(No Model.)

Z. DAVIS.

VAPOR BURNER.

No. 306,003. Patented Sept. 30, 1884.

Fig. 1.

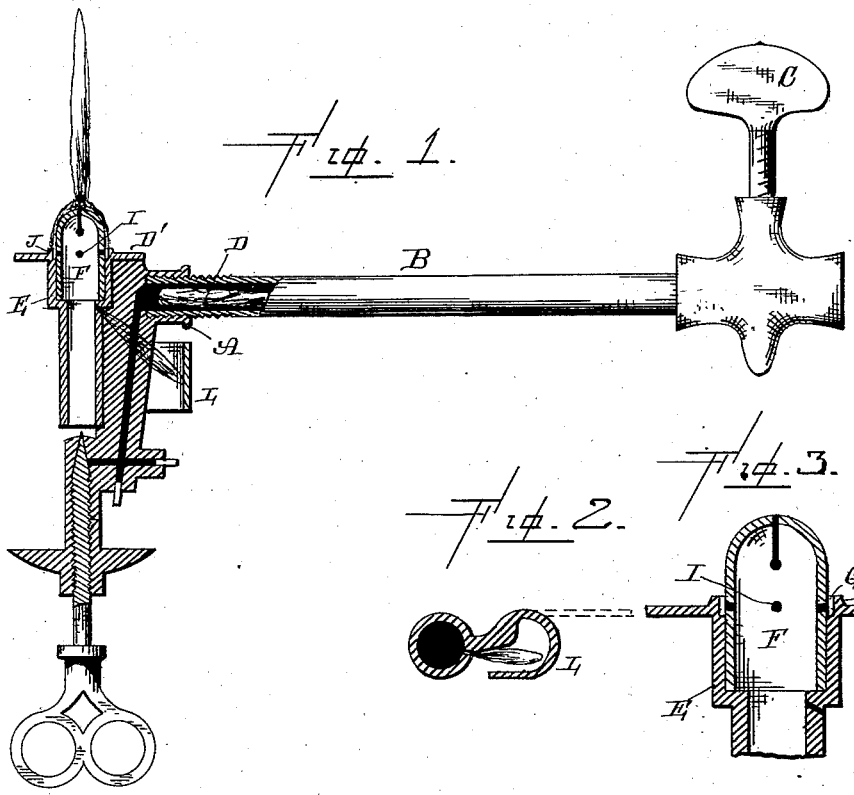

Fig. 2.

Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CANTON, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 306,003, dated September 30, 1884.

Application filed December 29, 1883. (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, in a vapor-burner, of the mixing-chamber with a perforated tip, which is surrounded by an open space or chamber which is formed in the top of the mixing-chamber, and into which space the mixed air and vapor escape and then rise evenly all around the tip, as will be more fully described hereinafter.

The object of my invention is to keep a constant supply of vapor rising up around the tip while the burner is in use, and by frictional contact with the sides of the tip prevent any of that blowing which prevents the flame from giving its full amount of light, and at the same time furnish a portion of the heat for vaporization.

Figure 1 is a vertical section of a burner embodying my invention, a portion of the supply-pipe being broken away so as to show the packing. Fig. 2 is a horizontal section of the burner. Fig. 3 is an enlarged view of the tip and the gas-chamber formed around it.

A represents the body of the burner, and B the supply-pipe, which is connected thereto, provided with the stop-cock C. In this supply-pipe is placed a strand or rope of asbestus, D, which fits loosely in the tube, and which serves both to catch any sediment or impurities in the fluid and to break its direct flow and subdivide it into small particles, so that the heat will more readily vaporize it. This packing, being made of asbestus, is indestructible by heat, and being a non-conductor of heat the impurities do not bake or harden upon it as they do upon packings made of metal or other good heat-conducting substances.

This packing, being placed loosely in the supply-pipe, can be readily removed, the impurities brushed off, and then replaced at any time.

Upon the top of the body A is formed the flange D′, which serves to prevent the currents of air from rising up around the tip in such a manner as to interfere with the formation of the flame.

In the upper end of the mixing-chamber E a suitable recess is bored out to receive the tip F. The upper end of this bored-out portion is made larger than the diameter of the tip, so as to form a circular chamber, G, around the tip, in which the gas which escapes from the openings I in the sides of the tip below the level of the top of the body A is caught. This gas, being caught in a chamber or recess formed around the tip, rises upward and adheres closely to the outside of the tip in rising, as shown in Fig. 1, and by its frictional contact with the tip prevents that blowing which otherwise would take place, and thus prevent the flame from giving its full illumination. By means of this construction a much greater head or supply of fluid can be used in connection with the burner, and of course a larger, stiffer, and a better illuminating-flame is produced. The annular flange J is formed around the top of the recess or gas-chamber, so as to make the chamber slightly deeper and to give a better and more pronounced shape to the main illuminating-flame.

Cast as a part of the body of the burner is a wing or web, L, which is afterward bent around into the shape shown in Figs. 1 and 2, so as to form a shield to protect the auxiliary lighting-jet and a chimney for conducting the vapor upward toward the main flame, and thus insure its certain ignition when accidentally extinguished from any cause. This wing or web, being cast as a part of the body A, also serves as a heat-collector, and thus imparts to the body a greater amount of heat to vaporize the fluid. This chimney or protector is placed directly under that portion of the body to which the packed tube B is attached, and thus conducts the heat from the auxiliary lighting-flame against this portion of the burner, so as to aid in the thorough vaporization of the fluid.

I am aware that a gas-chamber has been formed around the lower end of the tip, and from the top of which chamber the gas escapes around the base of the tip, but at a distance from it, through suitable perforations, and this

I disclaim. My invention differs from this in forming a chamber which is open all around the base of the tip, and from which the gas rises evenly and burns to the flame from all sides, both for the purpose of preventing the blowing of the flame and forming a generating heat.

Having thus described my invention, I claim—

In a vapor-burner, the combination of the mixing-chamber with the perforated tip surrounded by an open space or chamber, which is formed in the top of the mixing-chamber, and into which space or chamber the mixed air and vapor escape, and then rise evenly and burn all around the tip, substantially as set forth.

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

ZEBULON DAVIS.

Witnesses:
F. A. LEHMANN,
B. LEWIS BLACKFORD.