(No Model.)

2 Sheets—Sheet 1.

# E. F. TRENT.

## LAMP BURNER.

No. 314,354. Patented Mar. 24, 1885.

Fig. 3.

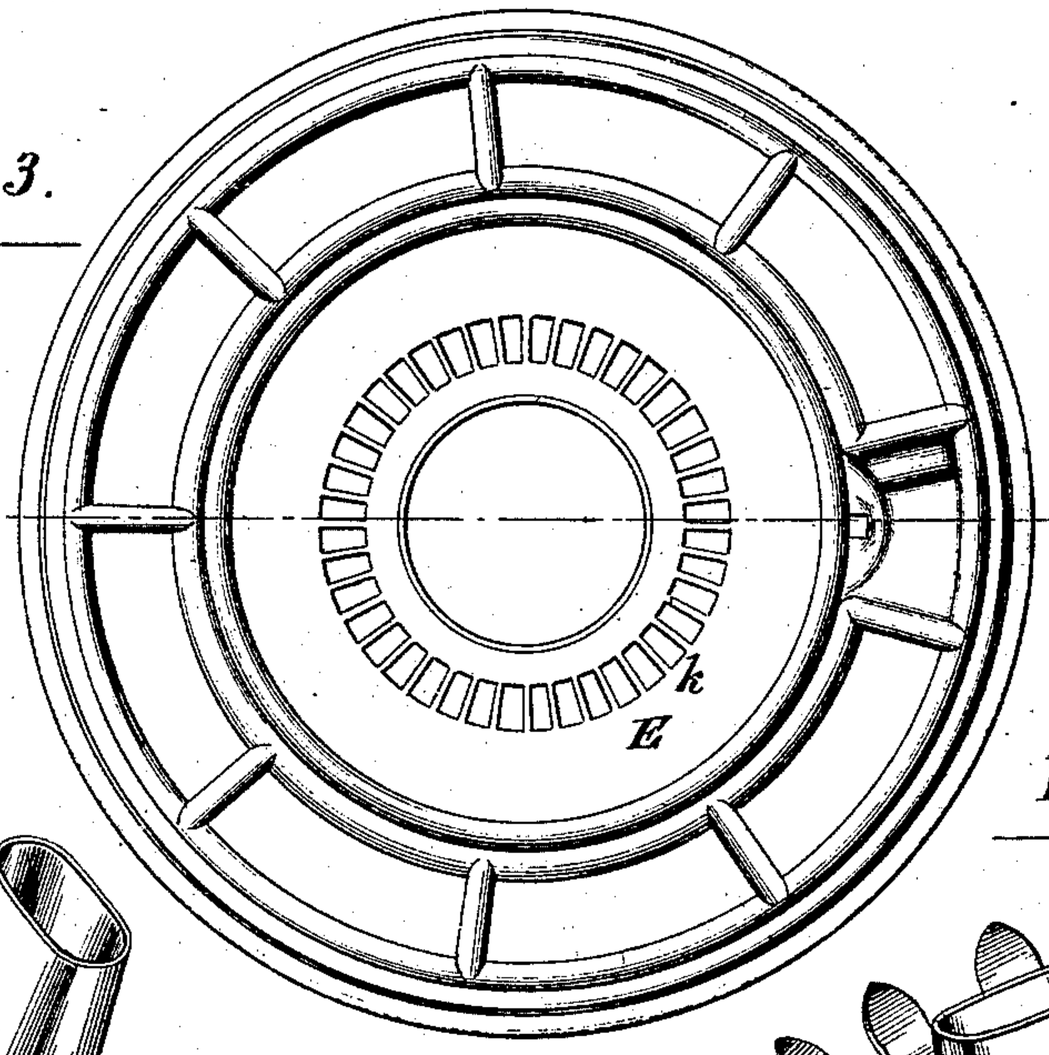



Fig. 8.

