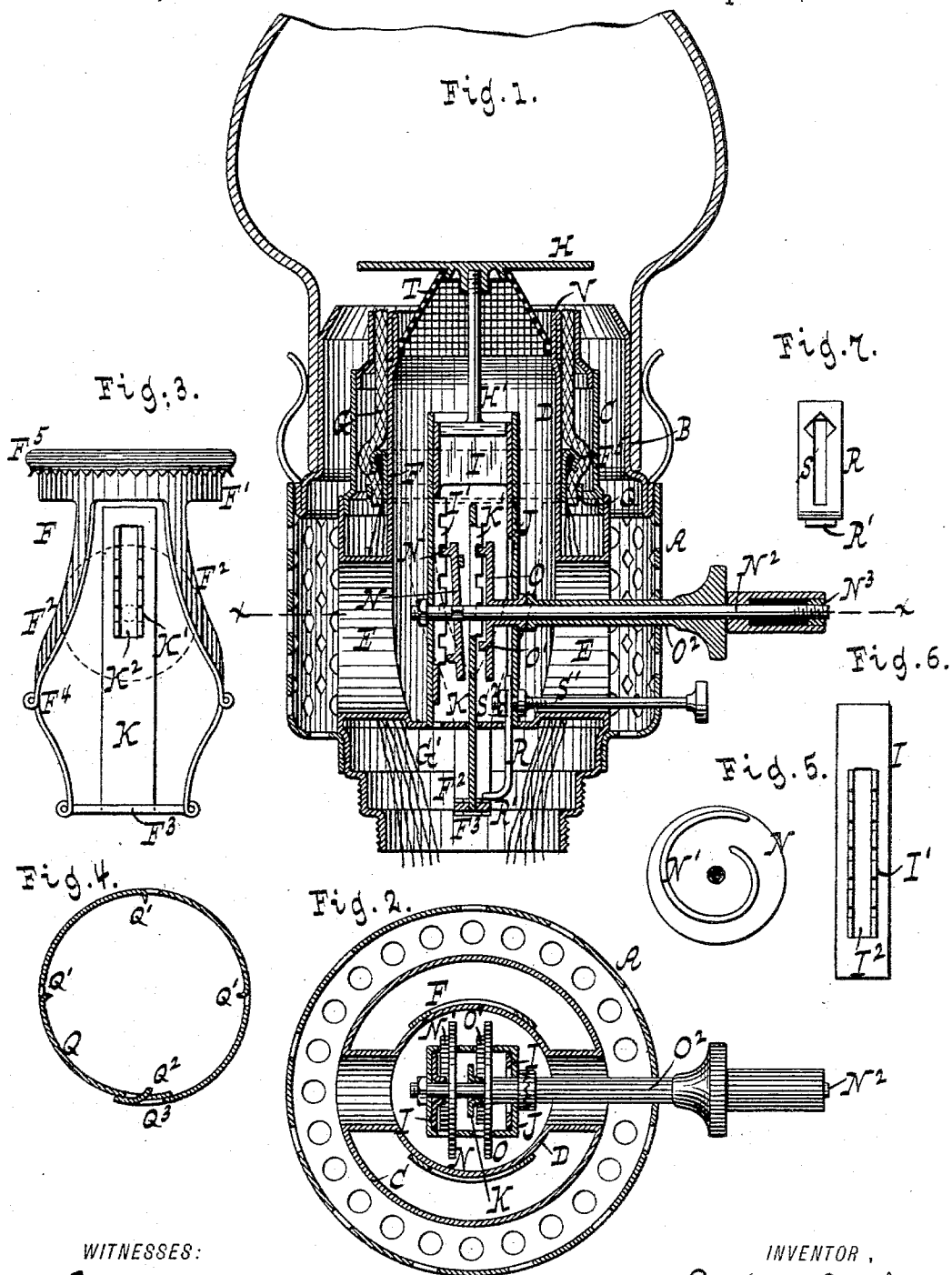


(No Model.)

P. J. FOULON.  
ARGAND LAMP BURNER.

No. 389,068.

Patented Sept. 4, 1888.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## ARGAND LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 389,068, dated September 4, 1888.

Application filed April 23, 1887. Serial No. 236,233. (No model.)

*To all whom it may concern:*

Be it known that I, PETER J. FOULON, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Argand Lamp-Burners, of which the following is a specification.

My invention relates especially to that class of Argand lamp-burners in which a combined spreader and extinguisher is arranged above the wick space or tubes upon a central vertically-movable rod, and in which two wicks, one a burning-wick and the other a feeding-wick, are arranged upon a single carrier.

The primary object of my invention is to obtain a simple and effective mechanism for imparting a positive motion in both directions, not only to the wick-carrier, but also to the spreader; and to this end it consists of the novel features of construction hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical central section. Fig. 2 represents a horizontal section in the line  $x x$ , Fig. 1. Fig. 3 represents a side view of the wick-carrier detached. Fig. 4 represents a longitudinal section of a tie-band for securing the burning wick. Figs. 5, 6, and 7 represent detail views of parts.

