

THOMAS S. GATES & A. H. FRITCHEY.

Improvement in Vapor-Burners.

No. 115,189.

Patented May 23, 1871.

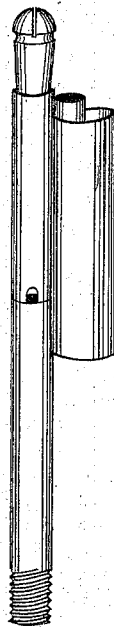


Fig. 1.

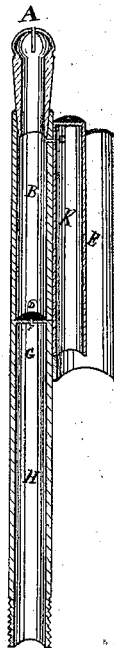


Fig. 2.



Fig. 3.



Fig. 4.

Witnesses.

J. I. Bareels  
H. C. Norton

Inventors.

Thos. S. Gates  
Alexander H. Fritchey

# UNITED STATES PATENT OFFICE.

THOMAS S. GATES AND ALEXANDER H. FRITCHEY, OF COLUMBUS, OHIO.

## IMPROVEMENT IN VAPOR-BURNERS.

*Specification forming part of Letters Patent No. 115,189, dated May 23, 1871.*

*To all whom it may concern:*

Be it known that we, THOMAS S. GATES and ALEXANDER H. FRITCHEY, both of Columbus, in the State of Ohio, have invented an Improvement in Vapor-Burners; and we do hereby declare the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

The invention is an additional improvement upon that for which we obtained Letters Patent June 1, 1869, numbered 90,659, and in which a supplemental burner or orifice from the chamber of the main burner formed a communication or passage from it to a vertical tube attached to the side of such main burner, the supplemental burner serving to facilitate and hasten the generation of gas from the fluid in the supply-pipe, fed from a vessel or fount, sufficiently elevated, in a manner well known.

In that patent the auxiliary burner or orifice formed a direct communication or passage from the main burner or gas-chamber (marked B in the accompanying sectional drawing, forming part of this specification) to the upper portion of the vertical tube, marked E, and at a point above the generating-chamber G.

We also obtained Letters Patent for an improvement upon said constructed burner, August 17, 1869, numbered 93,698, in which we found many decided advantages in dispensing with any opening between the parts B and E, and, instead thereof, making the opening from E directly into the generating-chamber G.

While both of said novel constructions have been found to be successful and important improvements, and to answer fully all the purposes for which they were devised, we find, upon still further experience and study, that we gain many advantages by constructing our burner as represented by the following figures, to wit, (reference being had to the accompanying drawings:)

Figure 1 is a perspective view of a burner constructed according to our invention. Fig. 2 is a cross-section of the same. Figs. 3 and 4 are detached views of the same.

In this manner of construction we dispense

with the opening between the parts E and G, and again make the opening directly from the gas-chamber B, as was shown in the patent of June 1, 1869, numbered 90,659; but said opening, marked C, is not now made directly into the vertical tube E, but into an inner and smaller tube, closed at the top, and permanently attached to the side of the said chamber B. The lower end of said smaller tube, marked K, projects beyond the chamber B, as is seen in Fig. 4, and reaches a point over the generating-chamber G, for the purpose hereinafter shown.

Together with this change in the construction, we also construct the burner in two parts, (more particularly shown in Figs. 3 and 4,) so the same can be easily taken apart and cleaned when necessary, and also that the size and strength of the illuminating flame can be easily regulated by admitting more or less oxygen, by means of raising or lowering the chamber B, as the smaller tube K slides down into the vertical tube E, and, being attached to the chamber B, forms a hold-fast to the two parts of the burner.

The other parts, A, D, B, F, and H, are substantially the same in construction as in said patent of June 1, 1869, A being the slit for the exit of the gas for illuminating; D, the opening to admit oxygen into the gas-chamber; B, the gas-chamber, of the length ordinarily used in ordinary table or stand lamps, yet the same may be constructed of any length, from one half inch to three feet, from the opening C to the slit A, as may be suitable to different styles of lamps; F, the pin-hole opening from the generating-chamber, to admit the passage of gas or vapor into the chamber B; and H the tube, to be filled with packing to regulate the flow of the fluid.

The advantages in the above-described construction are that the passage of the gas or vapor through the auxiliary jet C into and down to the lower end of the smaller tube K, where it is ignited and burns, while it furnishes heat to the generating-chamber G, for generating purposes, at the same point as shown in our patent of August 17, 1869, and numbered 93,698, it also is perfectly noiseless in its operation.

There is no smoke arising from this heating.

jet, as from its manner of construction the smoke is all consumed in the tube E. The flame of the heating-jet cannot rise high enough to be visible above the top of the tube E, and consequently cannot interfere with the illuminating flame.

The burner can easily be adjusted, taken apart, cleaned, and placed together again.

We claim—

The application and attachment of the small tube or conductor K, of such different lengths and shapes as may be required, to the mixing

or gas chamber B, communicating therewith at any suitable distance beyond the oxygen-holes D, for the purpose of conducting a portion of the oxygenized vapor back to the outer surface of the generating-chamber G for heating purposes.

THOS. S. GATES.

ALEXANDER H. FRITCHEY.

Witnesses:

J. L. PARCELE,

H. C. MORTON.