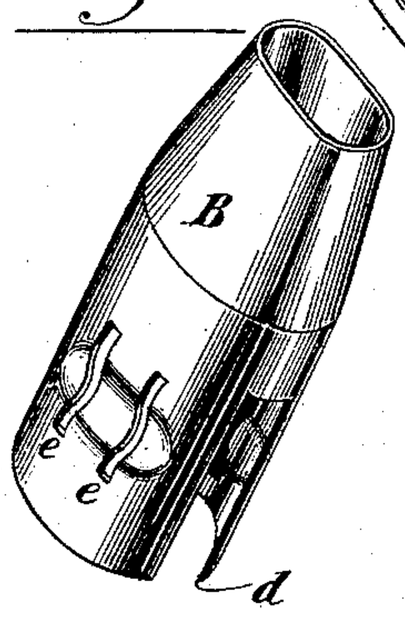



Fig. 5.

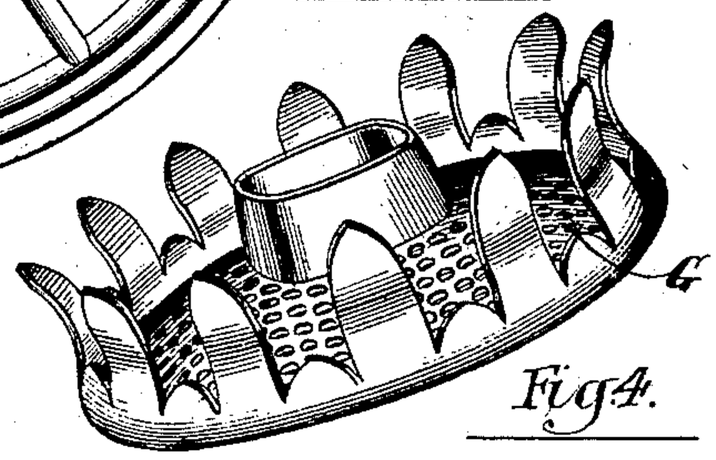



Fig. 1.

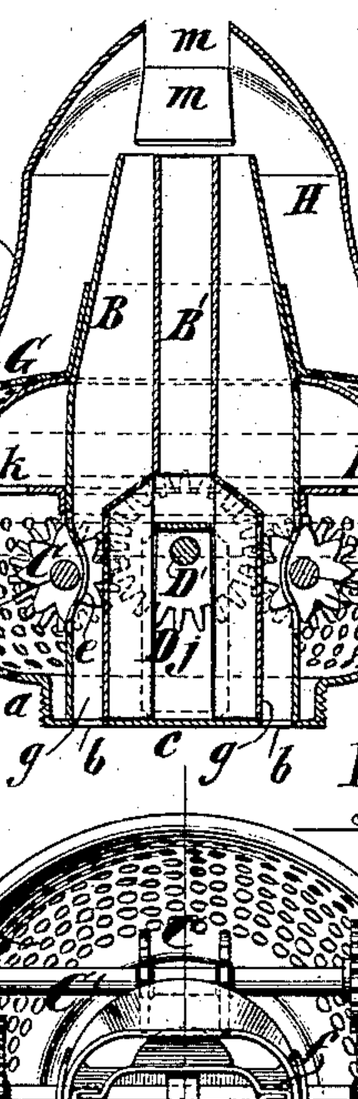



Fig. 4.

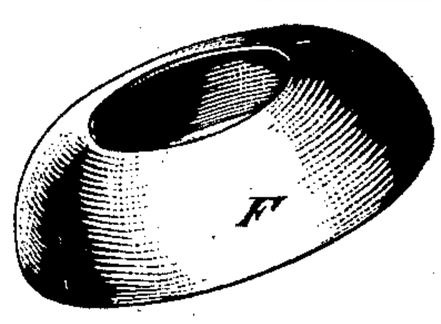



Fig. 7.

