G. L. SMITH.

Argand Lamp-Burner.

No. 113,104. Patented Mar. 28, 1871.

FIG. 1.

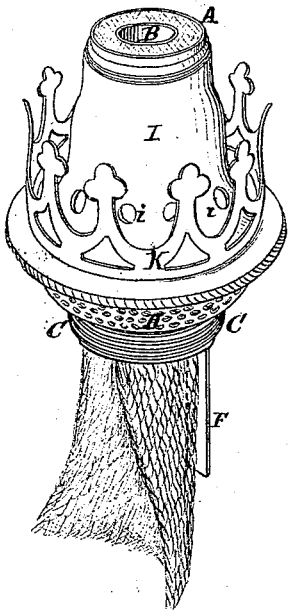


FIG. 2.

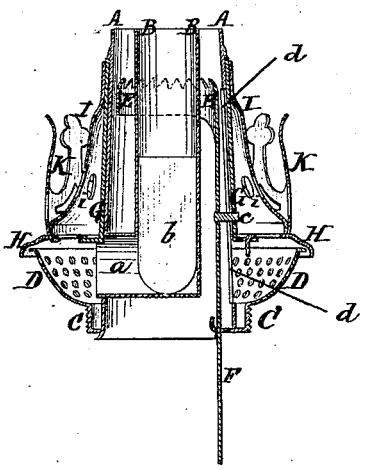


FIG. 3.

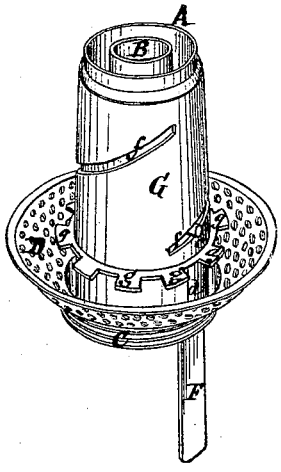
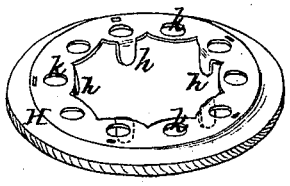


FIG. 4.



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GEORGE L. SMITH, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE BRIDGEPORT BRASS COMPANY.

Letters Patent No. 113,104, dated March 28, 1871.

IMPROVEMENT IN LAMP-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern:

Be it known that I, GEORGE L. SMITH, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Argand Lamp-Burners, of which the following is a specification.

My invention relates particularly to wick-raising or adjusting devices for lamp-burners, having an annular wick-tube for the reception of annular wicks, or one or more flat wicks bent into annular shape; and

Its object is to dispense with the use of the ratchet-wheels and pinions, or the screw-threaded wick-raising tubes usually employed in burners of this class for adjusting the wick or wicks. There has also been used for this purpose a serrated ring clasping and holding the wick with its teeth, and actuated to move up and down by means of a pinion engaging with a rack-bar attached to the ring. The use of the rack and pinion is, however, objectionable on several accounts, and it is my object to employ, with the serrated ring or wick-carrier, as it may be termed, other and less objectionable devices for operating the same. To this end,

I combine with the annular wick-tube and wick-carrier located within the same a rotary adjusting-tube, mounted upon the exterior of the wick-tube, and provided with a spiral groove or slot, or the equivalent of the same, which receives a pin attached to the wick-carrier, (or bar connected with the same,) and passing through a vertical slot formed in the wick-tube, the arrangement being such that when the adjusting-tube is revolved the pin will follow the spiral slot or passage in the said tube, and will thus, together with the wick-carrier and wick, be raised or lowered, according to the direction in which the adjusting-tube is revolved.

In order to readily revolve the adjusting-tube, I form projections or teeth upon it, which engage with corresponding projections on the removable part of the burner, (consisting of the guide-sleeve or tube and chimney-holder,) after the manner of a clutch, so that by revolving the said portion of the burner the adjusting-sleeve will be actuated to move in a corresponding direction.

To enable those skilled in the art to understand and use my invention, I will now proceed to describe the manner in which the same is or may be carried into effect by reference to the accompanying drawing, in which—

Figure 1 is a perspective view of a burner adapted to use one or more flat wicks bent into annular form.

Figure 2 is a vertical central section of the same with the wick removed.

Figure 3 is a perspective view of the burner with the removable portion taken off.

Figure 4 is a like view of the clutch-plate, detached from the rest of the burner.

A is the outer and B the inner tube, which together form the annular wick-tube.

The inner tube is connected with the outer one by the conduit-tube *a*, through which the air for the central draught passes.

The outer tube, which may be either conical or cylindrical, (I prefer the former shape,) is fixed to the base or screw-neck C, which is intended to screw into the lamp-collar in the usual manner.

To the base is also attached the perforated air-distributer or diaphragm D.

Within the central air-tube B may be arranged, if desired, a vertical dividing-plate, *b*, though this is not absolutely essential.

The arrangement of parts thus far described is such as is usual in burners of this class, and in itself makes no part of my invention.

