(No Model.)

Z. DAVIS.

VAPOR BURNER.

No. 254,623. Patented Mar. 7, 1882.

Fig. 1.

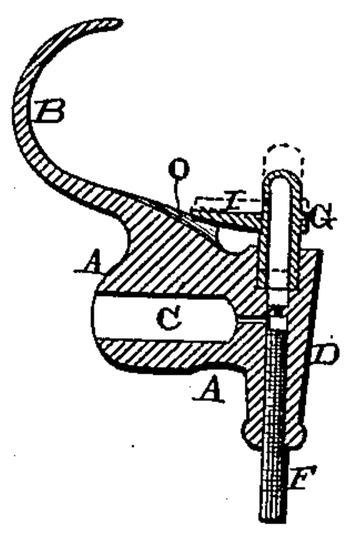
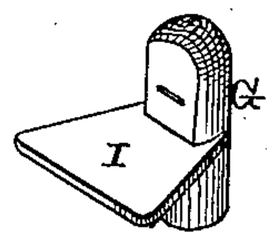


Fig. 2.



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UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CANTON, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 254,623, dated March 7, 1882.

Application filed January 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, ZEBULON DAVIS, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Vapor-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in vapor-burners; and it consists in the combination of a casting, which comprises the flaring deflecting-plate, a socket for the inlet-tube, and the pipe in which the regulating-screw is placed, with a vertically-adjustable tip having a plate formed upon its inner side.

It further consists in a tip which is made vertically adjustable, in combination with the casting, having a depressed air-channel made in its top, so that the outward passage of the vapor over the deflecting-plate will entrain a sufficient quantity of air to cause a more perfect combustion, as will be more fully described hereinafter.

The object of my invention is to make the tip vertically adjustable, so as to always insure a brilliant illuminating-flame under all the varying circumstances; and to properly proportion the amount of air-supply to oxygenize the flame so as to produce the maximum amount of illumination with the least consumption of fluid.

Figure 1 is a vertical section of my invension. Fig. 2 is a perspective of the tip by itself.

A represents a casting which has formed in a single piece with it a curved flaring deflector-plate, B, the socket C for the inlet-pipe, and the vertical pipe D, in which is placed the screw plug or valve F, for controlling the flow of the vapor.

In the top of the vertical pipe is placed the gas-tip G, which, instead of having a small round hole through which the vapor escapes, has here a long flat slot, which serves to spread the vapor as it escapes over a wider surface, and thus produce a better light.

Secured to the inner side of this tip, and extending any suitable distance over the bottom of the deflector-plate, is the guard-plate I, as shown in Fig. 2. In the inner end of this deflector-plate is formed a suitable air-channel, O, through which air is entrained by the escaping vapor, and which air serves to render the vapor combustible and illuminating.

Between the base of the tip and the inner end of the deflector-plate there is made a sufficient depression or channel for the air to flow freely in so as to pass through under the guard-plate, and by this construction the air is made to come in direct contact with the heated burner, and it is thus heated to such an extent as to cause it to produce a better illuminating-flame than where the cold air is made to commingle with the vapor. The escaping vapor entrains a quantity of air, proportioned to the amount of vapor that is being used, and this air and vapor in commingling are caused to spread outward upon the curved flaring deflector-plate, upon the edge of which the vapor burns with a brilliant flame. The channel formed in the plate is of such a form as to deliver the heated air to the vapor in the best manner to insure their perfect commingling to produce a brilliant flame.

The burner-tip may be made vertically adjustable by means of a screw-thread by fitting tightly in the top of the vertical pipe, or in any other way that may be preferred. Where the amount of air is disproportioned to the amount of vapor that is escaping, instead of a bright illuminating-flame a blue heating-flame is produced. The object in having this tip made vertically adjustable is to regulate the amount of air to the amount of vapor that is being burned, and thus always to insure a perfect combustion and a brilliant light.

Having thus described my invention, I claim—

1. In a vapor-burner, a vertically-adjustable tip provided with a guard-plate upon its inner side, in combination with a recessed, flaring, curved deflector-plate, substantially as shown.

2. In a vapor-burner, the casting A, having an air-channel formed in its inner end just under the outer edge of the guard-plate, and having a suitable depression or opening formed between the base of the tip and the inner end of the curved deflector-plate, to allow the air to flow freely in and to become heated before

it is made to commingle with the vapor, substantially as described.

3. In a vapor-burner the combination of the casting A, having the curved deflector-plate, socket for the inlet-tube, the vertical tube in which is placed a screw-valve, the vertically-adjustable tip having a guard-plate upon its inner side, and the deflector-plate having a depressed air-channel formed in the top of its inner end, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ZEBULON DAVIS.

Witnesses:

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