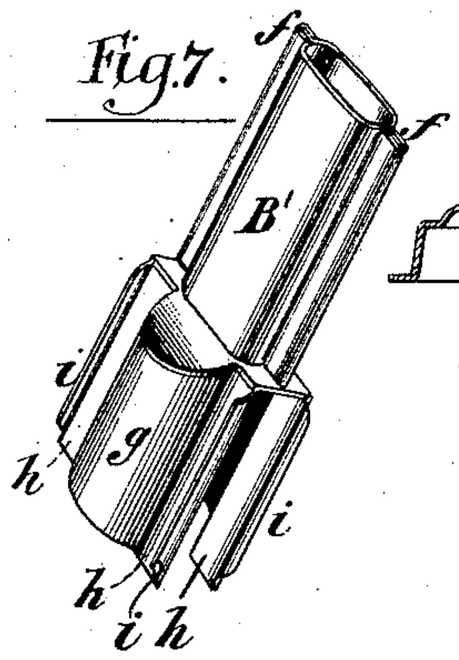



Fig. 6.

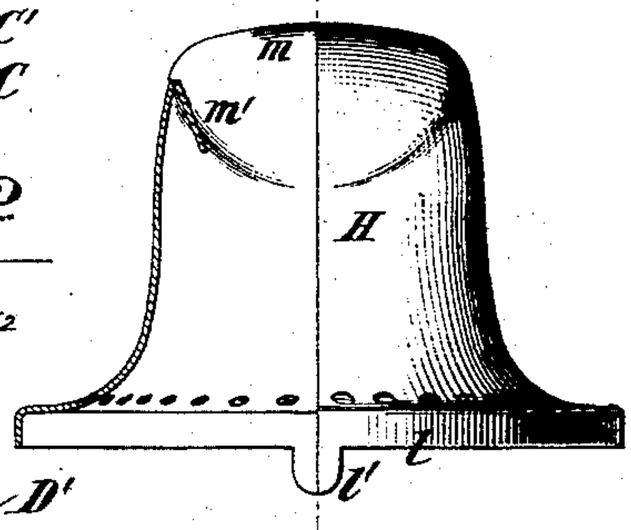
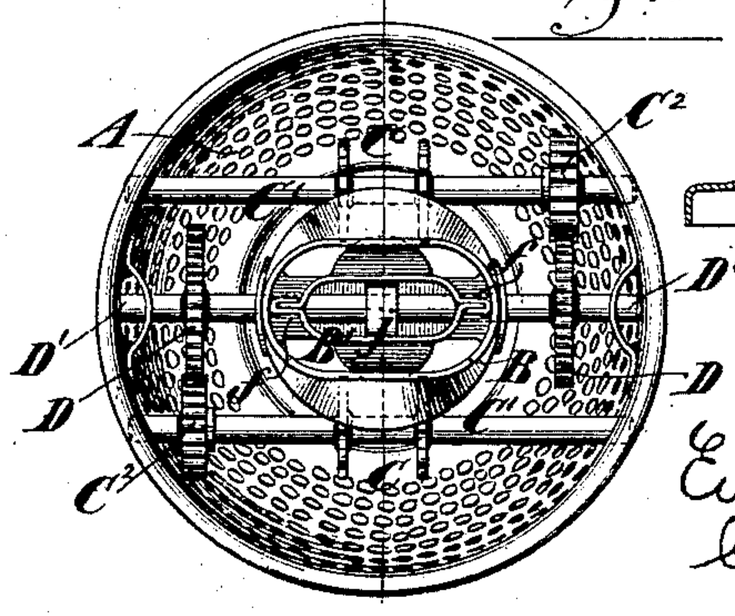



Fig. 2.




Witnesses:-

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Inventor:-

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by his attorney,
Edwin H. Brown.

(No Model.) 2 Sheets—Sheet 2.

# E. F. TRENT.

## LAMP BURNER.

No. 314,354. Patented Mar. 24, 1885.

