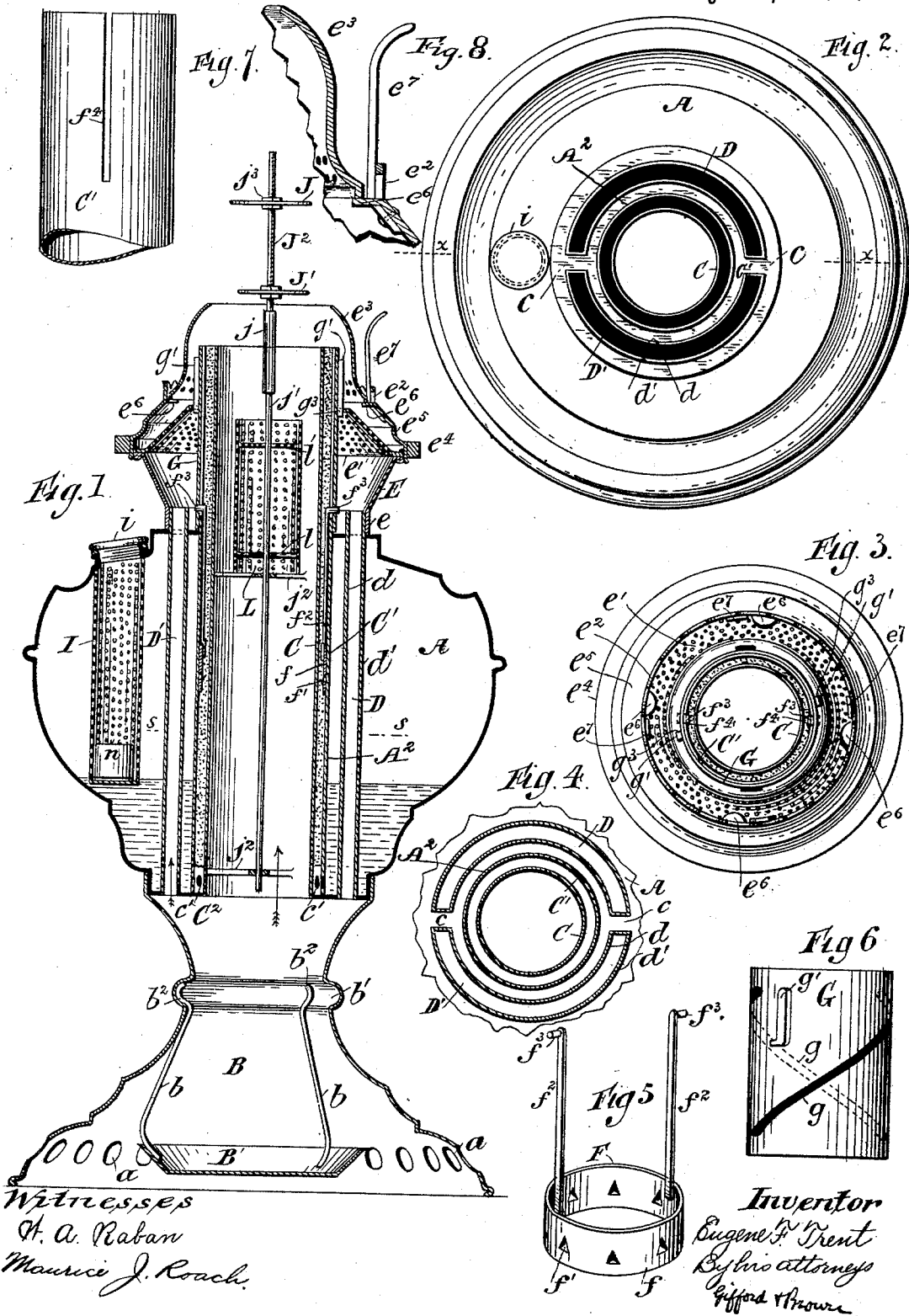


(No Model.)

E. F. TRENT.
LAMP.

No. 519,853.

Patented May 15, 1894.



Witnesses
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UNITED STATES PATENT OFFICE,

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LAMP.

SPECIFICATION forming part of Letters Patent No. 519,853, dated May 15, 1894.

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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 Lamps, of which the following is a specification.

