J. IRWIN.
Vapor-Burner.

No. 213,510. Patented Mar. 25, 1879.

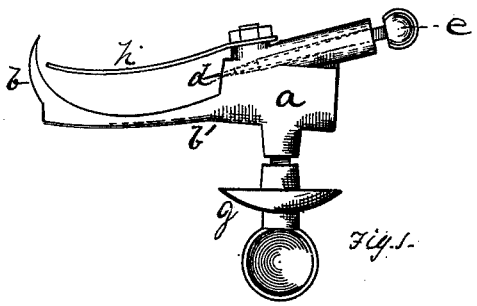

Fig. 1.

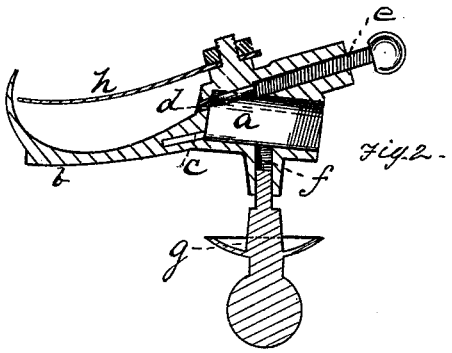

Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES IRWIN, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **213,510**, dated March 25, 1879; application filed January 31, 1879.

To all whom it may concern:

Be it known that I, JAMES IRWIN, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Vapor-Burners; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of devices embodying my invention, and Fig. 2 is a central longitudinal section of the same.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of vapor-burners, for use with gasoline, benzine, and other light hydrocarbons or easily vaporized and inflammable liquids.

I will now proceed to describe my invention more specifically, so that others skilled in the art to which it appertains may apply the same.

In the drawings, *a* indicates the vapor or vaporizing chamber, which is situated, as usual, at the end of the feed-pipe, said feed-pipe being filled with wick or other fibrous material, coarse sand, or broken glass, or like substance adapted to retard the flow of the liquid to the vaporizing-chamber in the ordinary or any approved manner. When in use this chamber *a* occupies substantially a horizontal position, in contradistinction to the vertical position which vapor-burners usually occupy.

b indicates the deflector, which is united by its stem to the vaporizing-chamber at or near the lower part or base thereof, as indicated by *b'*. This construction causes the heat transmitted by the deflector to strike the vapor-chamber *a* at its lowest point; consequently the chamber is more readily and uniformly heated, and none of the effect of the heat is lost; but in order to increase the effect the vapor-chamber is extended into the deflector by drilling, or otherwise, as shown at *c*. At the upper part of vapor-chamber *a* is the jet-orifice *d*, so placed in order, first, that the gas may issue from the highest point of the vapor-chamber, whereby the pressure may be more uniform, and, secondly, so that there shall be no overflow before the preliminary flame or heating cup is supplied. In line with the jet-orifice *d*, and on a line intersecting the vapor-chamber *a*, is a threaded orifice for the reception of the needle-pointed or taper-ended jet-regulating screw *e*. This arrangement of the jet-regulator permits a larger body of metal to be used at the vapor-chamber, whereby the heat is better retained without materially affecting the symmetry of the burner.

g indicates the heating-cup, which is placed directly under the vapor-chamber *a*, and communicates therewith through the threaded orifice *f*, which orifice also receives a screw, by means of which the cup is held in position.

When the burner is in use, the gasoline or other inflammable liquid used will flow from the vapor-chamber *a*, and following the screw-threads of *f* will drip into and supply the cup. The distance the screw is entered will, of course, determine the distance the liquid has to travel and the amount of liquid fed to the cup *g*.

h indicates the spreader, which may be of any approved form, but, preferably, is fan-shaped, as shown, and detachably connected to the burner by a threaded peg and nut, as shown, as such construction permits of its ready removal for cleaning the burner and for other purposes.

The operation of my device is as follows: The liquid to be vaporized being fed in sufficient quantity to the vapor or vaporizing chamber *a*, the screw *f* is turned to permit it to flow into the heating-cup *g*, where, being ignited, it serves to heat the vapor-chamber *a* and form a gas, which escapes by the orifice *d* and is ignited, impinging on the deflector. The deflector, becoming heated, transmits the heat to the base of the vapor-chamber, so that the flame in cup *g* may then be dispensed with, if desired, though in many instances it will be desirable to retain the supplemental flame, and when such is the case the construction described will permit it.

I am aware that a vertical vaporizing-chamber with horizontal deflector has heretofore been employed, and do not claim such subject-matter, for in such construction the feed is dependent upon capillary attraction alone, and the heat from the deflector only reaches the gas-chamber, so that a uniform and steady flame is not always attainable.

Having thus described my invention, what

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

1. The combination, in a vapor-burner, of a deflector, *b*, and the substantially horizontal vaporizing-chamber *a*, the deflector being connected to the vapor-chamber at or near the base, substantially as and for the purpose specified.

2. The combination, in a vapor-burner, of a deflector and a vapor-chamber, the deflector being hollowed out, as at *c*, at its attachment to the vapor-chamber, to form the horizontal extension of the vapor-chamber, substantially as specified.

3. The combination, in a vapor-burner, of the substantially horizontal vaporizing-chamber *a*, the deflector *b*, constructed as specified, the regulating-screw *e*, and the cup *g*, the whole constructed, combined, and arranged substantially as and for the purpose specified.

In testimony whereof I, the said JAMES IRWIN, have hereunto set my hand.

JAMES IRWIN.

Witnesses:
F. W. RITTER, Jr.,
R. H. WHITTLESEY.