*Fig. 9.*

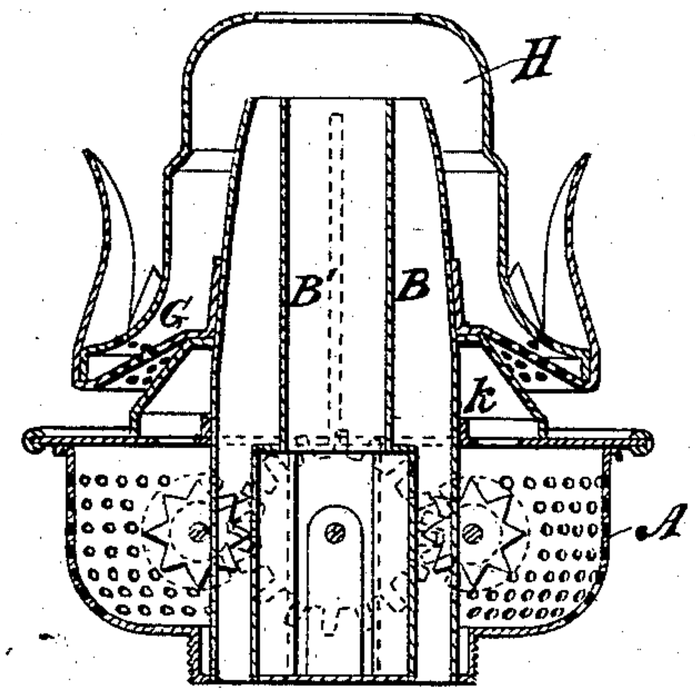



*Fig. 10*

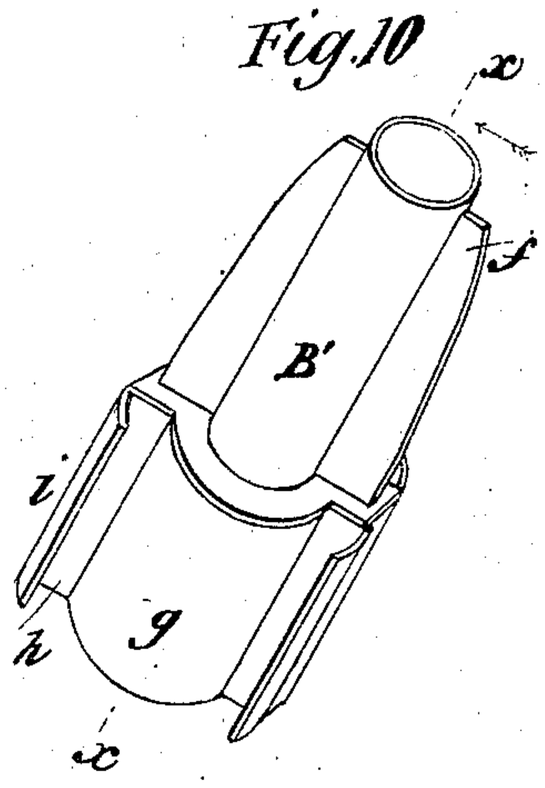
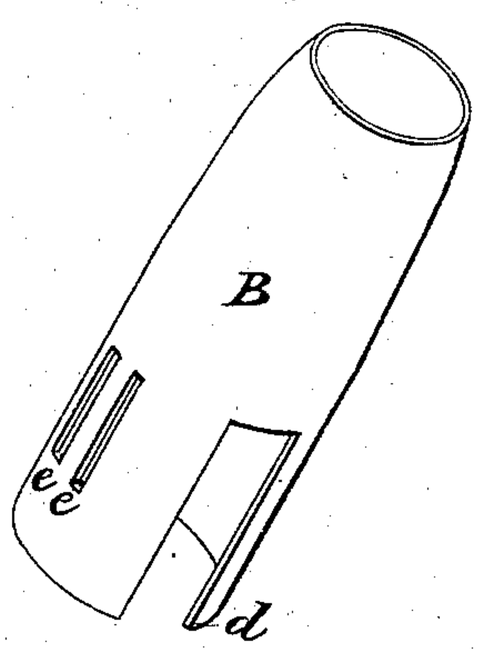



*Fig. 11*




Witnesses
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F. F. Keane

Inventor
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by his attorney
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# UNITED STATES PATENT OFFICE.

