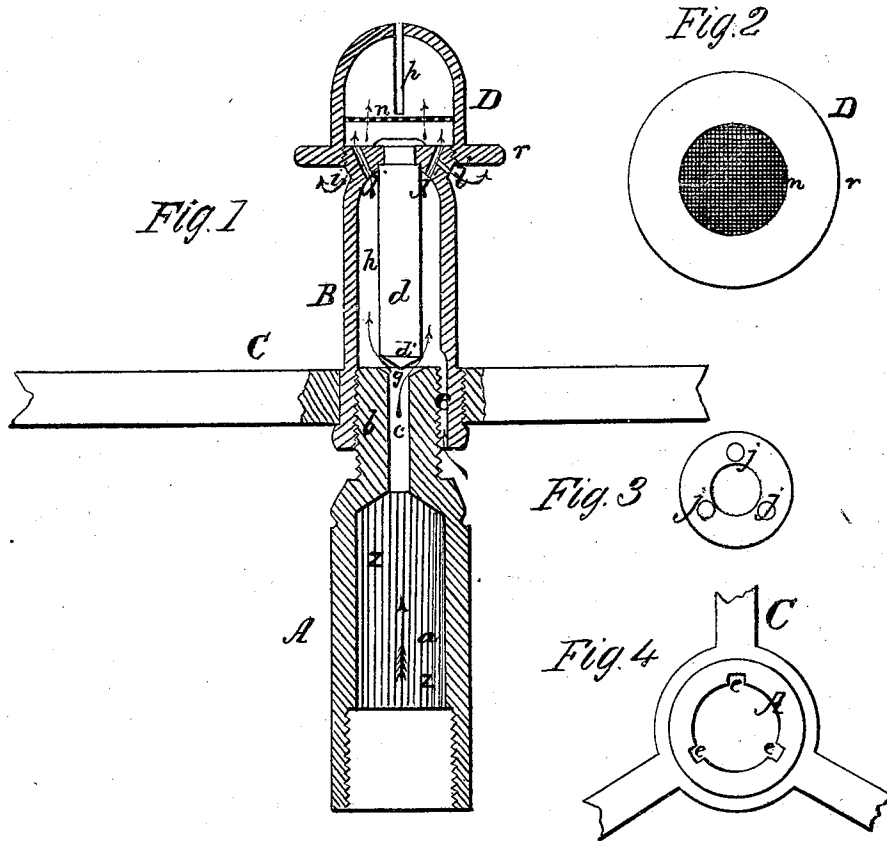


F. G. PALMER.
Vapor Burners.

No. 138,923.

Patented May 13, 1873.



Witnesses
R. Campbell.
J. A. Campbell.

Inventor
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by
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UNITED STATES PATENT OFFICE.

FRANKLIN G. PALMER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND JASON J. PALMER, OF SAME PLACE.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **138,923**, dated May 13, 1873; application filed October 21, 1872.

To all whom it may concern:

Be it known that I, FRANKLIN G. PALMER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Burner; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a section taken diametrically through the burner. Fig. 2 is a bottom view of the burner-cap. Fig. 3 is a top view of the perforated tube on which the cap is applied. Fig. 4 is a bottom view of the generator with the arms of the spider broken off.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved vapor-burner for generating and burning vapor from hydrocarbon-oils, wherein I combine with a gas-generating tube an adjustable perforated air-mixing tube, in which is a valve for regulating the escape of the inflammable gas from the said generating-tube.

The valvular device in my invention is of great importance. It is the only valve or cock that does away with an open joint or joints tightened by a stuffing-box or ground or threaded joints, which, after using a short time, are liable to leak from the friction produced by adjusting the valve, thus obviating the one great objection to hydrocarbon-pressure burners, viz., their liability to leaky joints.

The following description of my invention will enable others skilled in the art to understand it.

In the accompanying drawing, A represents the generator, which is screw-threaded for receiving upon it a tube, B, of a burner. The oil from the lamp passing into this tube is therein converted into gas, which passes through the perforation *c* into the mixing-chamber *h*, in which chamber the gas becomes mixed with air which passes through perforations *e* from outside. The generator A is packed with straight wire or wick, as indicated at *z z* in Fig. 1, which packing so retards the passage of the fluid used as to cause a steady flow of gas through the orifice *c* into the mixing-chamber *h*. At the upper end of the orifice *c* is a valve-seat, *g*, which may be closed by a valve, *d'*, on a stem or spindle, *d*, when it is necessary to

extinguish the flame. This stem *d*, with its valve *d'*, is also used as a cock to shut off the flow of the gas through the orifice *c* when desired. This valvular device may be elevated or depressed by turning the tube B, and so more or less of the gas allowed to escape from the chamber *a* of tube A into the chamber *h* of tube B. The tube B has applied to it at its base the arms C for adjusting the spindle. At the upper end of this tube are several perforations; those perforations which are lettered *j j* allow the gas to escape from chamber *h* into the hollow slotted head D of the burner, while those which communicate with the perforations *j* from without, lettered *i i*, are for the purpose of allowing the escape of small jets of gas, which, when ignited, will cause heat enough about the tube A to generate the gas therein.

The valve-rod *d* is secured to the tube or burner-top B, so that by simply turning the latter the size of the flame may be regulated. In order to supply oxygen to the gas in the chamber *h* of tube B, I perforate this tube around its lower screw-threaded portion, as shown at *e*, which will allow air to enter the mixing-chamber *h* in proper quantities. These openings I locate below the plane point where the gas issues from or through the opening *c*. Such location of the air-passage *e* permits me to so shorten the length of the air-mixing chamber H as to bring the heat of the burning gas at *i i* near down to the gas-generating chamber A. If the air-openings were on or above the plane where the vapor or gas issues from or through the opening *c*, and the mixing-chamber made as short as I am enabled to make it with the air-openings below, as *e*, the vapor would be liable to escape through the air-openings instead of passing up through the burner-top D.

What I claim as new, and desire to secure by Letters Patent, is—

The spindle or spindle-point *d d'*, attached to or forming part of a burner or burner-top, inverted and above the generator, and acting as specified, all substantially as set forth.

FRANKLIN G. PALMER.

Witnesses:

R. T. CAMPBELL,
J. N. CAMPBELL.