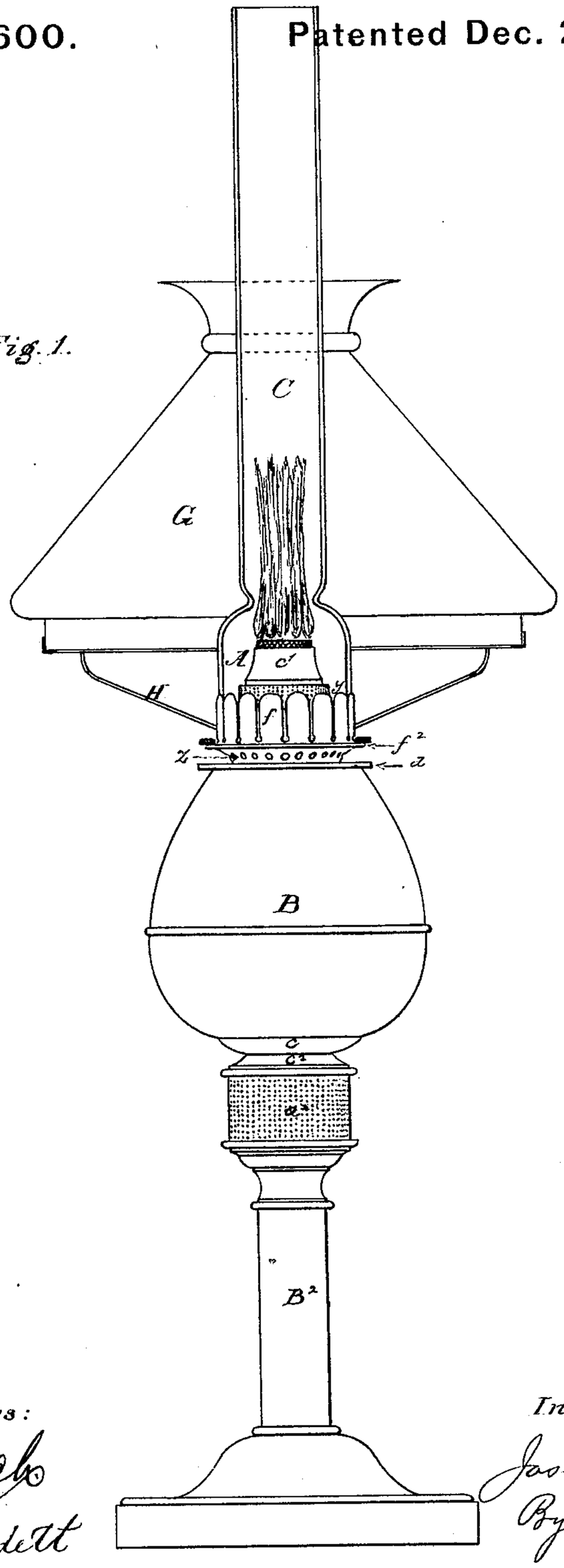
2 Sheets—Sheet 1.

J. FUNCK.

Lamp.

No. 198,600. Patented Dec. 25, 1877.

Fig. 1.



Witnesses:

Chas. J. Cooke

LeRoy Blond Burdett

Inventor:

Joseph Funck

By Knight Bros

Attorneys

2 Sheets—Sheet 2

J. FUNCK.
Lamp.

No. 198,600. **Patented Dec. 25, 1877.**

Fig. 3.