EUGENE F. TRENT, JERSEY CITY, NEW JERSEY.

## LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 314,354, dated March 24, 1885.

Application filed October 4, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE F. TRENT, of Jersey City, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Lamp-Burners, of which the following is a specification.

My present improvement involves a novel construction of the various parts of a burner and manner of fastening the same together. It also involves a wick-tube of novel construction, a peculiar deflector, and a new wick-adjusting mechanism.

In the accompanying drawings, Figure 1 is a central vertical section of a lamp-burner embodying my improvement. Fig. 2 is a plan of the lower portion of the same. Fig. 3 is a plan of a device which may be turned to effect the adjustment of the wick and serves as a globe-holder. Fig. 4 is a perspective view of a cap which surmounts the globe-holder. Fig. 5 is a perspective view of the air-distributer and chimney-gallery. Fig. 6 is a section of the deflector, taken in a plane at right angles to that in which the section is taken in Fig. 1. Fig. 7 is a perspective view of the inner wall of the wick-tube, and Fig. 8 is a perspective view of the outer wall of the wick-tube. Fig. 9 is a sectional view of my improvement, showing a modified form of my deflector and wick-tube, the wick-tube being taken upon the lines *x x* shown in Fig. 10. Fig. 10 shows a modified form of the tip of the inner wall of wick-tube. Fig. 11 shows a modified form of the tip of the outer wall of the wick-tube.

Similar letters of reference designate corresponding parts in all the figures.

A designates the air-distributer or draft-plate. It is cup-shaped, and is studded with perforations, as usual. At the bottom it is provided with an externally-screw-threaded boss, *a*, whereby the burner may be secured to an oil-reservoir, and in the bottom of this boss are two segmental-shaped openings, *b*, separated by a bridge-piece, *c*.

The wick-tube B B′ is adapted to receive two flat wicks. The outer wall, B, is circular at the lower part, but at the top it is ellipsoidal; or, in other words, has flat sides and rounded corners. In the lower edge are two deep notches, *d*, arranged opposite each other, and between these notches are slots *e*, through which the wick-adjusting ratchet-wheels C extend. The portion between these slots *e* and the portions at the outer edges of the slots are indented or bent inward to accommodate the shafts C′ on which the ratchet-wheels are mounted.

The upper portion of the inner wall, B′, of the wick-tube is ellipsoidal, or, in other words, is flat-sided, and provided with rounded corners. Beyond the corners extend flanges *f*, which are made by lapping over two pieces of metal of which this wall of the wick-tube is made. These flanges *f* fit tightly within the entire wall of the wick-tube and separate and guide the two wicks which are used in the wick-tube so that they will rise straight and not work round in the wick-tube. The lower portion of the inner wall of the wick-tube consists of two segmental parts, *g*, having flanges *h*, extending from the edges and terminating in lips *i*. These flanges extend through the notches *d*, and their lips lap over the edges of the notches. It will be obvious that by this construction an opening or passage is afforded right through the lower portion of the wick-tube, below and in communication with the upper ellipsoidal portion of the inner wall of the wick-tube, and that the portions of the wick-tube on each side of this opening or passage are of segmental form. The segmental lower ends of the wick-tube fit in the segmental-shaped openings *b* in the screw-threaded boss *a*. The shafts C′ of the ratchet-wheels C are journaled in holes or bearings in the air-distributer A. They are provided near reverse ends with gear-wheels $C^2$, which engage with gear-wheels D, mounted on shafts D′. The shafts D′ are arranged in line, and at the inner ends are journaled in a standard, *j*, projecting from the bridge-piece *c*, while at the outer ends they are journaled in the air-distributer or in bearings affixed thereto.

E designates a plate, of circular form, which has a series of radial slots, forming a gear-wheel, *k*. This plate has a circular opening which fits the exterior of the wick, and the bottom of the plate rests on the top of the air-distributer. The gear-wheel *k* engages with the gear-wheels D; hence, when the plate is turned, motion will be imparted to the gear-

wheels $C^2$ and to the ratchets for the purpose of adjusting the wicks. The outer portion of the plate E serves as a globe or shade holder.

