributed vertical and somewhat spiral partitions *c* to combine said tube and deflector.

Instead of having said deflector with said partitions it may be made with vertical corrugations, as shown in Fig. 6. The annular bottom of the chimney-holder has through it air-passages *a* and *b* equally distributed, and said passages *a* are of small dimension, but the passages *b* are large, as shown in Figs. 2 and 5.

Close beneath the bottom is a secondary equally-perforated register-plate, M, which is fitted to turn on the deflector L, and it has a vertical rim on its periphery circumscribing the periphery of the chimney-holder, and at one place upon said rim is a radial set-screw, N, by means of which the register-plate is secured to the chimney-holder after being adjusted for the required draft suitable for the kind of oil used.

The chimney-holder and plate M, having the same passages, may be set to correspond, as

shown in Fig. 5, and permit large volumes or streams of air to pass through them; or the plate M may be adjusted to have its large passages mostly covered, as shown in Fig. 2, and only admit the air in small streams, and of a reduced volume, suitable for burning kerosene or light oil, whereas the large passages are better adapted to heavy oil. Through the deflector L rapid spirally-moving currents of air are caused to pass to the flame, which promote a perfect combustion by directing the air upon the flame.

I sometimes employ at the top of the air-tube C a small central button, O, which is secured to a central wire guided in cross-pieces P P in said tube, according to the kind of oil employed, so the level of the oil in the lamp should be more or less below the top of the burner. For heavy oil said level is required to be nearer the top of the burner than for light oil, on account of capillary action of the wick being slower.

In the reservoir A is employed the inverted oil-holder Q, from which the basin is supplied at the level of the outlet of said oil-holder. Said outlet has heretofore been made permanent, and therefore the level of oil in the lamp is constantly the same, and the lamp is not suitable for burning the different kinds of oil that are made use of in different localities. I construct for this purpose said cup with a changeable outlet, or several different outlet-pipes, R. When made changeable said pipe is to be moved up or down through a threaded hub, S, on the bottom of said cup, and through a stuffing-box, T, so that by setting said pipe R lower or higher the level of the oil is varied in relation to the top of the burner, and adapted to the kind of oil used in the lamp. U represents the usual valve employed in the cup to close its outlet during the insertion of the cup into the basin after being filled. The lower end of the rod of said valve in this case has to be sufficiently long to open said valve when the pipe R has been raised to its full extent. I have shown one mode of changing said outlet to produce a higher or lower level of oil; but the same may be effected by other means.

Instead of having the pipe R to slide, as before described, several outlets, arranged one above the other, may be employed, so that by closing all outlets above the desired level of oil said level may be retained at the desired point.

I claim as my invention—

1. The annular-perforated register-plate M, in combination with the chimney-holder G, having openings through its annular base to regulate the air passing between the chimney and burner-tube J, substantially as and for the purpose herein stated.

2. The combination of the deflector L, the air-passages *a* and *b*, the chimney I, burner-tube J, and wick-tube B, substantially as and for the purpose herein described.

3. The combination of the deflector L, spiral partitions *c c*, and wick-tube B with the chimney I, the chimney-holder G, and burner-tube J, substantially as and for the purpose herein shown and described.

4. The reservoir A and oil-holder Q, in combination with the variable outlet R, for changing the level of oil in the lamp, substantially as and for the purpose herein mentioned.

5. The combination of the register-plate M, chimney I, holder G, burner-tube J, wick-tube B, reservoir A, and oil-holder Q, and variable outlet R, substantially as and for the purpose herein described.

6. The combination of the sleeve D′, shade-holder X, and lamp-standard, substantially as and for the purpose herein set forth.

Signed by me this 8th day of July, A. D. 1876.

W. STAEHLEN.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.