Similar letters indicate similar parts.

The letter A indicates the shell of the burner, perforated in the usual manner for the admission of air, and B the usual cone and chimney gallery fitted into the upper edge of the shell.

Within and concentric with the shell A are two wick-tubes, C D, connected together by transverse air-tubes E, through which the air entering the shell has access to the inner tube, it ascending through the inner tube as well as around the outer tube to the flame. The outer tube, C, is preferably made in sections of gradually-decreasing diameters, as shown in Fig. 1.

Upon the inner tube B is arranged the wick-carrier F, with a burning wick, G, usually cylindrical, extending upwardly, and a feeding wick, G', usually composed of threads or filaments, extending downwardly therefrom, as hereinafter more fully described, and above the wick-tubes is arranged the spreader and extinguisher H upon the usual central rod, H'.

To the lower end of the spreader-rod H' is connected a vertical slide, I, which is fitted into a guide, J, centrally of the inner tube D, both the slide and its guide being preferably made of square tubular form, as shown in Fig. 2. Extending upwardly into the tubular guide J is a vertical bar or standard, K, which is united to the wick-carrier F at the lower end and provided with a vertical row of teeth to form a rack, K'. The slide I of the spreader also is provided with a vertical row of teeth to form a rack, I', corresponding in position with said rack K' of the carrier-bar, and into each of said racks meshes a spiral thread, N' or O', on one of the faces of an operating disk, N or O, in such a manner that when said disks are rotated the slide I, together with the spreader-rod and spreader, or the carrier-bar K, together with the wick-carrier, are raised or lowered, as the case may be, the motion thereof being positive in both directions; and inasmuch as the disk-threads also act as stops the spreader and wick-carrier are also thereby firmly supported in the position to which they may be adjusted.

The disks N O are mounted on horizontal shafts N<sup>2</sup> O<sup>2</sup>, which extend outward therefrom to the outside of the burner through one of the transverse air-tubes E and shell A, one within the other, the outer shaft being tubular, and each of which is provided with a finger-button outside the burner for turning it, together with the proper disk. The plane of the disks N O is parallel to that of the racks K' I', the axes of the disks and shafts being at right angles to said plane, and each of the racks has a vertical slot, K<sup>2</sup> I<sup>2</sup>, (best seen in Figs. 3 and 6,) for clearing the inner shaft in the motion of the racks, said shaft passing through the slots. Said disk-shafts N<sup>2</sup> O<sup>2</sup> have their bearings in the tubular guide J and shell A, and the outer or tubular shaft is preferably made in sections, with the contiguous edges of the sections toothed to interlock like a clutch, the inner or main shaft being provided at the outer end with a screw-nut, N<sup>3</sup>, to bear against the adjacent finger-button, and thereby hold the sections in interlocked position.

The wick-carrier F is composed of an upper or wick ring, F', and of arms F<sup>2</sup>, which pro-

ject downwardly from said ring, and are connected together below the transverse tubes E by a bridge, F<sup>3</sup>, which is the part to which the vertical rack or carrier bar K is united.

- 5 The lower portions of said arms F<sup>2</sup> of the wick-carrier may be jointed, as at F<sup>4</sup>, for adapting the arms to more readily clear the lower end of the inner wick-tube.

The upper edge of the wick-ring F' is serrated, as shown in Fig. 3, and said edge is bent or folded upon itself to form a bead, F<sup>5</sup>, into which the upper end of the feeding-wick G' is inserted, said end being usually enlarged in the manufacture of the wick, so that the latter is firmly secured to the carrier by that means, and from said bead the serrated edge of the wick-ring is bent outward to engage the burning wick G by its teeth. Said burning wick G is fitted on the wick-ring F' to overlap the feeding-wick G', it being drawn thereon from an upward direction, and a tie-band, Q, is wound on the overlapping portion, thereby holding the burning-wick in superficial contact with the feeding-wick, so that a very effective supply of oil to the burning-wick is maintained. The tie-band Q may be provided with inwardly-projecting barbs Q', (see Fig. 4,) for engaging the burning-wick, and also with a hook and slot, Q<sup>2</sup> Q<sup>3</sup>, for locking it in the desired position.

To the lower portion of the tubular guide J, or to any other suitable portion of the burner, is attached a depending-arm, R, the lower end of which has a spur or offset, R', projecting into the path of said bridge F<sup>3</sup> of the wick-carrier, so that said arm constitutes a stop to limit the upward motion of the carrier, thereby regulating the position of the burning-wick G, which is a desideratum, inasmuch as said wick should not be raised in use above the top of the wick-tube to insure a proper flame. In order to accommodate the stop-arm R to the decreasing length of the burning-wick G as it is consumed said arm is made adjustable in relation to the wick-carrier—as, for example, by providing the arm with a vertical slot, S, (best seen in Fig. 7,) through which extends a screw-rod, S', on the inner end of which is fitted a non-rotating nut, S<sup>2</sup>, so that the arm may be secured in the desired position by turning the rod in the proper direction for tightening the nut.

