



# UNITED STATES PATENT OFFICE.

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CENTRAL-DRAFT OR ARGAND LAMP OF THE INCANDESCENT TYPE.

1,193,134.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, THEODORE H. FRENCH, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Central-Draft or Argand Lamps of the Incandescent Type, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to what are known as central draft or Argand lamps having mantles which are heated to incandescence, and the object thereof is to provide an improved burner construction for lamps of this class whereby the cleaning or cleansing of the burner, or all the parts thereof, the application of the wick and the use thereof, and the attachment and support of the mantle and the disconnection thereof with the burner when necessary will be simplified, and said burner rendered more efficient and satisfactory in use; and with this and other objects in view the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a central vertical sectional view of a central draft lamp made according to my invention; Fig. 2 a partial section on the line 2—2 of Fig. 1; Fig. 3 a side view of an inner wick holding tube which I employ with part of the construction broken away; Fig. 4 a side view of an outer wick holding tube or sleeve which I employ and showing the wick therein; Fig. 5 a side view of the main or body part of the burner detached; Fig. 6 a partial section on the line 6—6 of Fig. 1; Fig. 7 a sectional side view of a burner cone which I employ and showing the part in connection with which it is mounted and also showing the mantle support; and, Fig. 8 a side view of a central air distributor which I employ with part of the construction broken away.

In the drawing forming part of this specification, I have shown an ordinary central draft lamp reservoir  $a$ , the top of which

is provided with a central opening  $a^2$  around which is a raised collar  $a^3$  preferably provided with an outwardly directed annular flange  $a^4$ , and the reservoir  $a$  is also provided with the usual central draft air tube  $a^5$  which opens downwardly through the bottom of the reservoir and extends upwardly therethrough and above the top thereof and the upper end of which is provided with an inwardly tapered or reduced extension  $a^6$ .

The burner proper which is designated as a whole by the reference character  $b$  comprises a main body portion  $c$ , an inner detachable wick tube  $d$ , an outer detachable wick tube or sleeve  $e$ , which constitutes the wick carrier; a detachable chimney gallery and holder  $f$ , a detachable cone member  $g$ , a detachable mantle support  $h$ , a central air distributor  $i$  placed in the top of the inner wick tube  $d$  and a wick holder adjusting mechanism, consisting of the usual shaft  $j$  provided with a pinion  $j^2$  and a rack  $e^2$  connected with the tube or sleeve  $e$  in connection with which the pinion  $j^2$  operates.

The burner as a whole, with the exception of the air distributor  $i$  in the top of the central or inner wick tube  $d$  is detachably connected with the collar or neck  $a^3$  of the reservoir in the usual manner, and the body portion  $c$  of the burner comprises a perforated basket-shaped part  $c^2$  of the usual form at the bottom of which is an inwardly directed annular member  $c^3$  provided with an upwardly directed tubular sleeve  $c^4$  which forms the outer wick tube and is contracted at the top thereof, as shown at  $c^5$  and provided with an outwardly directed annular flange  $c^6$ .

The body part  $c$  of the burner is provided with a contracted and downwardly directed tube  $c^7$  which is of greater diameter than the tubular sleeve  $c^4$  and which extends downwardly into the reservoir when the burner is in position. The inner wick tube  $d$  which, in effect, forms an extension of the central draft tube  $a^5$  is provided at its lower end with a cup-shaped rim member  $d^2$  comprising a bottom portion  $d^3$  having a raised rim  $d^4$ , and the bottom portion  $d^3$  fits between the outwardly directed beads or projections  $d^5$  and  $d^6$  formed on the bottom of the tube  $d$ , and with this construction the tube  $d$  is rotatable in the rim member and the top part

of said tube is movable laterally as will be readily understood, when the burner is not in position.

The flange  $d^4$  of the rim member  $d^2$  is provided with a bayonet slot or slots  $d^7$  and the bottom of the tube  $e^7$  is provided with a pin or pins  $e^8$ , and by means of this construction the tube  $d$  may be detachably connected with the bottom of the tubular member  $e^7$ .

The tube  $d$  and tubular sleeve  $e$  constitute the wick carrying parts of the burner proper and in assembling said parts the tubular wick  $k$  is passed upwardly through the tubular sleeve  $e$ , and the tube  $d$  is then passed up through the wick and the rim member  $d^2$  at the bottom of the tube  $d$  is connected with the tubular member  $e^7$ , and the lower end of the tubular wick  $k$  is forked as shown at  $k^2$ , and the separate side members  $k^3$  thereof are passed downwardly through corresponding apertures  $d^8$  in the bottom of the rim member  $d^2$  of the tube  $d$ .

The detachable chimney gallery and holder  $f$  which is shown detached in Fig. 7 and held in sectional plan in Fig. 6, comprises an annular bridge portion  $f^2$  having an outer central depending rim portion  $f^3$  and a bottom enlarged depending rim portion  $f^4$  beaded as shown at  $f^5$  and inwardly directed projections  $f^6$  are cut from the rim member  $f^4$ , and the top of the basket-shaped body portion  $e$  of the burner is provided with an outwardly and downwardly curved rim  $e^9$  having slots or recesses  $e^{10}$  in connection with which the projections  $f^6$  operate and by means of this construction the chimney collar or holder  $f$  may be detachably connected with the body portion  $e$  of the burner, but my invention is not limited to any particular means for making this connection.

