

J. STRATTON.

Vapor Burner.

No. 49,955.

Patented Sept. 12, 1865.

FIG. 1.

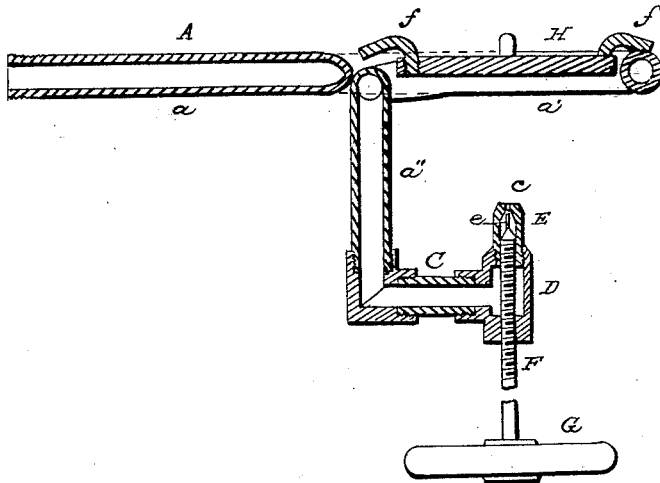


FIG. 2.

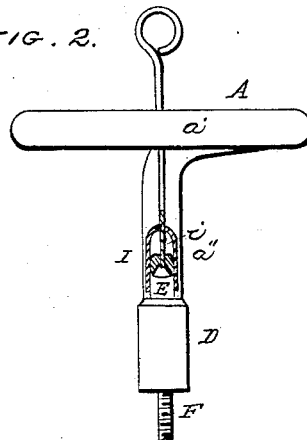


FIG. 3.

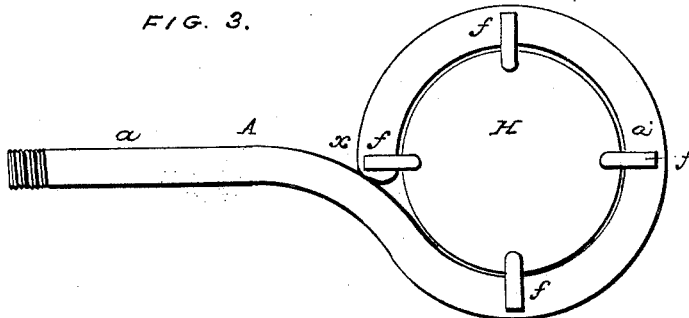


FIG. 4.

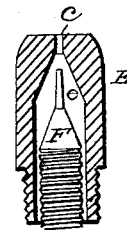
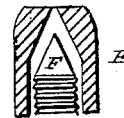


FIG. 5.



WITNESSES:

Wm. Albert Steel.
Chas. D. Rice.

INVENTOR.

J. Stratton
By his Atty
J. C. Howson

UNITED STATES PATENT OFFICE.

JAMES STRATTON, OF PHILADELPHIA, PA., ASSIGNOR TO THE PETROLEUM VAPOR STOVE AND GAS LIGHT COMPANY, OF SAME PLACE.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **49,955**, dated September 12, 1865.

To all whom it may concern:

Be it known that I, JAMES STRATTON, of Philadelphia, Pennsylvania, have invented an Improved Vapor-Burner; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to improvements in that class of vapor-burners which are used for both heating and culinary purposes; and my improvements consist, first, in conducting the fluid from which the gas has to be generated through, annular, or nearly annular, tube which communicates with and is arranged above a nipple, substantially as described hereinafter, so that an intense heat may be imparted to the said annular tubes and the fluid there rapidly converted into gas; second, of a plate adapted to the said annular tube in the manner described hereinafter, so that the said plate can be removed and culinary and other vessels placed on the tube and subjected to the direct action of the flame; third, in the combination of a nipple of peculiar construction with a valve-rod having a needle-point for penetrating the orifice of the nipple; fourth, in an extinguishing-cap adapted to the nipple and having a pointed rod for penetrating the orifice of the same, all as described hereinafter.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a sectional elevation of my improved vapor-burner for stoves, &c.; Fig. 2, an elevation, partly in section, looking in the direction of the arrow, Fig. 1; Fig. 3, a plan view; Fig. 4, a detached sectional view of part of the burner, drawn to an enlarged scale; and Fig. 5, an illustrative diagram.