I will describe in detail a lamp embodying my improvement and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a vertical section of a lamp embodying my improvement taken on the plane of the line $x x$, Fig. 2. Fig. 2 is a plan or top view of the lamp with the burner removed. Fig. 3 is a plan view with the cone and flame spreader and its support removed. Fig. 4 is a transverse section of a portion of the wick tube and draft flues taken on the plane of the line $s s$, Fig. 1, a portion of the lamp body being broken away to save space. Fig. 5 is a perspective view of a wick carrier employed in the lamp. Fig. 6 is a side view of a wick raiser acting in conjunction with said wick carrier. Fig. 7 is a view of a portion of the outer wall of the wick tube. Fig. 8 is a detail view in longitudinal section showing a portion of the cone and chimney gallery of the lamp.

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

A designates the reservoir or fount of the lamp. It may be made of metal and spun.

B designates the base or pedestal of the lamp. The upper end of the base or pedestal comprises a socket into which the lower end or portion of the reservoir or fount A may fit and by which the parts above the pedestal are supported. The base or pedestal is also of spun metal. Near the bottom of the base or pedestal the same is provided with a number of holes a through which air may be admitted to certain draft flues in the lamp, that portion of the base or distributor which is above the perforations a constitutes an air chamber.

B' designates a drip cup supported in the base or pedestal of the lamp. As shown said drip cup comprises a cup-shaped piece of metal to which are secured by solder or otherwise, resilient arms b . These arms near their

upper ends have bent portions b^2 which will engage a circumferential depression or groove b' formed in the base or pedestal of the lamp, preferably when the latter is being spun. The arms b being resilient, when they and the drip cup are moved upwardly by hand upon the inside of the base or pedestal, the bent portions b^2 will be sprung into the circumferential portion b' and the drip cup will thereby be supported. By pulling the drip cup outwardly, the arms b will of course become disengaged from the depression b' .

C designates the inner wall of the wick tube and C' the outer wall thereof. The space surrounded by the inner wall C of the wick tube constitutes a central draft flue for the lamp. Both the outer and inner walls of the wick tube are rigidly secured to a base plate C² at the lower extremity of the reservoir or fount A. Air entering through the perforations a will ascend through said central draft flue.

D D' designate other segmental draft flues through which air entering through the perforations a may also ascend. These draft flues D D' are arranged at some distance from the wick tube and extend circumferentially about the same. They are formed by inner walls d and outer d' made of metal.

As shown more clearly in Fig. 2, passages c extend from the interior of the main reservoir or fount A through the draft flues D D' and communicate with an annular reservoir A² surrounding the wick tube. Oil is supplied to the wick through apertures c' opening from the annular reservoir A² into the wick tube. It will be seen that not only is a column of air ascending through the space surrounded by the inner wall of the wick tube but also through the draft flues D D', which latter in effect constitute a single circumferential draft flue. By this means not only is the wick tube kept cool but the body of oil in the lamp fount and reservoir A² is also kept cool owing to the passage of cold air upwardly through the draft flues D D'.

The central draft flue supplies air to the inner side of the flame of the lamp. Air ascending through the draft flues D D' is supplied to the outer side of said flame. Air as-

cending through the draft flues D D' enters an
 airspace above the reservoir, formed as shown
 in this example of my improvement, by an
 imperforate jacket E. This latter, near its
 5 lower extremity is provided with a rim e
 which fits snugly about the outer wall d of
 the draft flues D, D'. This jacket is shown
 as flaring upwardly. At its upper and open
 end it supports an air distributor e' here shown
 10 as conical-shaped, a chimney gallery e^2 and a
 cone or deflector e^3 . The chimney gallery e^2
 has a downwardly extending conical imper-
 forate portion or shell e^5 to which is secured
 upon the inner side, the air distributor e' .
 15 To this portion e^5 is also secured a ring e^4
 preferably made of gutta percha or india rub-
 ber which is a poor conductor of heat. It is se-
 cured by rivets or otherwise. Lips or lugs e^6
 extend inwardly from the portion e^5 as shown,
 20 below the chimney gallery e^2 . These lips or
 lugs are shown more clearly in Figs. 1 and 3.
 They are formed by cutting portions of the
 metal constituting the chimney gallery and
 bending the portions of metal between the
 25 cuts inwardly. The cone or deflector e^3 when
 placed in position as shown in Fig. 1, rests
 upon the lips or lugs e^6 and does not come in
 contact with the chimney gallery. Spring
 fingers e^7 of the usual construction are em-
 30 ployed and against these the lower portion of
 the cone or deflector e^3 will press when in po-
 sition. By thus isolating the cone or de-
 flector from the chimney gallery, very little
 heat will be transmitted from the cone or de-
 35 flector to the chimney gallery and the por-
 tions of metal below it.