In practice the nut S<sup>2</sup> is first loosened to free the stop-arm R. The wick-carrier is then raised for bringing the burning-wick G to the desired point, the arm being at the same time displaced by contact with the carrier-bridge F<sup>3</sup>. The nut is then retightened to fasten the arm and retain it in the proper position relatively to the wick-carrier. The screw-rod S extends outward through one of the transverse air-tubes E and shell A, and is provided with a finger-button outside the burner.

In the upper end of the wick-tube D is fitted an air distributor or strainer, T, of wire-gauze or other suitable material, which is connected

with the spreader H or its rod to share the motion thereof, so that a greater or less portion of said distributor is exposed above the tube according to the position of the spreader; or, in other words, the air-distributor is automatically adjusted to the varying space between the top of said inner tube and the spreader, and by entirely occupying that space serves to distribute the inner current of air just before it strikes the flame, with a tendency to prevent flickering. Said air-distributor T has a lower cylindrical portion to fit the wick-tube D, while its upper portion is tapering or in form of a truncated cone, as shown, causing it to gradually recede from the flame, and by this construction the inner current of air passing through the distributor is caused to take an inclined direction toward the flame, thereby producing a superior effect.

The connection of the air-distributor T with the spreader H may be effected by attaching it to the bottom of the spreader, as to a circular flange, or it may rest by its upper edge upon a shoulder of the spreader rod between said shoulder and the spreader.

In order to lessen the heat-conducting property of the inner wick-tube D, said tube is doubled at the upper end by folding said end upon itself, as at V, forming a space or chamber for the circulation of air.

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

1. In an Argand burner, the combination, with the inner and outer tubes and a spreader and extinguisher surmounting said tubes, of a rack firmly connected with said spreader, a rotating disk having one of its faces provided with a spiral thread to mesh into said rack for operating and supporting the spreader, as specified, both the rack and disk being arranged vertically in said inner tube with the axis of the disk at a right angle to the plane of the rack, a horizontal shaft carrying said disk, and a finger-button on said shaft outside the burner, substantially as and for the purpose described.

2. In an Argand burner, the combination, with the inner and outer tubes and a wick-carrier fitted on the inner tube, of a rack firmly connected with said carrier, a rotating disk having one of its faces provided with a spiral thread to mesh into said rack for operating and supporting the wick-carrier, as specified, both the rack and disk being arranged vertically in said inner tube, with the axis of the disk at a right angle to the plane of the rack, a horizontal shaft carrying said disk, and a finger-button on said shaft outside the burner, substantially as and for the purpose described.

3. In an Argand burner, the combination, with the inner and outer tubes, of a spreader and extinguisher surmounting said tubes, a wick-carrier fitted on the inner tube, two racks firmly connected with said spreader and carrier, respectively, and rotating disks, each having one of its faces provided with a spiral

thread to mesh into one of said racks, and independent disk-shafts, both having a finger-button outside the burner, the axes of said shafts and disks being at right angles to the plane of the racks, the whole adapted to operate substantially as herein described, for the purpose set forth.

4. In an Argand burner, the combination, with the inner and outer tubes and with the spreader or extinguisher and wick-carrier, of the racks connected with said spreader and carrier, respectively, the rotating disks, each having one of its faces provided with a spiral thread to mesh into one of said racks, and the disk-shafts arranged one within the other and both constructed with a finger-button to be operated independently of each other, substantially as herein described, for the purpose set forth.

5. In an Argand burner, a wick-carrier having an upper ring one edge of which is serrated and folded upon itself to form a bead, and thence outward, substantially as herein described, for the purpose set forth.

6. In an Argand burner, the combination, with the inner and outer tubes and with the wick-carrier fitted on the inner tube and the carrier-operating devices, of an adjustable stop attached to a fixed portion of the burner to engage with said carrier in its upward motion, substantially as herein described, for the purpose set forth.

7. In an Argand burner, the combination, with a wick-carrier, of a stop composed of a slotted arm, in combination with a screw-rod

extending through the slot of said arm and a non-rotating nut upon said rod, substantially as and for the purpose described.

8. In an Argand burner, the combination, with the inner and outer tubes and with the vertically-movable spreader and extinguisher and its operating devices, of an air-distributor fitted into the inner tube and firmly connected to the spreader to move therewith for its automatic adjustment to the space between the top of said inner tube and the spreader, substantially as herein described, for the purpose set forth.

9. In an Argand burner, the combination, with the inner and outer tubes and with the vertically-movable spreader and extinguisher and its operating devices, of an air-distributor having a lower cylindrical portion fitted into the inner tube and an upper tapering portion firmly connected to the spreader, substantially as herein described, for the purpose set forth.

10. In an Argand burner, a wick-carrier having an upper ring one edge of which is folded upon itself to form a bead for holding a feeding-wick, in combination with a tie-band for holding a burning-wick in superficial contact with said feeding-wick, substantially as herein described, for the purpose set forth.

Signed at New York, in the county of New York and State of New York, this 15th day of April, A. D. 1887.

PETER J. FOULON.

Witnesses:

C. L. MEAD,

CHAS. WAHLERS.