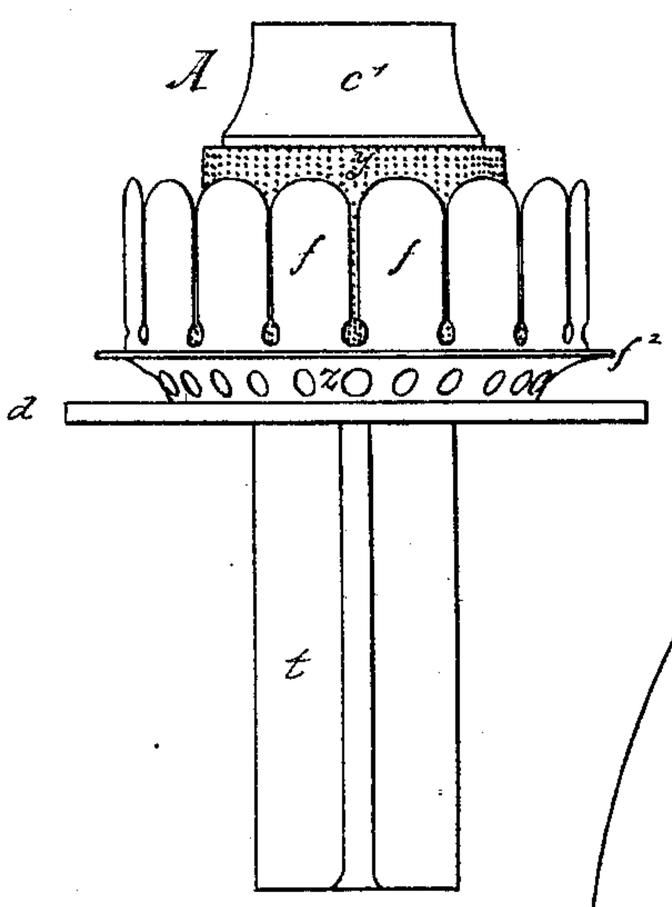


Fig. 2.