Similar letters refer to similar parts throughout the several views.

A is a tube, a portion, *a*, of which may be straight, a portion, *a'*, being bent in the form of an arch, while the remaining portion, *a''*, projects downward from the end *x* of the ring, and communicates through a horizontal pipe, C, with a chamber, D, to the top of which is secured a nipple, E, the latter being directly below, or

nearly below, the center of the ring formed by the portion *a'* of the tube A.

In the upper end of the nipple E is an opening, *c*, and below the latter is a conical valve-seat, to which is adapted the upper conical end of a screwed rod, F, which passes through and screws into the bottom of the chamber D.

To the lower end of the rod F is secured a hand-wheel, G, or its equivalent, and from the upper end of the rod projects a needle-point, *e*, for a purpose described hereinafter.

H is a metallic disk or plate, which is suspended within the ring *a'* by lugs or arms *ff*, which project from the said disk and rest on the said ring.

The annular portion of the tube A is first heated in any suitable manner, and naphtha, coal-oil, or other suitable fluid is introduced into the tube, along which it flows toward the chamber D and through the nipple E, where the gas generated by the decomposition of the material in the heated portion of the tube is ignited, the rod F being withdrawn to permit the escape of the gas in such quantity as may be desired. As the flame from the burning vapor impinges against the plate H, it is deflected in all directions toward the annular portion *a'* of the tube, which in a short time is heated to redness, and is maintained in this condition, so that the gas is generated continuously and in such quantities as to be impelled violently against the under side of the plate H, heating the latter, the tubular ring *a'*, and the air which surrounds the same.

When it is desirable to diminish the flame the rod F is raised so as to partially obstruct the opening *c* in the nipple. When, however, it becomes necessary to extinguish the flame altogether, a metal cap, I, is placed over the nipple, a pointed rod, *i*, in the interior of the cap projecting into the opening *c* and preventing the clogging of the latter. After the burner has become perfectly cool the cap I is removed and the rod F is raised until the conical end of the same is brought firmly against its seat. Care should be taken not to close the valves until the perfect cooling of the tube is effected, as the expansion or continued formation of the gases in the same, without the means of escape, would cause the pipe to burst, or at least occasion leakage at the joints.

Where it is desirable to heat any substance contained in a vessel the plate H may be removed and the vessel be placed directly on the tube A, the bottom of the vessel acting in place of the plate to deflect the flame against the tube.

In burners of this character heretofore used a plate similar to the plate H has been permanently connected by arms to a heater or reservoir surrounding the nipple, the heat from the plate being conducted by the arms to the reservoir, so that the fluid on reaching the latter was decomposed. This arrangement, however, was objectionable, as the reservoir is never heated to redness and the decomposition of the gases is not affected so thoroughly and rapidly as desired. In these devices, also, the opening in the nipple is of the character shown in Fig. 5, so that it is constantly enlarged as the valve-seat wears away.

By the arrangement above described the tube A is heated to such a high degree that the fluid is thoroughly decomposed before it reaches the nipple, and coal-oil and other similar substances unsuitable for use in the ordinary burners of this class can be employed to as good advantage as the more expensive materials heretofore used.

Another important feature of my invention is the detachability of the plate H from the ring *a'*, so that the direct action of the fire may be

exerted upon any culinary or other article placed upon the ring *a'*.

The importance of the point *e* on the rod F and the pin *i* on the cap I as means of closing the orifice of the nipple will be readily understood.

I claim as my invention and desire to secure by Letters Patent—

1. Conducting the fluid from which the gas is to be generated through an annular, or nearly annular, tube, which communicates with and is arranged above a nipple, substantially as and for the purpose described above.

2. The detachable deflecting-plate H, adapted to the annular portion *a'* of the tube A, substantially as and for the purpose described.

3. The nipple E, with its opening *e* and its valve-seat, in combination with the valve-rod F and its needle-point *e*, the whole being constructed and arranged substantially as and for the purpose set forth.

4. The cap I, with its pointed rod *i* adapted to the nipple E, substantially as and for the purpose specified.

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

JAMES STRATTON.

Witnesses:

HENRY HOWSON,
W. J. R. DELANY.