

J. BENSON & A. H. WATKINS.

Vapor-Burners.

No. 136,021.

Patented Feb. 18, 1873.

FIG. 1.

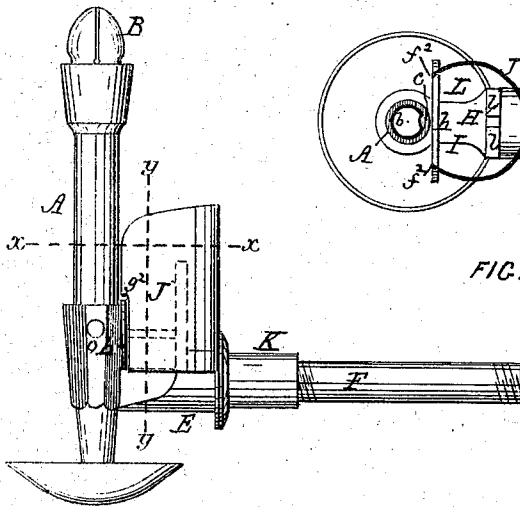


FIG. 3.

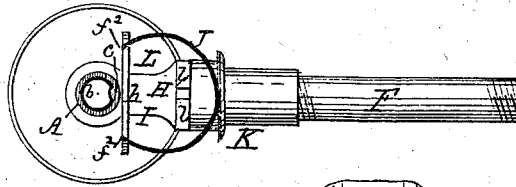


FIG. 4.

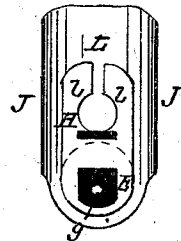


FIG. 2.

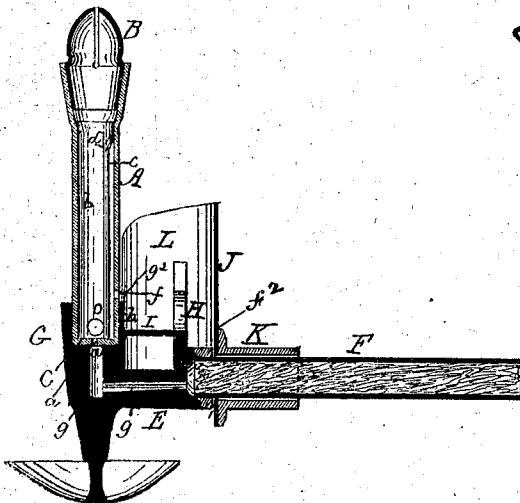
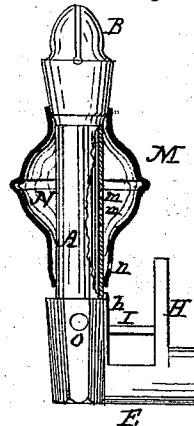


FIG. 5.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOSEPH BENSON AND ALBERT H. WATKINS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. 136,021, dated February 18, 1873.

To all whom it may concern:

Be it known that we, JOSEPH BENSON and ALBERT H. WATKINS, both of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Vapor-Burners; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing.

This invention, as well as others heretofore made and patented in vapor-burners, has for its object to produce a safe, cheap, clear, and brilliant light from benzine, gasoline, naphtha, and other products of petroleum, or of substances which, to burn, are vaporized in their passage to the burner-tip. The invention relates particularly to that class of vapor-burners in which is employed a supplementary jet to assist the generation of vapors from the illuminating medium. The invention consists of a certain combination of parts, the construction of which being hereinafter specified.

In the accompanying plate of drawing, the present invention is illustrated, Figure 1 being a side elevation of a burner constructed according to the first, third, and fourth parts thereof; Fig. 2, a central vertical section of Fig. 1; Figs. 3 and 4, sectional views in planes of lines *x x* and *y y*, respectively, of Fig. 1; Fig. 5, a central vertical section and side elevation in part, showing second part of this invention.

