

R. W. PARK.  
VAPOR BURNER.

No. 111,471.

Patented Jan. 31, 1871.

FIG. 2.

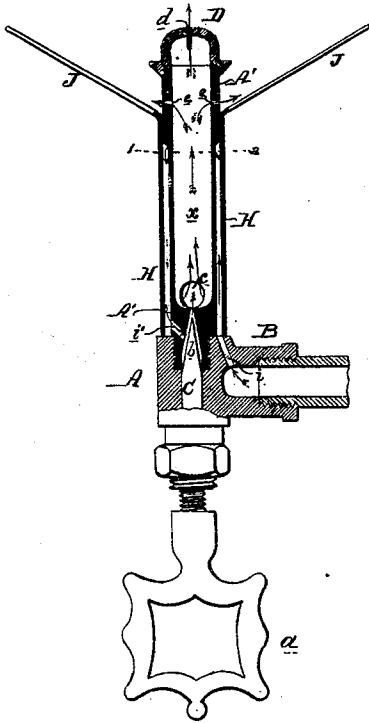


FIG. 1.

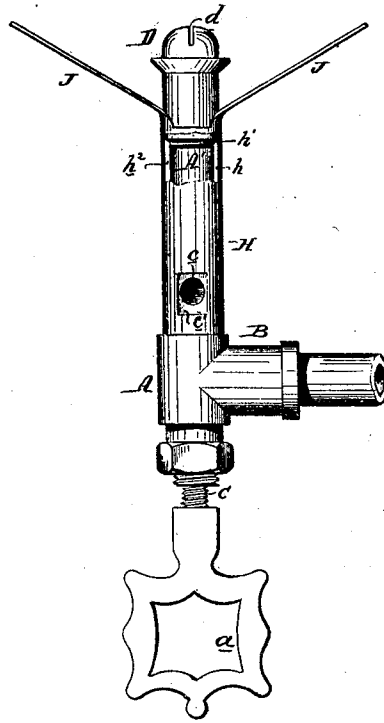


FIG. 3.

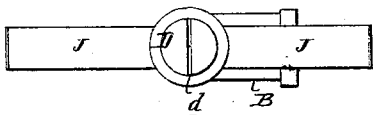


FIG. 4.

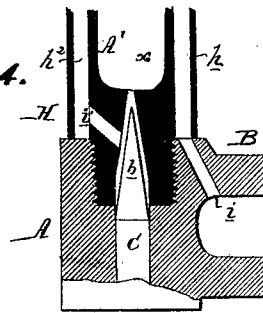


FIG. 5.

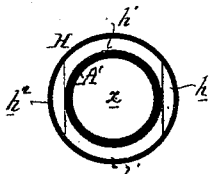
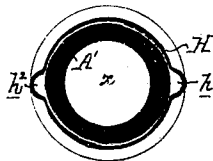


FIG. 6.



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*By his attys.*  
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# United States Patent Office.

ROBERT W. PARK, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 111,471, dated January 31, 1871.

## IMPROVEMENT IN VAPOR-BURNERS.

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

I, ROBERT W. PARK, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improved Gas or Vapor-Burner, of which the following is a specification.

My invention consists of certain improvements, too fully described hereafter to need preliminary explanation, in that class of burners which is supplied with naphtha or light oil from an elevated reservoir, and in which the said oil is converted into gas or vapor before ignition.

### Description of the Accompanying Drawing.

Figure 1 is a side view, partly in section, of my improved burner;

Figure 2 is a vertical section of the same;

Figure 3, a plan view;

Figure 4, an enlarged sectional view of part of the burner;

Figure 5, an enlarged sectional plan on the line 1 2, fig. 2; and

Figure 6, a view of a modification.

### General Description.

The base or body of the burner consists of a tubular stem, A, furnished at one side with a branch, B, the latter communicating with a reservoir containing a supply of naphtha, benzine, or light oil, which can be vaporized by the application of heat so as to form an ignitable gas.

