R. S. MERRILL.

Fluid Burner.

No. 48,824. Patented July 18, 1865.

FIG. 1.

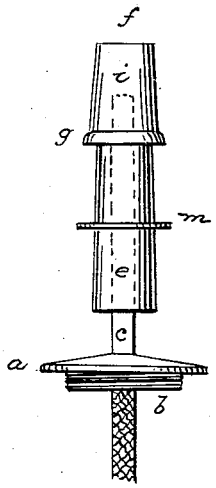


FIG. 2.

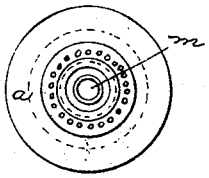
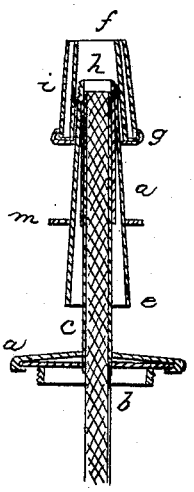


FIG. 3.



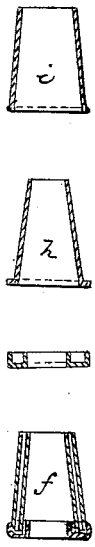
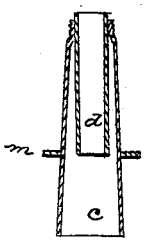


FIG. 4.



WITNESSES:

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INVENTOR.

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UNITED STATES PATENT OFFICE.

RUFUS S. MERRILL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN LAMP-BURNERS.

Specification forming part of Letters Patent No. **48,824**, dated July 18, 1865.

To all whom it may concern:

Be it known that I, RUFUS SPAULDING MERRILL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Lamp-Burners; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation, Fig. 2 a plan view, and Fig. 3 a section through the center line, of my improved burner. Fig. 4 are detail views, partly in section and partly in plan, of its component parts.

Heretofore the flame of burners provided with annular collecting-chambers could not be regulated without adjusting the wick in its tube or holder, so as to allow it more or less to project from above the tip, and this could be effected with safety only by first extinguishing the flame and by then trimming down or drawing out the wick. To obviate this I have rendered the collecting-chambers adjustable upon the wick-tube as to height, thus contracting or expanding the flame, as the case may be. Inasmuch as these burners are made of thin metal—high conductors of heat—it would be impossible to effect the adjustment without allowing the burner first to cool down, or without some means which would protect the fingers from burns. To remedy this I mount the annular collecting-chamber upon a concentric jacket open at its lower end, but secured at its upper end to a friction-sleeve sliding on the wick-tube. The jacket, being open below, will allow the air to rise and circulate in the space surrounding the wick-tube. For further protection of the fingers, and to facilitate the operation of adjusting, I provide the jacket with a disk, the outer rim of which is kept cool by means of a close circular series of holes.

To enable others to make and use my invention, I shall now proceed to describe the construction and arrangement of the parts and operation of my improved burner.

Referring to the said drawings, *a* is the cap of the vessel which contains the fluid to be burned. It is composed of a metal disk having an annular flange, *b*, provided with a screw-thread, whereby the cap is secured or screwed on to the collar of the vessel. The disk is milled at its circumference, or covered with another disk of thin metal of a diameter somewhat larger than that of the disk, so as to allow of its outer edge being bent over and around the rim of the inner disk.

From the center of the disk *a* springs the wick-tube *c*, upon which is fitted so as to have frictional hold upon it another tube, *d*, somewhat shorter than the wick-tube, so as to allow of its traveling up and down around the wick-tube for the purpose of reducing, or contracting, or spreading, or lengthening the portion of the wick protruding at the tip of the burner. To this adjustable sliding tube, and at the upper part thereof, is attached a jacket or conical sleeve, *e*, the upper diameter of which snugly fits the sliding tube, with which it is secured by one or more indentations or depressions, while its lower diameter is larger, so as to present a wide opening, through which the surrounding air is induced to enter and to circulate within the conical space of the sleeve for the purpose before mentioned.

Onto the jacket are fitted the annular collecting-chambers *f*, which are made of three distinct pieces united—that is to say, of an annular disk, *g*, provided with an interior and exterior upright flange; of a cone, *h*, at the base of which is a horizontal flange fitting against the exterior upright flange of the disk *g;* and of a second cone, *i*, larger in diameter than the former, and provided with a horizontal flange or flare smaller than the horizontal flange of the other cone. These three parts are fitted together by first placing the cone *h* into the trough-like disk *g*, by then placing upon it the second cone, *i*, and by finally swaging down the exterior upright flange of the disk onto the horizontal flare of the outer cone, *i*. By means of the flanges the relative position of the inner and outer cone is firmly secured in relation to the disk. Thus the three parts are united without the employment of any solder, and consequently without liability of their giving way by their exposure to heat.

In addition to the jacket, I use a circular plate, *m*, secured to and around the sleeve or jacket, for the more convenient handling of the adjustable parts of the burner. The plate I prefer to perforate with numerous holes within its circumference, so as to break, as it were,

the conduct of the heat from the jacket to the circumference by means of air-channels, which will necessarily establish themselves through the said holes.

From the preamble of this specification, as well as from the description of the parts and their individual functions, the operation of this invention will be readily understood. It may be well, however, to state that the application of the adjustable wick-tube, operating in unison with the collecting-chambers, dispenses with the necessity of any nice adjustment of the wick in the main tube, as is the case in ordinary fluid-burners, for if there be too much wick at the tip of the burner it can be reduced without trimming it down, by simply elevating the sliding tube and collecting-chambers, and vice versa. If there be an insufficient amount of wick, it may be increased by depressing the collecting-chambers.

Having now fully described my said invention, I claim—

1. The employment of annular concentric collecting-chambers at or near the tip of the burner, when the same are made adjustable in relation to the burner, substantially as hereinbefore set forth.

2. The attachment of the annular collecting chamber or chambers concentrically with the wick-tube to an adjustable sliding tube or friction-sleeve, whereby the flame of the burner may be regulated without interference with the wick itself.

3. In combination with the above, the concentric outer jacket, open at the under side, so as to allow air entering the same in the manner and for the purpose substantially as set forth.

4. In combination with the above, the perforated disk or flange, for the purpose specified.

5. The method described of attaching the outer jacket to the adjustable slide by indentation, substantially as set forth.

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

RUFUS S. MERRILL.

Witnesses:
A. POLLOK,
JOS. L. COOMBS.