A in the drawing represents the tubular body of the burner. This body A at one end has a burner-tip, B, and at its other end is closed by a head-plate, C, having a pin-hole, *a*, through its center. *b*, a tube within and along the length of burner-tube, tightly fitting the same. This inner tube *b*, along its length at one side, has a corrugation, which, when the tube *b* is within the burner-tube, as stated, produces a chamber, *c*, along one side of the internal periphery of the burner-tube. This chamber *c* ends at one end near the inner end of burner-tip, and at its other at the closed head C of the burner-tube, and by an aperture, *d*, at its upper end it communicates with the chamber proper of burner-tube A, and by an aperture, *f*, at its lower end it opens to the outside of the burner-tube. This internal chamber *c*, with its communicating apertures, is very plainly illustrated by Fig.

2, and in part by Fig. 3, of the drawing. E, the coupling forming the joint or connection between burner-tube A and feed-tube F. This coupling, in fact, is part and parcel of the feed-pipe F, the two being firmly screwed together, forming a continuous connection with burner-tube. The coupling E has a socket, G, suitable for the reception and hold of the closed end to burner-tube A, and its communicating passage *g* is in line to open to the pin-hole *a* of the burner-tube A. H, a vertical wing or plate, made of one and the same piece with the coupling E. This wing H, when the coupling, feed-tube, and burner-tube are secured together, is between the burner and feed tubes, a short distance from the burner-tube, and projects above the plane of aperture *f*, to supplementary chamber *c*. I, a bridge-plate, connecting wing H to the coupling E, near where the burner-tube enters it; and J, cylindrical-shaped hood, made of metal in a sheet or other suitable form. This hood J is secured to a sleeve, K K, and by this sleeve is located in the feed-pipe F, so as to surround the wing H, making a chamber, L, about the wing back of it, and between it and the burner-tube. The hood-sleeve K is to tightly fit the feed-tube, and the edges *f*² of the hood J are made with a shoulder, *g*² *g*², to sit over and upon the cross-arm *h* of the coupling E, for keeping the hood in its upright position, and from turning on feed-tube. The feed-tube F is filled with wicking or fibrous matter, and the wing H is open through its center, making two arms or times, *l l*, as shown. M, a sleeve, surrounding outside of burner-tube. This sleeve is made of a globular shape, and forms a chamber, N, around the outside of burner-tube, that, by one or more apertures, *m*, is in communication with the chamber of burner-tube, and, by one or more apertures, *n*, at its lower end, open to the outside of burner-tube, the apertures *n* being within the height of the wing H. *o*, air-supply passages to interior of burner-tube. These air-passages are near the bottom of burner-tube.

By the regular flame of the burner, more or less heat is given to the burner-tube, and by the impingement of the flame from supplementary chamber *c* (the gas in part passing down chamber and issuing at *f*) against the wing H, through the opening of which it

passes, and thus completely surrounds the wing, and heats the same to a high degree, communicating or conducting the heat, as is obvious, directly to the feed-pipe F, by and through the connection of parts described.

The hood J protects the supplementary flame from being extinguished by the external air or gusts of wind, guards the wing against being cooled off, and most completely retains the heat of wing for being conducted to the feed-pipe. Heat from the hood is also conducted to the feed-pipe through its sleeve-connection therewith.

Under our invention, as the heating-wing is located at the bottom of the burner-tube and in the closest proximity to the tube which feeds the illuminating-liquid, the most effective results in generating the necessary gas, and in the economy and retention of heat, are obtained, rendering the burners most serviceable for street and other outdoor places.

The operation of the burner shown in Fig. 5 is substantially the same as that above described.

To clean the pin-hole aforesaid, remove the burner-tube, when it is free for being operated upon as desired.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

The perforated wing H, coupling-sleeve E, and feed-tube F, in combination with the hood J, sleeve K, opening *f*, burner-tube A, chamber *c*, and the tube *b* or chambered sleeve M, substantially as described.

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Witnesses:

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