It will be seen that all the air supplied to
 the outside of the flame of the lamp is received
 through the draft flues D D'. After the as-
 40 cending air has been received into the air
 space formed by the imperforate jacket E, it
 ascends through the air distributor e' and
 thence to the outside of the flame.

By providing in combination, the draft flue
 45 through which air ascends to the inner side
 of the flame and other draft flues extending
 from near the base of the lamp and through
 which all the air is supplied to the exterior
 of the flame a very accurate equalization of
 50 draft is secured whereby the flame is main-
 tained steady and a perfect combustion is
 secured occasioning an intense white light.
 The jacket E may be perforated, if desired,
 in which event the flame emanating from the
 55 lamp will be whiter than when said jacket is
 made imperforate.

F designates a wick carrier shown more
 clearly in Fig. 5. This wick carrier comprises
 a ring f having inwardly struck teeth f'
 60 adapted to engage the wick when the wick
 carrier is passed over the outside of the wick.
 Extending upwardly from the ring f are re-
 silient arms f^2 . These arms are rigidly se-
 cured near their lower ends to the ring f .
 65 The arms f^2 bear at their upper ends, pins or
 projections f^3 . These pins or projections ex-

tend at approximate right angles to the length
 of the arms f^2 . The upper portion of the
 outer wall of the wick tube is provided with
 longitudinal slots f^4 .

When the wick carrier F is within the wick
 tube and in engagement with the wick, as
 shown more clearly in Fig. 1, the projections
 70 f^3 , on the resilient arms f^2 extend through
 the slots f^4 in the wick tube. They are main-
 tained in this position by the resilient arms f^2 .

G designates a wick raiser used in conjunc-
 tion with the wick carrier F. This wick raiser
 is cylindrical in form and is made of metal.
 It is provided with two spirally extending slots
 80 g . When the wick raiser G is in position
 upon the exterior of the wick tube, as shown
 more clearly in Fig. 1, the projections f^3 on
 the arms f^2 of the wick carrier extend into
 the spiral slots g of the wick raiser. By ro-
 85 tating the wick raiser G the projections f^3
 will be caused to follow the slots g and thus
 the wick may be raised or lowered according
 to the direction in which the wick raiser is
 rotated. The wick raiser is rotated by grasp-
 90 ing the ring e^4 and rotating the upper part of
 the burner which is supported upon the
 jacket E. The rotation of this portion of the
 burner is caused to effect the rotation of the
 wick raiser in the following manner: Upon
 95 the exterior of the wick carrier are longitudi-
 nally extending ribs g' . The air distributor
 e has formed in it at that portion which is ad-
 jacent to the wick tube and the wick raiser
 G, notches g^2 . When the upper part of the
 100 burner containing the air distributor e' is
 slipped downwardly over the wick raiser, the
 notches g^2 will receive the ribs g' on the wick
 raiser and interlock therewith so that when
 the said upper portion of the burner is ro-
 105 tated, the wick raiser will be rotated with it.

J J' designate buttons or spreaders. These
 buttons or spreaders are mounted upon a sup-
 porting rod J². This supporting rod is screw-
 110 threaded for a portion of its length and its
 lower end is provided with a socket j which
 latter is adapted to receive the upper end
 of a rod j' extending centrally through the
 central draft flue. The rod j' is supported
 115 in spiders j^2 secured to the inner wall of the
 wick tube in the usual manner. The rod
 J² with the buttons or spreaders J J' may be
 readily lifted off from the rod j' . As shown
 each of these buttons or spreaders J J' is ver-
 120 tically adjustable. Screw-threaded nuts j^3
 upon each side of each of said buttons or
 spreaders, which nuts engage the screw-
 threaded portion of the rod J², may be moved
 upwardly or downwardly to thus vary the po-
 125 sitions of either or both of said buttons or
 spreaders, and when the desired position for
 either or both the buttons or spreaders has
 been attained, the nuts, by being tightened,
 will secure said buttons or spreaders in such
 position. The upper button, or J, is some-
 130 what larger in diameter than the lower but-
 ton J' and it will be observed that the button

J' is arranged at a little distance above the cone or deflector e^3 , while the button or spreader J is arranged at a long distance above the same. By this construction and arrangement the air ascending through the central draft flue may be caused to be deflected against the inner side of the flame at any desired point or points, and the flame may be lengthened or shortened at pleasure. The ability to adjust either or both of the buttons or spreaders enables the ready determination of the exact point or points at which the deflection of the air against the flame will produce the best results.

