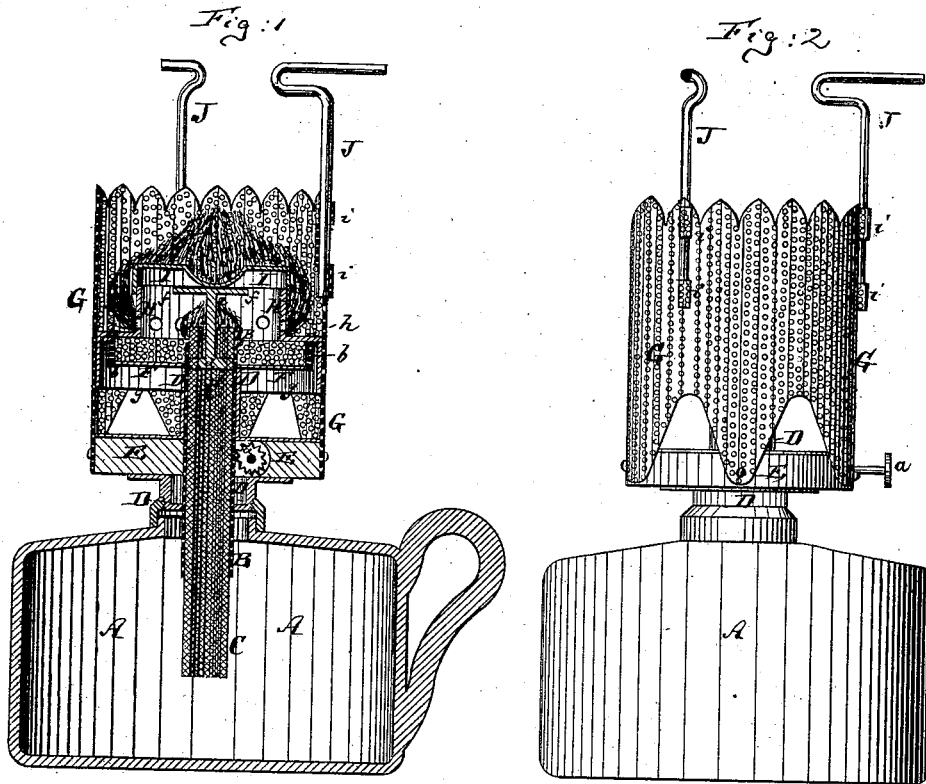


T. R. ALMOND.  
VAPOR BURNERS FOR HEATING PURPOSES.

No. 193,796.

Patented Aug. 7, 1877.



Witnesses  
D. F. Ziesler  
J. Fink.

Inventor:  
Thomas R. Almond  
by his attorney  
D. F. Ziesler

# UNITED STATES PATENT OFFICE.

THOMAS R. ALMOND, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN VAPOR-BURNERS FOR HEATING PURPOSES.

Specification forming part of Letters Patent No. **193,796**, dated August 7, 1877; application filed December 15, 1876.

### *To all whom it may concern:*

Be it known that I, THOMAS R. ALMOND, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Burner for Heating Purposes, of which the following is a specification:

Figure 1 is a sectional elevation of a lamp carrying my improved burner. Fig. 2 is a side view of the same.

Similar letters of reference indicate corresponding parts in both figures.

This invention relates to an improved lamp-burner for heating purposes, the object being to vaporize, by an inner flame, the fuel of the lamp, and to produce a heating-flame by igniting said vapors or other gases.

The invention consists, first, in the combination of a sliding wick-tube, which is moved up and down with the wick through a fixed annular plate, with a top plate, which, when drawn down, serves as an extinguisher.

The invention also consists in providing said annular plate with perforations, or with a perforated rim, and in combining it with a narrow superposed chamber, and with a perforated outer chimney, all as hereinafter more fully described; also, in the use of a hinged cap, and in the new arrangement of brackets for supporting the vessel to be heated.

