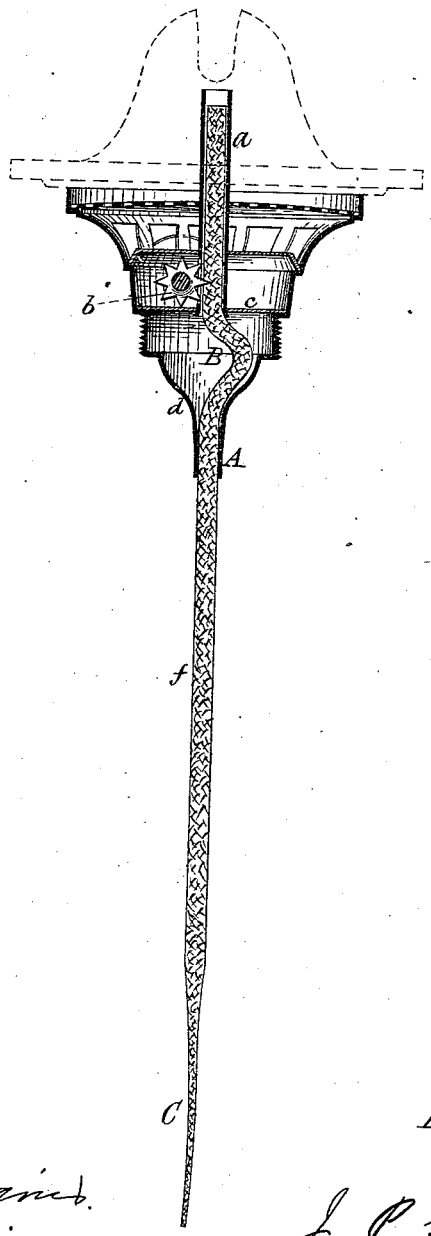
J. P. SMITHERS.
Lamp-Burner.

No. 208,429. Patented Sept. 24, 1878.



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UNITED STATES PATENT OFFICE.

JOSEPH P. SMITHERS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN LAMP-BURNERS.

Specification forming part of Letters Patent No. **208,429**, dated September 24, 1878; application filed August 19, 1878.

To all whom it may concern:

Be it known that I, JOSEPH P. SMITHERS, of Brooklyn, Kings county, New York, have invented certain new and useful Improvements in Lamp-Burners, of which the following is a specification:

My improvement applies to the wick-tube portion of the ordinary flat-wick burner; and the object of my invention is to so construct the wick-tube as to prevent the existence of channels around the wick, through which the flame might communicate with the explosive atmosphere that may be formed within the lamp.

To this end the main feature of my invention consists in forming the wick-tube with the upper end loose, as usual, to permit the free passage of the top of the wick, but with its lower end of reduced size, adapted to closely embrace the wick where it enters the reservoir, and thus prevent the passage of flame therethrough.

The invention also consists in a lateral enlargement or chamber on the wick-tube, between its upper and lower ends, which permits the descent of the top of the wick, to effect the adjustment of the flame, by allowing of the lateral bending or curving of the wick therein.

The invention further consists in forming the wick with one end of reduced thickness, adapted to be easily passed through the reduced end of the wick-tube in inserting the wick.

The annexed drawing presents a vertical section of the lower part of an ordinary lamp-burner provided with my improved wick-tube and wick.

a indicates the upper part of the wick-tube, which is formed a loose or free fit for the wick, as usual, and is provided with the usual ratchet-wheel *b*, which effects the necessary movement of the wick up or down in the tube. The lower end, A, of the wick-tube, however, is of sufficiently reduced size to tightly embrace the wick on all sides, as represented, and thus prevent the existence of any spaces or channels around the same, which would permit the passing of flame, thereby securing safety against the ignition and explosion of the contents of the reservoir. This tight-fitting end of the tube, while not impairing the capillary power of the wick, holds it too tightly to permit the ratchet pushing the wick, as usual, bodily downward through the lower mouth of the tube, although it can readily raise it through the lower mouth by the upward-pulling action. The wick-tube is therefore provided with a lateral enlargement or chamber, B, intermediate between its tight and loose ends, as shown, into which the wick may be freely lowered in a lateral curve or bend, as shown, thus permitting the necessary movement of the top of the wick to effect the adjustment of the flame. This chamber is not essential in all cases—that is, in cases where the ratchet can be arranged very close to the lower tight-fitting mouth of the tube; but, as burners are usually formed, its employment is desirable in connection with the tight-fitting tube. This chamber may be formed partly by the interior of the threaded neck of the burner, which is inclosed by a partition, *c*, below the ratchet, and partly by a rectangular funnel-shaped addition, *d*, below the threaded neck, as shown, and which terminates in the tight-fitting mouth A, or in any other suitable manner that will occur to the manufacturer.

The wick *f* is formed with its lower end of reduced thickness, as shown at C, by weaving that end thinner or stitching to the same a thin piece of strong cloth or muslin. This enables the end of the wick to be easily passed through the reduced mouth of the tube, which is then seized, and the wick thus drawn into position in the tube, thus enabling the wick to be readily inserted in the burner.

It is well known that as wick-tubes are usually formed their looseness often permits the existence of wick-channels, through which the flame may readily communicate with the contents of the reservoir. This may properly be said to be one of the main elements of danger in a lamp, and consequently, on the other hand, the great element of safety is the prevention of this condition, which my invention effects, for while the formation of an explosive atmosphere within the oil-reservoir cannot be practically guarded against in all cases, the ignition of this atmosphere can be, and it is obvious that a mixture, however explosive,

must forever remain harmless when the possibility of igniting it is prevented. Another advantage of my construction is that it accomplishes this result without tending to heat the oil, as is the case with metallic wick tubes or chambers that are extended down into the oil.

What I claim is—

1. A flat-wick lamp-burner having its flat-wick tube formed with an upper loose end to permit the free passage of the wick, and a lower end of reduced size, adapted to closely embrace the wick and prevent the passage of flame along the same, substantially as herein set forth.

2. A flat-wick lamp-burner having its flat-wick tube formed with an upper loose-fitting end, adapted to permit the free movement of the wick, and a lower tight-fitting end, adapted to closely embrace the wick, to prevent the passage of flame, together with an intermediate lateral enlargement or chamber, adapted to allow of the bending of the wick therein when lowered through the loose end of the tube, substantially as herein shown and described.

JOSEPH P. SMITHERS.

Witnesses:
CHAS. M. HIGGINS,
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