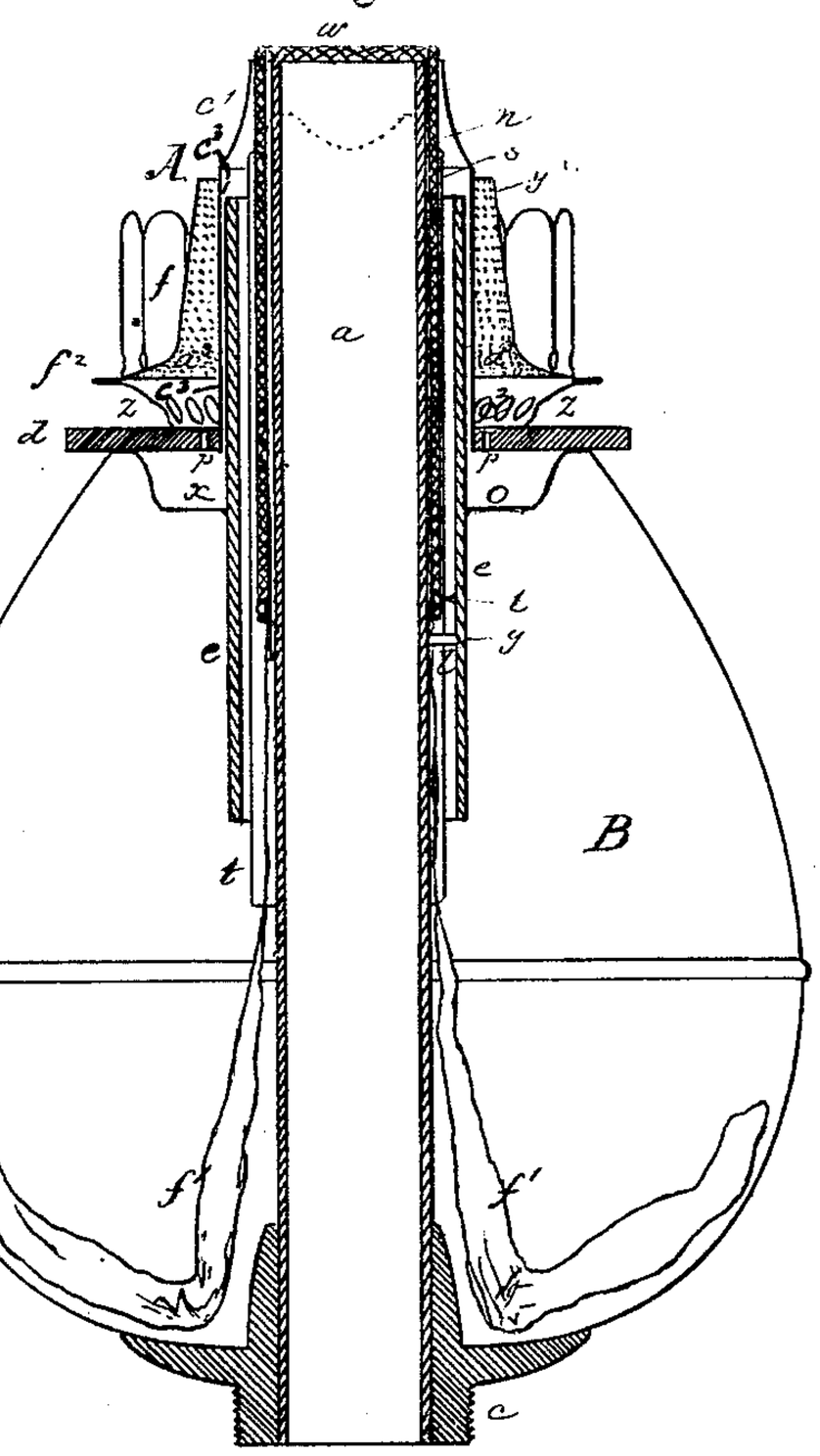


Fig. 4.

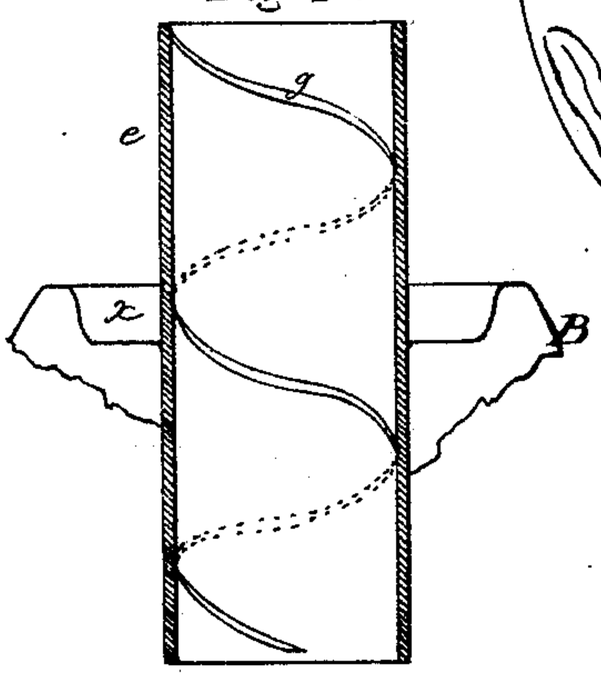
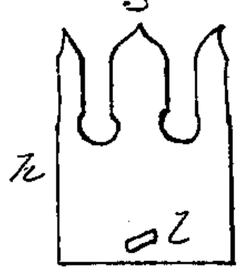
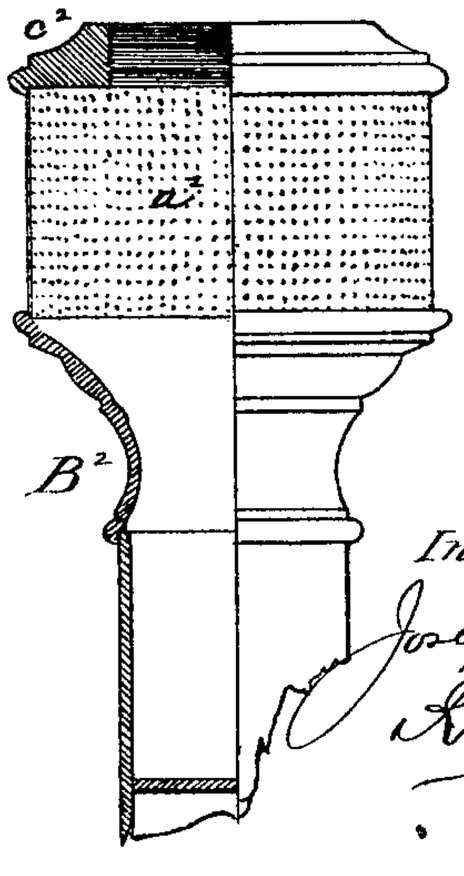


Fig. 5.





Witnesses:

Chas J. Cooke

L. Bloodgood Burdett

Inventor:

Joseph Funck

Knight Bros

Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH FUNCK, OF TOMPKINSVILLE, NEW YORK.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **198,600,** dated December 25, 1877; application filed February 8, 1877.

To all whom it may concern:

Be it known that I, JOSEPH FUNCK, of Tompkinsville, Staten Island, in the county of Richmond and State of New York, have invented a new and useful Improvement in Lamps, of which the following is a specification:

The primary object of the present invention is the construction of a shadowless lamp having the advantages of the "student's lamp" as regards the employment of a short circular or tubular wick, and the abundant and uniform supply of oil and air thereto, whereby the even and steady flame of the latter is secured.

