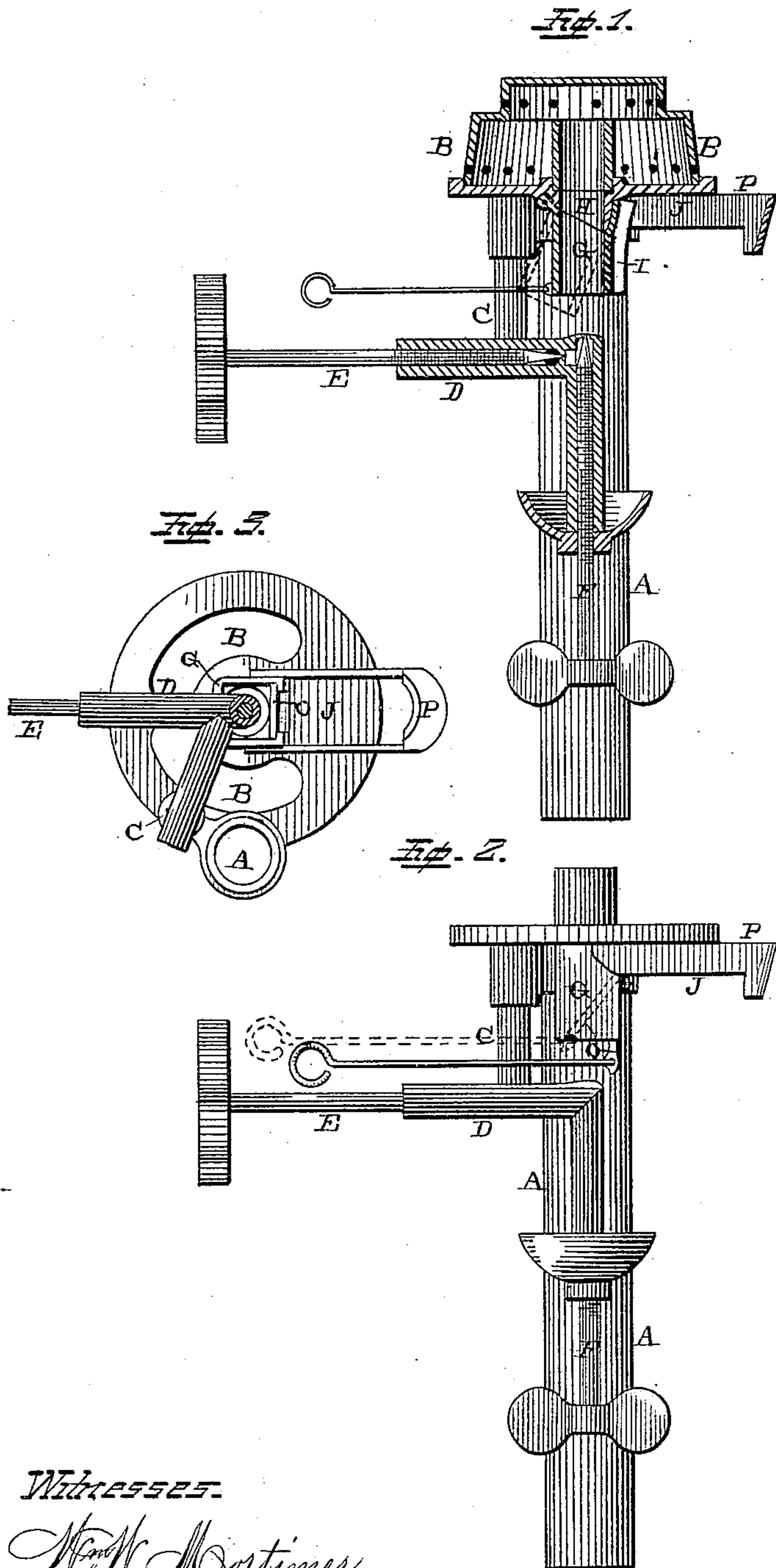


(No Model.)

Z. DAVIS.
VAPOR BURNER.

No. 269,833.

Patented Jan. 2, 1883.



Witnesses.

Wm. W. Mortimer,
Chas. R. Wright

Inventor.

J. Davis,
per
F. A. Lehmann,
att'y

UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CANTON, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 269,833, dated January 2, 1883.

Application filed February 18, 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 attaching to the under side of the burner a vibratory tongue or induction-tube, whereby the tongue or tube can be moved sidewise sufficiently far to serve as a deflector for the flame.

The object of this part of my invention is to provide a means whereby the vapor can be prevented from passing up through the burner for the purpose of producing an auxiliary flame to maintain the heat of vaporization when the burner is not in use.

The second part of my invention consists in forming a channel or guide upon the bottom part of the burner, terminating in a tube placed directly back of the burner, so that the flame will pass up through the tube to one side of the burner, instead of through it, in the usual manner.