The annular bridge portion  $f^2$  of the chimney gallery and holder  $f$  is provided at its inner edge with an inwardly directed annular member  $f^7$  having an upwardly directed neck portion  $f^8$  on which is mounted the detachable cone member  $g$ , and said cone member is provided at the top thereof with an inwardly curved annular flange  $g^2$  forming a large central opening  $g^3$ , the diameter of which is as great or greater than the diameter of the tubular sleeve member  $e^5$  and corresponds in position with the top of the wick  $k$ , and when the air distributor  $i$  is in position it passes up through the top of the cone  $g$  and the opening  $g^3$  is formed thereby into an annular opening.

The inwardly directed member  $f^7$  of the bridge portion  $f^2$  is cut out to form raised inwardly directed lugs  $f^9$ , and the bottom of the cone part  $g$  is provided with a flange  $g^4$  cut out at intervals to form recesses  $g^5$  which correspond with the raised inwardly

directed lugs  $f^9$ , and this construction forms a bayonet lock device whereby the cone member  $g$  is connected with the part  $f^7$  of the annular bridge portion  $f^2$  of the chimney gallery and holder.

I have also shown at  $m$  the mantle, or a part thereof, and the support  $h$  for the mantle consists of a band  $h^2$  which is passed downwardly over the cone member  $g$  and is provided with upwardly directed fingers  $h^3$  which press on the outer side of said cone member and hold the band  $h^2$  steady thereon, and said band  $h^2$  is provided at its opposite sides with outwardly directed keepers  $h^4$  adapted to receive the side members  $h^5$  of the support of the mantle, and it will be understood that the side members  $h^5$  of the mantle support are connected at the top thereof in the usual manner, and the mantle  $m$  is suspended therefrom in the usual manner and the bottom of the mantle when in position incloses the top of the cone member  $g$ .

The downwardly directed tubular member  $e^7$  of the body of the burner is provided with apertures  $e^{11}$  of any preferred shape or form, and the tubular sleeve member  $e$  of the wick holder is also provided with apertures  $e^8$ , or these parts  $e^7$  and  $e$  may be of any desired openwork construction so as to permit of the free passage of oil therethrough.

The central air distributor  $i$  is preferably of the form shown in Fig. 8 and comprises a main outer thimble-shaped member  $i^2$ , the top portion of which is perforated and a central inner sleeve  $i^3$  which is inserted into the bottom thereof and which extends above the bottom perforations  $i^2$  a predetermined distance, and the top portion of which is contracted or provided with an inwardly contracting annular part  $i^4$ , and in the use of this device it is inserted into the top of the central or inner tubular member  $d$  of the wick holder, and said tubular member  $d$  is provided in the top portion thereof with an inwardly directed annular bead  $d^9$  or other suitable inwardly directed stops to limit the downward movement of the air distributor  $i$  and hold it in proper position for use.

The shaft  $j$ , its pinion  $j^2$  and the rack bar  $e^2$  of the tubular sleeve member  $e$  of the wick holder are of the usual construction and operate in the usual manner, the wick holder proper, consisting of the inner central tubular member  $d$  and the tubular sleeve  $e$ , and from the foregoing description it will be seen that all the parts, including the wick holding tubes or tubular sleeves  $d$  and  $e$ , the chimney gallery and holder  $f$ , the cone  $g$ , the band  $h^2$  of the mantle support and the part or parts  $h^5$  of the mantle support are all detachably connected, but said parts when connected, as shown and de-

scribed, make up the entire burner with the exception of the air distributor *i*, and said burner may be inserted into and detachably connected with the reservoir, whenever desired, and may be as easily disconnected therefrom when necessary for cleaning or other purposes, and the fact that all the said parts of the burner excepting the air distributor *i* are detachably connected as shown and described will facilitate the cleaning of the burner whenever necessary, or the disconnection of its parts for any purpose, and the air distributor *i* which constitutes an operative part of the burner when in use may also be detached for cleaning or other purposes when necessary.

My invention, however, is not limited to the specific form and construction of the air distributor *i* herein shown and described and various other forms of devices of this class may be employed.

The operation of my improved lamp will be similar to that of others of its class. It will be understood that the oil from the reservoir is fed upwardly through the wick *k* by the capillary action thereof in the usual manner, and when the oil at the top of the wick is ignited, the flame rapidly raises the adjacent parts of the burner, including the air distributor *i*, the cone *g* and the inner and outer tubular wick carriers *d* and *e* to a high temperature, and a vapor is produced which is mingled with air passing upwardly through the central air tube *a*<sup>5</sup> of the reservoir and the top portion of the inner tubular member *d* of the wick carrier and through the air distributor *i* and other air entering through the perforated basket-shaped member *e*<sup>2</sup> of the body of the burner *e* and passing upwardly around the sleeve member *e*<sup>1</sup> and through the cone member *g*, and the vapor thus produced, in the burning thereof, produces what is known in this class of devices as a blue flame, and the mantle *m* is raised thereby to a high degree of incandescence as will be readily understood.