A screw-valve, C, is furnished at its lower end with a suitable handle, *a*, extends vertically upward through the stem A, and terminates at its upper end in a "needle-point," *b*, adapted to a similarly-shaped seat in a tubular stem, A', which is secured to or forms part of the stem A.

The interior of the stem A' is considerably enlarged in diameter above the valve-seat, so as to form a chamber, *x*, and the said stem has one or more apertures, *c*, for the admission of air into the said chamber, to be mixed with the vapor of the oil before ignition.

At the upper end of the stem A there is a tip or dome, D, in which is a transverse slit, *d*, for the passage of the mixed air and vapor, and below the dome, at opposite points, there are two minute apertures, *e*, for a purpose described hereafter.

A tube or sleeve, H, is fitted over the stem A', and is secured to the latter or to the stem A by brazing or otherwise.

In the sides of the sleeves, at points opposite to the air-passages *c*, are cut openings or slits *c'*, and from the upper end of the sleeve project two inclined wings, J J, which are arranged transversely in respect to the slit *d* of the dome, and directly opposite and close to the apertures *e* of the stem A'.

The opposite sides of the stem A' are flattened

or grooved, so as to form two channels or passages, *h* and *h'*, between the said stem and the sleeve H.

These passages extend nearly to the top of the sleeve, and communicate with each other at their upper ends by means of a circular groove, *h'*, cut in the stem.

Instead of cutting or flattening the stem, the passages *h*, *h'*, and *h''*, might be formed by stamping up the sleeve in the manner shown in fig. 6.

A channel, *i*, forms a communication between the interior of the branch B and the passage *h*, and a similar channel, *i'*, forms a communication between the passage *h''* and the interior of the stem A', below or opposite the valve.

As there is uninterrupted communication from the elevated reservoir through the branch B and channel *i*, to the passages *h*, *h'*, and *h''*, and channel *i'*, the latter, while the burner is not in use, will be filled with the light oil or other fluid from the reservoir. This oil is partially vaporized before lighting the burner by heating the latter, the valve being lowered from its seat, so as to permit the passage of the partially-vaporized oil into the air or mixing-chamber *x* of the stem A'.

As the vapor is generated, it passes upward through the chamber *x* and becomes mixed with the air, which enters the said chamber through the apertures *c*.

This mixed air and vapor is ignited as it emerges from the burner proper or tip D, and forms a broad flame, closely resembling an ordinary gas-jet.

The mixed air and gas which passes through the apertures *e* at either side of the tube is also ignited, and forming two fine jets, which play upon the inclined wings J J, throughout almost their entire length, and highly heat the said wings.

This heat is transmitted to the tube or sleeve H, and also to the inner tubular stem A', so that the oil, in passing through the passages *h*, *h'*, *h''*, formed between the said sleeve and stem, will be thoroughly vaporized, and will pass into the mixing-chamber *x*, and from the apertures *e* and slit *d*, with a considerable degree of pressure.

By causing jets of ignited gas to heat simple wings or plates, so arranged that they may transmit their heat to the oil or vapor-passages, instead of causing jets or a broad flame to play directly upon tubes in which the vapor-passages are arranged as in other burners of this class, quite as effective a burner is obtained, while its construction is very considerably simplified.

The method of forming the oil or vaporizing-passages between two tubes also simplifies and reduces the cost of the burner.

### Claims.

1. The wings or plates J J, heated by independent

jets of ignited gas from the apertures *e*, in combination with oil or vapor-passages situated below the said wings, all substantially as described.

2. The passages *h*, *h*<sup>1</sup>, and *h*<sup>2</sup>, formed in the body of the burner, in respect to the wings J J, and communicating with the branch B and mixing-chamber *x*, through channels *i* and *i*<sup>1</sup>, all substantially as specified.

3. The said passages *h*, *h*<sup>1</sup>, and *h*<sup>2</sup>, when formed between tubes H and A', substantially in the manner described.

4. The tube or sleeve H, formed in one piece with the wings J, and arranged to be fitted over and secured to the body of the burner, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT W. PARK.

Witnesses:

WM. A. STEEL,  
HARRY SMITH.