The object of this part of my invention is to produce a blue heating-flame to one side of the burner, for the purpose of heating any article which may be placed above it without using the main flame, at the same time that the heat of vaporization is maintained and the burner ready for use at any moment.

Figure 1 is a vertical section of my invention. Fig. 2 is a side elevation of a modification of my invention, the top of the burner being removed. Fig. 3 is an inverted view of this modification.

A represents the inlet-tube through which the fluid passes to the burner, and upon the top of which is placed a burner, B, either of the form here shown or any other that may be preferred. The vapor passes from the top of the large inlet-tube down through the vertical pipe C, and then through the horizontal tube to the tube D, through the outer end of which passes the regulating-screw E. The inner end of this

tube is turned downward, as shown, and has the vertical regulating-screw F, terminating in a needle passing through it. This vertical screw is used to regulate the flame in the usual manner, and the horizontal screw is used both for regulating the flow of the fluid into the cup and for controlling the flame at the same time, without the necessity of having to pass the hand down under the cup while it is filled with burning fluid. Should the cup accidentally be allowed to overflow while burning, it would be necessary, were the horizontal screw not provided, to pass the hand in the flame of the burning fluid which would be dropping down upon the handle of the regulating-screw. As the inner end of the horizontal regulating-screw bears against the small opening which is made in the partition in the horizontal pipe, it can be used to regulate the flow of fluid to the burner, and thus save the wear upon the needle F and the opening through which the needle passes.

Pivoted upon the under side of the burner is the induction-tube G, which catches at its upper end over the flanged tube or projection H, which is cast or otherwise formed directly upon the bottom of the burner B. This tube, flange, or projection H is made deeper or longer at one side than the other, so that when the pivoted tube is allowed to turn upon its pivot the upper edge of the induction-tube will still catch over the lower edge of the flange, tube, or projection H. This induction-tube will be provided with a suitable handle, rod, or other device, by means of which it may be drawn backward or forced forward into position. When the induction-tube is forced forward so as to bear against the bottom plate of the burner its axial center will be directly over the needle-point, and the vapor will then pass up into the burner in the usual manner. When, however, the tube is either allowed to drop downward from its own weight or is drawn to one side by means of the handle, the lower end of the tube will be moved slightly beyond the needle-point, and then the vapor, in rising upward, will strike against the side of the tube, which is preferably made grooved upon its side, as at I, for the purpose of forming a deflector to guide the vapor or flame up toward the channel J, formed or cast on the bottom of the burner.

Instead of having the induction-tube pivoted,

as above described, it may be made as a part of the bottom plate of the burner, and be made square, and then the vibrating tongue O will be pivoted in the side upon which the channel is formed, as shown in Figs. 2 and 3. This vibrating tongue is hinged at its upper end to the under side of the burner, and will have a wire or rod attached to it at its lower end, so that it can be moved into a vertical position to form a side of the inlet-tube while the vapor is passing up through the burner; or it may be turned at an angle, so as to form a deflector to deflect the vapor or flame up into the channel formed on the bottom of the burner. This channel extends out beyond the bottom of the burner, where it terminates in a ring, tube, or pipe, P, up through which the flame passes for the purpose of heating any article which may be placed above its top. This deflected flame not only serves to keep up the heat of vaporization, but to keep the burner hot and ready for instant use, whether turned up full enough to heat the article placed above it or turned down low enough to produce only the heat of vaporization.

A deflected flame like what is here described, for the purpose of maintaining the heat of vaporization and keeping the burner ready for instant use, can be produced at but a very small cost compared to the lowest point at which the main flame can be burned without danger of exploding in the cap and becoming extinguished.

No claim is here made to a deflector which is interposed between the point at which the vapor escapes and the induction-tube, the deflector being detached from and independent of the burner, for this is shown in a patent granted to myself, and bearing number 237,826.

Having thus described my invention, I claim—

1. The combination of a vapor-burner with an induction-tube which is adapted to be moved so as to present an inclined surface for the vapor to impinge against, and thus deflect it away from the opening in the bottom of the burner, substantially as shown.

2. A vapor-burner provided with a hinged or pivoted deflector attached to the under side of the burner, which can be so moved as to deflect the vapor, and a channel for conducting the flame out to one side of the burner, substantially as described.

3. A vapor-burner provided with a hinged or pivoted deflector which can be moved so as to deflect the rising flame or vapor, and a channel which is formed upon the bottom of the burner, and which terminates in a tube, ring, or conduit at its outer end, whereby the flame is conducted beyond the bottom of the burner, substantially as set forth.

4. The combination of the vapor-burner with a hinged or swinging tube which can be so moved as to form an inclined guide or deflector for the flame or vapor, and thus maintain the heat of vaporization and keep the burner ready for instant use, substantially as specified.

5. In a vapor-burner, a hinged induction-tube which is adapted to be moved from a vertical to an inclined position, and thus form a deflecting-surface for the vapor or flame, substantially as shown.

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

ZEBULON DAVIS.

Witnesses:

F. A. LEHMANN,
W. W. MORTIMER.