The shape of the top of the cone *g* and the flange *e*<sup>6</sup> at the top of the sleeve member *e*<sup>1</sup> of the body portion of the burner aid in controlling the currents of air passing upwardly around the tubular sleeve member *e*<sup>1</sup> and through the cone member *g* and give the vapor the proper direction as it emerges into the mantle, and this operation is also facilitated and aided by the top portion of the air distributor *i* as in other devices of this class. In using lamps of this class, it sometimes happens that oil or the vapor of oil will leak down or flow down through the central tube *a*<sup>5</sup>, but by combining the tubes *d* and *a*<sup>5</sup>, as shown and described, and contracting the top portion of the tube *a*<sup>5</sup> as shown at *a*<sup>6</sup> this oil or vapor of oil will be caught between the said

contracted top portion of the tube *a*<sup>5</sup> and the tube *d* and will flow down between said parts or members into the reservoir.

Although, I have referred to the tube *d* as a part of the wick carrier or holder, it will be understood that the tube *d* is not movable vertically in adjusting the wick, said wick for adjusting purposes being carried by the tubular sleeve *e* and the tube *d* extends to the top of the tubular sleeve member *e*<sup>1</sup> of the body portion of the burner and forms in connection therewith an annular chamber in which the work is vertically movable and adjustable, and the fact that the tube *d* is rotatable in the rim member *d*<sup>2</sup> and the top portion of said tube laterally movable to a slight extent also facilitates the assembling and disconnection of the various parts of the burner, as hereinbefore described, and the insertion of said burner into and its removal from the reservoir, and this is particularly advantageous, if at any time the reservoir should become injured, or the tube *a*<sup>5</sup> thrown out of its concentric position.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A lamp of the class described, comprising a reservoir having a central tube which passes upwardly therethrough and through the top thereof, and a detachable burner comprising a central basket-shaped and perforated body portion having a downwardly directed tubular member and an upwardly directed tubular sleeve, an inner tube detachably connected with the bottom of said tubular member and extending upwardly to the top of said tubular sleeve and forming in connection therewith a wick chamber, a wick carrying sleeve movable in said tubular sleeve, a detachable chimney gallery and holder, a detachable burner cone mounted on said chimney gallery and holder, a detachable mantle carrying band mounted on said burner cone, and a mantle support or supports detachably connected with said band.

2. A lamp of the class described provided with a detachable burner comprising a central basket-shaped and perforated body portion provided at its bottom with an upwardly directed tubular sleeve and a downwardly directed tubular member, an inner tube detachably connected with the bottom of said tubular member and extending to the top of said sleeve and forming in connection therewith a wick chamber, a wick carrying sleeve vertically movable in said tubular sleeve, a detachable chimney gallery, a detachable burner cone mounted on said gallery, a detachable mantle carrying band mounted on said cone, and a mantle support or supports detachably connected with said band.

3. In a lamp of the class described, a de-

tachable burner comprising a basket-shaped and perforated body portion having an upwardly directed tubular sleeve and a downwardly directed tubular member, a central tube detachably connected with the bottom of said tubular member and extending to the top of said sleeve and forming in connection therewith a wick chamber, and a vertically movable wick carrying sleeve mounted in said chamber and through which the wick passes.

4. In a lamp of the class described, a reservoir provided with a central air tube which passes upwardly therethrough, and a detachable burner comprising a basket-shaped body portion having an upwardly directed tubular sleeve and a downwardly directed tubular member, a tube detachably connected with the bottom of said tubular member and in which the central air tube of the reservoir fits and which extends upwardly to the top of said tubular sleeve and forms in connection therewith a wick chamber, an air distributor placed in the top of said tube, a detachable chimney gallery, a detachable burner cone, and a detachable mantle support or supports mounted on said burner cone.

5. In a lamp of the class described, a detachable burner comprising a basket-shaped and perforated body portion having an upwardly directed tubular sleeve and a down-

wardly directed tubular member, a central tube connected with the bottom of said tubular member and extending to the top of said sleeve and forming in connection therewith a wick chamber, and a vertically movable wick carrying tube mounted in said chamber and through which the wick passes.

6. In a lamp of the class described, a reservoir provided with a central air tube which passes upwardly therethrough, and a detachable burner comprising a basket-shaped body portion having an upwardly directed tubular sleeve and a downwardly directed tubular member, a tube connected with the bottom of said tubular member and in which the central air tube of the reservoir fits and which extends upwardly to the top of said tubular sleeve and forms in connection therewith a wick chamber, an air distributor placed in the top of said tube, a detachable chimney gallery, a detachable burner cone, and a detachable mantle support mounted on said burner cone.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 17th day of May, 1916.

THEODORE H. FRENCH.

Witnesses:

C. E. MULREANY,  
H. E. THOMPSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."