L designates an air distributor arranged within the central draft flue, and wholly below the upper end of the wick tube. This distributor is cylindrical in shape and is of such diameter that a considerable space will be left between its exterior wall and the inner wall C of the wick tube. It is provided near its lower end with a spider l , and near its upper end with a perforated diaphragm l' . The distributor L has an open lower end. The diaphragm and spider are secured upon the inner side of the outer shell of the distributor. The outer shell of the distributor is also perforated throughout its length. This distributor rests upon the upper of the spiders j^2 and is supported in a vertical position by the rod j' which extends centrally through suitable apertures in the diaphragms l' . This form of air distributor is very advantageous in that it causes a perfect breaking up of the ascending column of air into small jets and currents and an even distribution of the same to the inner side of the flame.

I employ a tell-tale in conjunction with the lamp for indicating when the same has been properly filled. This tell-tale comprises a cork or other piece of buoyant material n . The tell-tale is arranged in a perforated tube I having a closed lower end and being secured at its upper end to the shell of the reservoir. It opens beneath the usual opening in the shell of the reservoir through which oil is supplied. As the oil rises in the reservoir, the tell-tale n will be carried upwardly until it shows at the opening through which the oil is supplied. In this manner it indicates when a sufficient quantity of oil has been introduced into the reservoir.

A cap i of usual construction is employed to close the opening through which the oil is supplied.

In the present case I show a wick raising mechanism having features similar to that shown and claimed in my pending application, Serial No. 323,057, filed September 5, 1889, but it is to be understood that I do not claim the combination herein as set forth in said application.

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

1. In an Argand lamp, the combination with a reservoir and a cylindric wick tube, of a

central draft flue, an air chamber below the reservoir opening to the atmosphere, segmental draft flues D D' outside the wick tube opening at one end at the base of the reservoir and at the other end into an air chamber above the reservoir, an air distributor of conical form forming the upper wall of the air chamber and a cone or deflector above the air distributor, substantially as specified.

2. In an Argand burner, the combination with a reservoir having a cylindric wick tube, of an air chamber below the reservoir opening to the atmosphere, a central draft flue, segmental draft flues D D' outside the wick tube opening at one end at the base of the reservoir and at the other end into an air chamber above the reservoir, an air distributor of conical form forming the upper wall of said last named air chamber, an imperfect conical shell outside said air distributor and a cone or deflector above the air distributor, substantially as specified.

3. In an Argand lamp, the combination with the reservoir and a cylindric wick tube, of a central draft flue extending through the reservoir, an air chamber below the reservoir into which said central draft flue opens, a draft flue outside the wick tube and central draft flue opening below the reservoir, an annular reservoir between the wick tube flue and the draft flue last named, the draft flue last named opening at one end into an air chamber above the reservoir, an air distributor constituting the upper wall of the air chamber and a cone or deflector above the air distributor, substantially as specified.

4. In a lamp burner, the combination with a chimney gallery comprising a downwardly extending shell, of lips or lugs extending inwardly from said chimney gallery and a cone or deflector supported upon said lips or lugs so as not to contact with the chimney gallery, substantially as specified.

5. In a lamp, the combination with a wick carrying ring having inwardly struck teeth, of resilient arms rigidly secured to said ring and provided with pins or projections near their upper ends, of a wick tube having an outer wall provided with longitudinal slots having open upper ends into which said pins or projections extend, and a wick raiser extending about the wick tube and comprising spirally extending slots into which said pins or projections also extend, substantially as specified.

6. The combination with a wick tube having its outer wall provided with longitudinally extending slots, of a wick carrier comprising pins or projections extending through said slots, a rotary wick raiser comprising spirally extending slots into which said pins or projections also extend, ribs on said wick raiser, and an air distributor provided with notches engaging said ribs, which air distributor when rotated will cause the rotation of the wick raiser, substantially as specified.

7. In an Argand lamp, the combination with a wick tube, of a central draft flue, an air distributor arranged in said draft flue wholly below the upper end of the wick tube and comprising a perforated cylindrical shell of less diameter than the inner wall of the wick tube, said shell having an open lower end and a perforated diaphragm within said shell below its upper end, substantially as specified.
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