Another object of said invention is the construction of a wick-holder of superior simplicity and efficiency.

Another object of said invention is provision for elevating the wick by turning the movable part of the burner without the usual grooves in the wick-tube, which impair the efficiency of the latter.

Another object of said invention is a very compact arrangement of the parts of the improved lamp.

Another object of said invention is provision for filling the lamp by simply raising the movable part of the burner, with provision for preliminarily extinguishing the flame.

Another object of said invention is to prevent overflow and ordinary escape of oil from reaching the outside of the lamp.

A last object of said invention is to equalize the supply of air to the flame of the lamp.

The said invention consists in the peculiar means, hereinafter specified and summed up, whereby said objects have been accomplished.

Figure 1 of the accompanying drawings is an elevation of a shadowless tubular-wick lamp illustrating this invention. Fig. 2 represents a vertical longitudinal section of the bowl and burner of the same. Fig. 3 is an elevation of the movable part of the burner. Fig. 4 is a sectional view, and Fig. 5 an elevation, of other parts, illustrating details.

Like letters of reference indicate corresponding parts in the several figures.

This improved lamp has a burner, A, of peculiar construction, as hereinafter set forth, and below and around the latter a concentric bowl or oil-reservoir, B, supported beneath by a base or pedestal, B^2, as in the ordinary flat-wick table-lamps. The material, shape, and proportions of the bowl B and base B^2 will vary to suit the trade; but the former will, preferably, be of a form analogous to that shown, so as to offer the least possible obstruction to the downwardly-projected rays of the flame. Thus the shadow of the lamp is, in the illustration, reduced to that of the burner itself. Vertical fingers f, and a horizontal external flange, f^2, on the burner, support an ordinary glass chimney, C, and a shade or globe, G, with the holder H, belonging to the latter.

A central air-tube, a, extends from the top of the burner to below the oil-reservoir proper, rendering the latter as well as the burner annular. This tube is supported at its lower end by an annular metallic coupling, c, which unites the bowl B and base B^2. The joints between the tube-coupling and bowl are oil-tight, and the coupling screws into a collar, c^2, at the top of an air-chamber, a^2, with which the stem of the base B^2 terminates. The walls of this chamber are of finely-perforated sheet metal, which strains and equalizes the entering air. The stem of the base below this point has been made hollow and oil-tight, to receive any inward overflow of oil, with the particles of wick, &c., which fall into the air-tube.

A wick-holder, h, Fig. 5, embraces and slides upon the tube a within the upper part of the oil-reservoir and burner. A capillary wick-feeder, f^1, permanently or securely attached to the holder h, extends down to the bottom of the oil-reservoir when the holder is in its highest position, and may consist of a piece of flannel divided longitudinally, so as to turn and fold freely within the reservoir. A short tubular wick, w, similar to that of a student's lamp, is thus provided for, and this is held or carried by the holder h, and is kept saturated with oil by the feeder f^1 as long as there is any oil in the reservoir. This form of wick is very superior to a flat wick, owing to the facility with which it can be introduced, and the even flame which it produces, it being practically impossible to insert and trim a flat wick so that its upper end will be always level.

The wick-holder h is made of very thin and elastic sheet metal, and is notched to form fingers, having sharp outwardly-bent extremities to enter the wick, while they are bent inwardly as a whole, so as to spring inward when elevated above the top of the air-tube, to release an old wick or to receive a new one.

To provide for raising and lowering the wick,

an elevator-tube, *e*, Fig. 4, is supported by the top of the bowl B so as to be concentric with the air-tube *a*, said tube *e* having an internal spiral groove, *g*, with a stop at bottom. An external lug, *l*, on the wick-holder *h* works in this groove, and the wick is consequently adjusted by turning the holder. For imparting this motion the movable part of the burner A, Fig. 3, is adapted to rotate when in position, and is constructed with a slotted tube, *t*, which is in effect the outer wick-tube. This tube is introduced between the wick and the elevator-tube *e*, the lug *l* occupying its slot. The movable part of the burner is also constructed with a milled disk, *d*, at bottom, to facilitate turning it to raise or lower the wick. The slotted tube *t*, besides transmitting motion, serves in this connection to keep the elevator-groove *g* clear by keeping the wick and wick-feeder out of contact therewith; and the removal of said groove from the inner tube leaves the latter perfectly smooth, and enables me, with said mode of operating the wick, to confine the latter tightly at the burning-point between two unbroken concentric circles of metal, as described in my Patent of the United States No. 177,825, dated May 23, 1876. In the present lamp the wick-contracter c^1 is united to the disk *d* by a cylindrical wall, c^3, and the slotted tube *t* depends therefrom.