In the drawing, the letter A represents the reservoir of a coal-oil lamp. B is the wick-tube, and C the wick thereof. The wick-tube is arranged to slide up and down in a hollow guideway, D, that projects from the lamp-reservoir. In this guideway the ratchet-wheel *a*, for moving the wick-tube, has its bearing.

A wooden or other bad heat-conducting base-block, E, is rigidly affixed to the tubular guideway D, and elevated sufficiently far from the reservoir A to keep the flame above from unduly heating the reservoir. This block, together with the tube D, is, by preference, covered with asbestos-paper or other non-combustible substance. The upper end of the stationary tube D terminates in an enlargement or flange, F, in form of an annular plate of slightly smaller diameter than the block E. The plate F has an upwardly-projecting perforated rim, *b*, or is itself perforated.

The wick-tube has an inner cross-bar, *d*, upon which is mounted the vertical stem *e* of

a top plate, *f*. This top plate is at a distance above the upper end of the wick, and larger in diameter than the wick, as shown in Fig. 1. By means of the ratchet-wheel *a* the tube B, wick C, stem *e*, and plate *f* are raised or lowered together.

The wick-tube embraces the wick to a short distance from the upper end of the wick. By having a sliding wick-tube I am enabled to raise the flame of the wick to a greater height within the burner without exposing a larger proportion of wick-surface to the action of the flame. The plate *f* serves the purpose of an extinguisher when drawn down upon the plate F.

G is a perforated tube, of a diameter equaling that of the block E. It is, at its lower end, fastened to the periphery of the block E, and extends upward, as shown. To the inner side of this perforated tube is secured the rim *g* of a short tube, H, which surmounts the rim or body of the plate F. The tube H is preferably of smaller diameter than the plate F, and has a connecting step or shoulder, *h*, that joins it to the rim *g*, as clearly indicated in Fig. 1. This shoulder *h* rests on the upper edge of the rim *b*, or directly on the perforated plate F, if the rim *b* is omitted. Shortly above the shoulder *h* the tube H is perforated with holes of considerably larger diameter than the holes of the tube G or rim *b*.

The upper end of the tube H is closed by a hinged cap, I, which can be swung open by hand or by raising the plate *f* against it.

J J are wire brackets placed into sockets *i*, that are formed by bending and partly cutting the tube G, in manner clearly shown in the drawing. By this construction the brackets are removable and reversible, and yet firmly supported when used.

In use the flame is started by igniting the upper end of the wick and then closing the cap I upon the tube H. The wick-flame burns then in a chamber, H, to which a small proportion of air is admitted through the rim *b* or plate F, and from which gases can freely escape through the comparatively large holes in the tube H. In other words the flame is reduced to the bare possibility of existence, but not entirely stifled, and is thus utilized as a means of vaporizing all that proportion of

fuel which, were it not for the lack of draft referred to, would be directly ignited on the wick.

The vapors thus created, or other combustible gases, escape through the holes of the tube H into the annular space formed between said tube H and the tube G. In this space the vapors or gases meet a supply of fresh air, which reaches them through the apertures of the tube G, and, when ignited, produce a perfect heating-flame, useful for many purposes in the arts. The perforated tube G gives direction to these heating-vapors, and yet admits sufficient air to supply it with the requisite quantity of oxygen.

Experience has shown me that without the tube G the degree of combustion and good heating-flame will not be obtained.

I claim as my invention—

1. The sliding wick-tube B, combined with

the cross-bar *d*, stem *e*, and extinguisher-plate *f*, substantially as herein shown and described.

2. The cap I, combined with the chamber, which is formed by the perforated tube H and plate F, substantially as herein shown and described.

3. The perforated tube G, made with sockets *i*, and combined with the brackets J J, substantially as herein shown and described.

4. The combination of the outer perforated tube G with the inner perforated tube H and connecting-shoulder *h*, all arranged to constitute a combustion-chamber for vapors or gases that pass through the horizontal perforations of the tube H, above the shoulder *h*, into the tube G, substantially as specified.

THOS. R. ALMOND.

Witnesses:

ERNEST C. WEBB,  
F. V. BRIESEN.