F designates a cap-plate which has a central opening fitting the wick-tube, and which rests on the plate E. It prevents air passing through the plate E from reaching the tip of the wick-tube. The plate E and the cap F also constitute a partition between the two air-distributers A and G. By this means a full and free distribution of air is obtained both to the interior and exterior of the wick-tube, and better combustion thereby attained than in the ordinary method of construction, as the entering air is by the partition-plate broken up into two bodies, one of which passes directly to the interior of the inner wall of the wick-tube and the other to the exterior of the wick-tube. The partition also serves to keep the lower part of the burner cool.

G designates an air-distributer plate perforated with numerous holes, and having a central socket fitting on the upper part of the wick-tube. At the outer extremity it is provided with a number of spring arms, whereby a chimney will be held in place. This air-distributer G is surmounted by deflector H. The base of this deflector has a downwardly-extending flange, *l*, provided with lugs *l'*, which enter slots in the air-distributer G. The chimney which is used on the burner fits on the base of this deflector. Just inward of the portion of the base on which the chimney fits there is a row of holes, through which air may pass, so as to circulate between the upper part of the deflector and the chimney. The deflector rises almost vertically, like a tube, above the base portion to a point corresponding approximately to the height of the tip of the wick-tube, and has in the apex a slot, *m*, which extends across the tip of the wick-tube. It is somewhat narrower than the tip of the outer wall of the wick-tube, and wider than the tip of the inner wall of the wick-tube. At the ends of this slot wings *m'* are turned inward toward the tip of the wick-tube. The edges of the apex of the deflector adjacent to the slot are almost horizontal at the middle in the direction of the length of the slot, but are rounded off quite abruptly at the ends, and the portions on opposite sides of the slot are flattened inward from a point corresponding approximately to the height of the tip of the wick-tube at an angle of approximately sixty degrees to the side edges of the slot.

Air entering the air-distributer A passes to the inner wall of the burner, and air entering the air-distributer G passes through the deflector to the outer wall of the burner. Air is thus supplied in abundance. A large brilliant flat flame is produced by the burner.

I may in some cases make the wick-tube having an inner and an outer wall, each of which has a tip made round instead of ellipsoidal, in which case I will modify my deflector so that it shall have a round opening. This modification of the form of the tip of the wick-tube and the shape of the deflector does not, however, entail modification of other parts of my improvements, all of which will remain the same as previously described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with an outer wall of a wick-tube whose tip is of ellipsoidal form or has flat sides and round corners, of an inner wall having a tip ellipsoidal in form or provided with flat sides and round corners, and provided with flanges fitting the outer wall of the wick-tube and serving to separate and guide two wicks used in the wick-tube, substantially as described.

2. The combination, with an outer wall of a wick-tube having notches at the lower end, of an inner wall having flanges and lips engaging with the edges of the notches in the outer wall, substantially as specified.

3. The combination, with the outer wall, A, of the wick-tube, having notches *d* in the lower portion, of the inner wall, A', provided with flanges *f*, fitting in the upper part of the outer wall and with the flanges *h* and lips *i* engaging with the edges of the notches *d*, substantially as specified.

4. The combination, with a wick-tube, of ratchet-wheels mounted on shafts arranged at opposite sides of the wick-tube, wheels on the ratchet-wheel shafts engaging with driving-wheels mounted on two independent shafts, and a wheel carried by a rotary plate and engaging with the driving-wheels, substantially as specified.

5. In a burner, the combination, with a wick-tube having an opening or passage communicating with the interior of the inner wall, of a perforated air-distributer through which air passes to the said opening or passage, a second air-distributer through which air may pass to the exterior of the outer wall of the wick-tube, and a partition serving to separate the said air-distributers, substantially as specified.

6. In a lamp-burner, the combination of the air-distributer A, the plate E, the cap-plate F, a wick-tube, and the air-distributer G, as and for the purpose specified.

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Witnesses:
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W. G. LIPSEY.