An annular space, *s*, within the wall c^3, outside of the tube *t*, accommodates the upper end of the elevator-tube *e*, and permits the disk *d* to rest upon the top of the bowl B. Beneath the disk, in the top of the bowl, an oil-aperture, *o*, is formed, to provide for readily filling the lamp. This aperture is covered by the disk *d*, and is exposed by lifting the movable part of the burner. In doing this the flame is confined in the tube *t*, and thereby extinguished.

To prevent overflow and ordinary escape of oil from reaching the outside of the bowl and base, the top of the former, in which the filling-aperture is located, is depressed, as shown at *x*, Fig. 2, so as to form a funnel to retain such oil and conduct it into the filling-aperture. Notches *n* at the upper end of the tube *t* serve also to permit the escape of superfluous oil from the wick into the space *s* below the wick-contracter, which space discharges into the depression *x*. Perforations *p* are also provided in the disk *d*, for the escape into said depression of any oil which may run over the wick-contracter.

The flow of air to the interior of the flame is regulated, or rendered even and steady, by the perforated walls of the air-chamber a^2 beneath the bowl B, as hereinbefore described. Air is admitted to the outside of the flame through an annular chamber, a^3, in the movable part of the burner A. This chamber is formed around the inner wall c^3 and above the disk *d* by a perforated ring or zone, *z*, and an inwardly-curved annular deflector, *y*, of finely-perforated sheet metal. The former admits the air freely, and the latter, when the supply is not excessive, simply deflects the same against the flame. In the event of wind striking the lamp, or when the lamp is carried, the excess of air passes off chiefly through the perforations of the deflector, and the flame is thus protected.

All the parts of the burner, including the central air-tube and its coupling, are intended to be made of brass.

The following is what I claim as new, and desire to secure by Letters Patent, namely:

1. In a lamp having an annular burner and an annular oil-reservoir, as herein described, the combination of a central air-tube, *a*, a wick-holder, *h*, sliding thereon, and a capillary wick-feeder, f^1, permanently or securely attached to said holder, substantially as herein shown, for the purpose of accommodating and saturating a short tubular wick, in the manner set forth.

2. The wick-holder *h*, composed of a ring of thin elastic metal, having inwardly-bent fingers with sharp, outwardly-bent extremities, in combination with the central air-tube of an annular burner, for the purpose specified.

3. The combination, substantially as herein described, of a central air-tube, *a*, a wick-holder, *h*, sliding thereon, and provided with an external lug, *l*, and a concentric elevator-tube, *e*, having an internal spiral groove, *g*, to receive said lug, for the purpose specified.

4. The slotted tube *t* and the milled disk *d*, attached to the movable part of the burner A, in combination with the central air-tube *a* and concentric elevator-tube *e*, supported by the bowl or oil-reservoir B, and the wick-holder *h*, sliding upon said central tube, substantially as shown and described, for the purpose set forth.

5. The bowl or reservoir B, having a filling-aperture, *o*, in the top thereof, in combination with the movable part of the burner A, having a disk, *d*, to cover said aperture, and a tube, *t*, to extinguish the flame when the disk is elevated to expose the filling-aperture.

6. The depression *x*, formed in the top of the bowl or reservoir, to accommodate the filling orifice, and to confine overflow and escape of oil, and covered by the disk *d* of the movable part of the burner, as described.

7. In combination with the depression *x* in the top of the bowl or reservoir, the annular space *s*, extending downward from the notched upper end of the tube *t* in the movable part of the burner, for conducting overflow to the filling-orifice, and accommodating the upper end of the fixed tube *e*, as specified.

8. The finely-perforated deflector *y* within the air-chamber a^3 of the movable part of the burner, for equalizing the supply of air to the exterior of the flame, in the manner set forth.

JOSEPH FUNCK.

Witnesses:
WM. A. MAIN,
JAS. L. EWIN.