Between the outer and inner tubes A B is located the toothed ring or wick-carrier E, hereinbefore referred to, which may be constructed in any ordinary or suitable manner that will permit it to clasp and hold the wick placed within it.

The carrier is provided or connected with a bar, F, by which it can be raised or lowered, this bar being located within the wick-tube and guided in its vertical movement in the usual manner.

In order to actuate the wick-carrier, I attach to the bar F a pin or stud, *c*, which extends through a vertical slot, *d*, in the wick-tube, and into a spiral slot, *f*, or groove, or equivalent formation made in a tube, G, which I call the adjusting-tube, mounted upon the wick-tube A so as to be capable of revolving on the same. By revolving the spirally-grooved or slotted tube G the pin will be carried up or down in the spiral groove *f*, and consequently the wick-carrier will be raised or lowered, according to the direction in which the adjusting-tube is revolved.

The vertical slot *d* in the wick-tube prevents the pin and carrier from having other than a vertical movement.

It is desirable in this class of burners that the holder and springs which support and uphold the chimney should be removable, so that the whole, including the chimney, may be removed to allow access to be had to the wick whenever necessary. It is, however, further my object to so connect the removable portion of the burner with the adjusting-tube G that motion may be imparted to the latter through the medium of the former.

To this end I form upon the adjusting-tube projections or teeth, *g*, or the equivalent of the same, with which corresponding projections on the removable portion of the burner engage, the projections on the one fitting in the intervals between the projections on the other, somewhat after the manner of a clutch.

The projections on the removable portion of the burner are shown at *h*, formed upon what may be called the clutch-plate H, which constitutes the lower part of said removable portion.

The removable portion of the burner in this instance is composed of the guide-tube I, which I prefer to make conical or tapering, as shown, the chimney-gallery or springs K, and the base or clutch-plate H, above referred to. These parts may be constructed in any ordinary or suitable manner; the springs and clutch-plate can be made from one piece of metal by drawing up the metal into a cylinder having one head or end closed, and then cutting out the springs from the cylindrical sides and piercing in the head or end the required holes for the wick-tube, air-passages, &c. The clutch-teeth *h* may be cut out at the same time.

In order to allow air to pass up to the exterior of the flame, the guide-tube I may be perforated at *i* for the passage of air entering through the diaphragm or air-distributer D, and passing up through the holes *k* in the plate H. Other modes, however, of supplying the external draught may be employed, if preferred.

The guide-tube, at its upper part, fits snugly around the wick-tube or the adjusting-tube, and, when the removable part of the burner is in position, the teeth *h* engage with the projections *g* in the manner above stated, and as shown in fig. 3. The clutch-plate H, as represented in the figure referred to, can also rest upon the projections *g*, so that the removable portion of the burner may be thus supported and upheld without necessarily coming in contact with or depending for support upon the diaphragm or air-distributer D.

If the removable part of the burner be rotated upon the wick-tube, it will readily be seen that the adjusting-tube must follow this rotary movement, and the adjustment of the wick can thus be readily effected.

It is manifest that the construction of what I have called the "clutch-plate" may be greatly varied, and, indeed, that various devices may be employed to connect the adjusting-sleeve or tube with the removable portion of the burner, all that is necessary being that the latter, when in position on the burner, shall engage with the adjusting-tube in such manner that it may be the medium through which the rotary movement of said tube is effected.

In conclusion, I would say that I am aware wicks have been adjusted by means of a wick-carrier engaging with a spirally-grooved or slotted cylinder, and this I do not broadly claim; but all such arrangements heretofore have contemplated the use of the grooved cylinder within the space inclosed by the wick, and have required, in order to be operated, the employment of devices passing down through and out from the inner or central tube, thus unfitting the base of the burner to be screwed into a lamp; and, moreover, they have made the burner costly and complicated in structure. By placing the slotted or grooved adjusting-tube or thimble upon the exterior of the wick-tube, and by combining with it the wick-carrier in the manner described, I obviate all the difficulties above named and produce an exceedingly simple and inexpensive burner.

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

1. The combination of the vertically-slotted wick-tube, the spirally-slotted or grooved adjusting-tube mounted thereon, and the wick-carrier arranged within said wick-tube, and provided with a pin or other projection passing through the vertical slot in the wick-tube and into the spiral groove or slot in the exterior adjusting-tube, substantially as and for the purpose shown and set forth.

2. In combination with the elements claimed in the preceding clause, the clutches, or the equivalent of the same, on the removable portion of the burner, engaging with corresponding clutches on the adjusting-tube, substantially as shown and described, whereby the rotation of the adjusting-tube is effected by revolving the said removable portion of the burner.

3. An Argand or round-wick burner, made substantially as herein described; that is to say, of the screw-neck or base, perforated air-distributer, inner and outer wick-tubes, wick-carrier, and adjusting-tube of the one part, and the spring chimney-holder, clutch-plate, or its equivalent, and guide-tube of the other part, said parts being constructed and combined for joint operation, as herein shown and set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

GEO. L. SMITH.

Witnesses:

D. W. KISSAM,

F. HURD.