F. A. SAWYER.
Vapor Burner.

No. 201,705. Patented March 26, 1878.

Fig. 1.

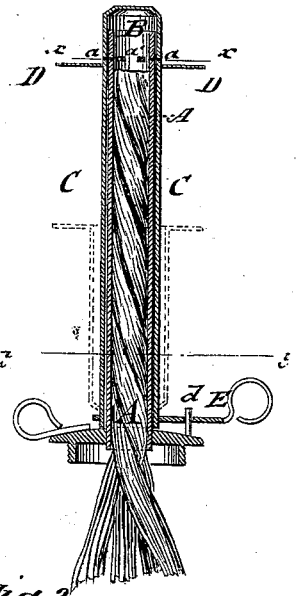


Fig. 2.

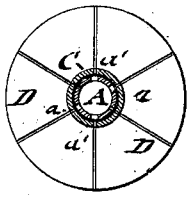
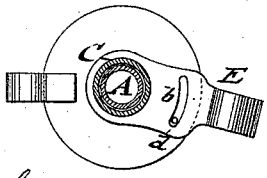


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FREDERICK A. SAWYER, OF HOUSTON, TEXAS.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **201,705**, dated March 26, 1878; application filed July 30, 1877.

To all whom it may concern:

Be it known that I, FREDERICK A. SAWYER, of Houston, in the county of Harris and State of Texas, have invented a new and Improved Vapor-Burner, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical central section of my improved vapor-burner; and Figs. 2 and 3 are horizontal sections of the same, on lines, respectively, *x x* and *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved construction and arrangement of the vapor-burner for which Letters Patent have been granted to me under date of February 27, 1877, and numbered 187,915, so that the same is readily lighted, adjusted to a larger or smaller flame, or extinguished.

The invention consists of a wick-tube with exit-holes at the upper end below the edge, and of an outer tube, C, closed at the top, and forming an interior gas-chamber above the wick. The outer tube has a number of jet-holes, that communicate with the holes of the wick-tube, and a radially-corrugated encircling disk or flange below the same. The outer tube is turned by a fixed and slotted lever along a stop-pin, to admit the lighting, regulating, or extinguishing of the flame.

Referring to the drawing, A represents the wick-tube, through which the fluid is carried to the reservoir or gas-chamber B, at the upper end of the closed outer tube C, that is fitted snugly over the wick-tube A. The outer tube C is provided with a number of jet-holes, *a*, at suitable distances below the upper end of the same, and with a disk-shaped and radially-corrugated flange, D, extending horizontally from tube C immediately below the jet-holes.

Any number of jet-holes may be used, and the same be arranged in circles at the required distances from the disk-shaped flange.

The wick-tube A is provided with a number of holes or slots, *a'*, near the top, of different sizes, and so arranged that by turning the outer tube C from right to left, or vice versa, the number of flame-jets may be increased to six or more, or diminished to two or one jet, when used as a night-lamp.

The outer tube C is adjusted on the wick-tube by a fixed lever or arm, E, attached at right angles to the same near the lower end. The lever or arm E has a slot, *b*, of the required length, cut crosswise, so as to move along a fixed upright pin or post, *d*, of the base-socket. The pin serves as a stop to the lever or arm when arriving at the right or left end of the slot.

A sleeve or jacket may be arranged on the outer tube, below the disk-shaped flange of the same, so as to slide thereon and bring its corresponding disk-shaped flange closer to or farther from the upper burner-disk. The sleeve is used for the burners of street-lamps, head-lights of railroad-engines, lanterns, &c., forming a protection of the burner against any draft of cold air.

The burner is screwed by the base-socket into any lamp, in the customary manner, and lighted by turning the outer tube on the wick-tube by the lever or arm, which brings the slots of the wick-tube in line with the jet-holes of outer tube, so that the fluid is allowed to run out upon the upper disk or flange, when it is readily lighted.

When the light is extinguished by turning the outer tube C in opposite direction until the jet-holes pass away from the slots of the wick-tube, the vapor in the gas-chamber B immediately condenses and produces a vacuum, which causes the liquid to rise and fill the gas-chamber, supplying thereby sufficient fluid for relighting the burner. The flame may be made large or small by using all or a few of the jet-holes only, the adjustable outer tube forming, with the wick-tube, a kind of valve, by which the supply of fluid is established or discontinued.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of the interior wick-tube A, having a number of exit holes or slots, with the outer tube C, having a number of jet-holes registering therewith, a disk-shaped flange, D, below the same, and a fixed lever-arm, E, and suitable stop devices, for setting the outer tube into open or closed position, substantially as specified.

FREDERICK A. SAWYER.

Witnesses:
EDGAR P. ANDRUS,
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