

W. H. SMITH.
VAPOR BURNER.

No. 93,360

Patented Aug. 3, 1869.

Fig. 1

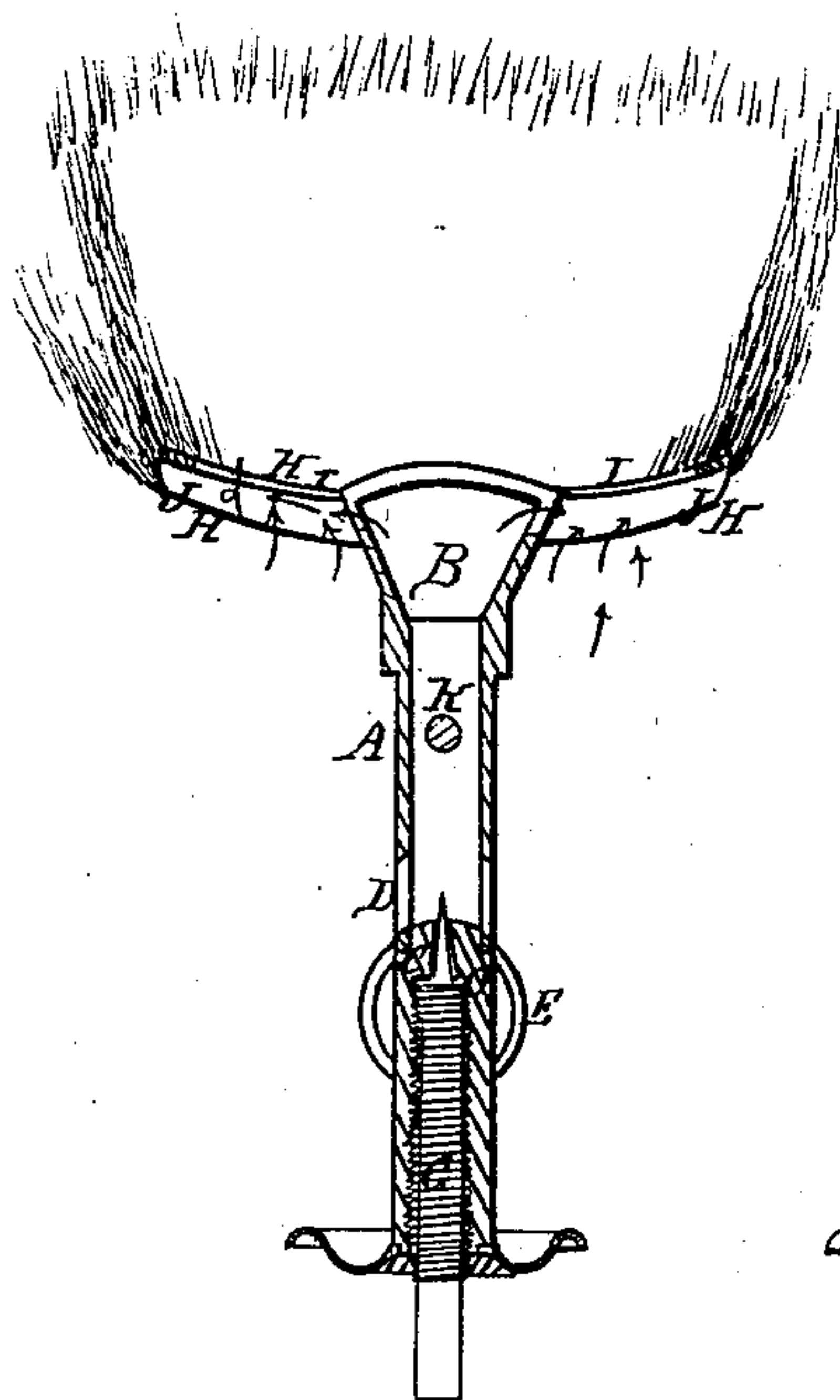


Fig. 2

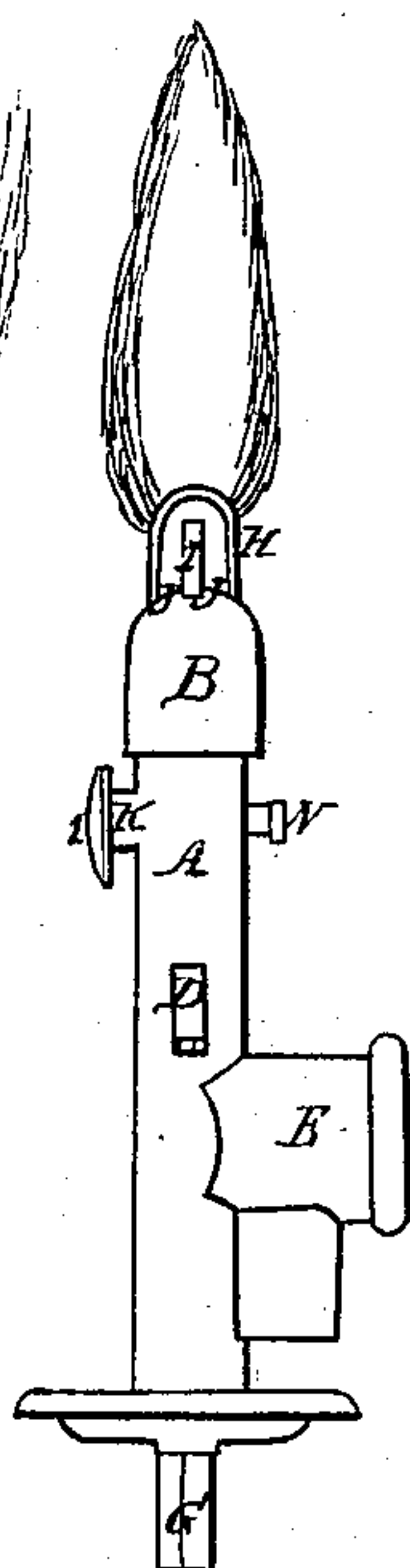


Fig. 3

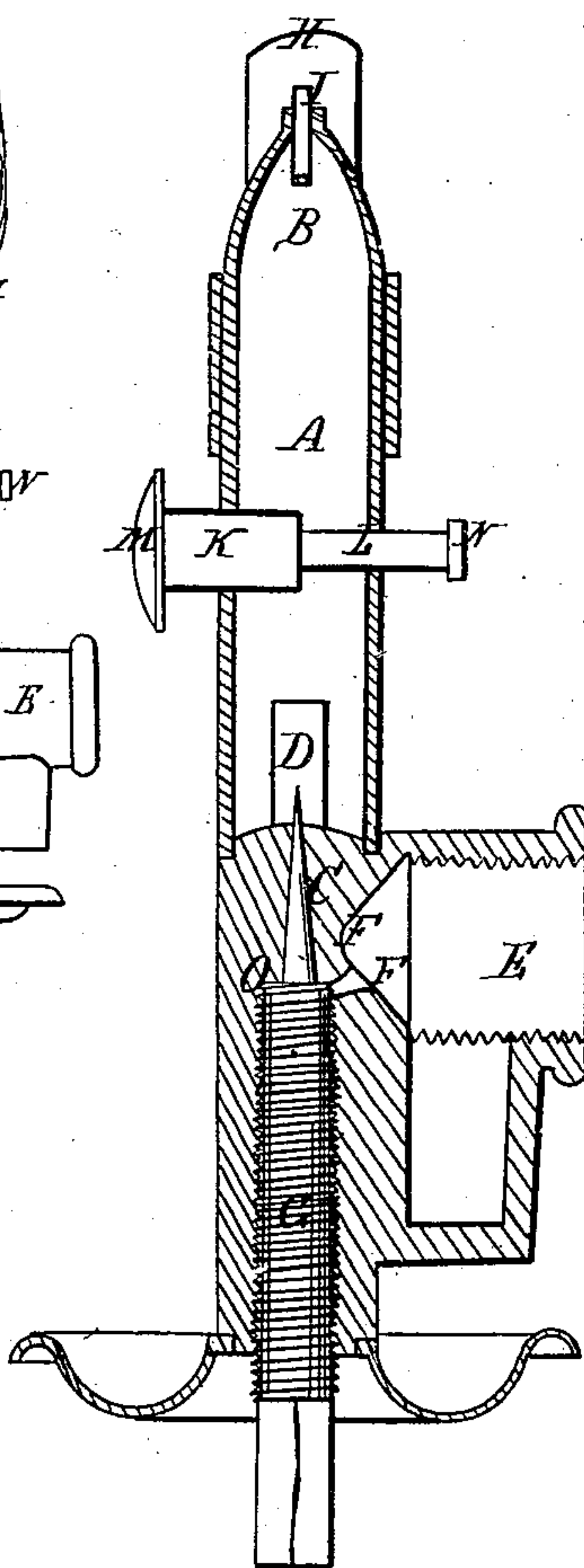


Fig. 4



Witnesses:

George S. Harford
J. Boeklen

Inventor:

W. H. Smith

United States Patent Office.

WILLARD H. SMITH, OF NEW YORK, N. Y.

Letters Patent No. 93,360, dated August 3, 1869.

IMPROVEMENT IN VAPOR-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLARD H. SMITH, of the city, county, and State of New York, have made certain new and useful Improvements in Vapor-Burners; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a vertical central section in line with the slit of a vapor-burner made with my improvements.

Figure 2 is a side view of the same.

Figure 3, a vertical section of the same across the slit of the burner, and shown on an enlarged scale.

Figure 4 is a diagram, showing a cross-section of the heater-wings of the burner.

Similar letters of reference indicate corresponding parts in the several figures.

In vapor-burners the most important and difficult requisition is a device combined with the burner for producing sufficient heat to the burner in such a manner as to generate the gas properly, and to have a large, steady, and brilliant flame that does not smoke or smell.

To accomplish these ends many unsuccessful attempts have been made, as they either lacked generating power, or else obstructed the flame.

The nature of this invention consists, first, in the construction of heater-wings of a peculiar form, with which the top of the burner is furnished, the same being so arranged and applied to the tip of the burner, and of such large heating-surface that the flame acts on both sides and through them, causing encouraged draught in the flame, while they are at the same time not obstructive to the light produced by the burner, whereby the desired effect of a sufficient generation of gas and supply of oxygen for a large, brilliant, and steady flame, is obtained without objectionable defects, also dispensing with any extra heater or gas-jet.

It consists, secondly, in the employment of a peculiar device for regulating the supply in the air-tube, so constructed that a portion of the same remains constantly across the tube for obstructing and mixing the current of air and gas before reaching the flame, (having the advantage over the present regulating-screw, which, when withdrawn, allows the jet of gas to rush up to the orifice and make the flame ragged,) and at the same time being fastened at both ends, it cannot be entirely withdrawn and lost from the burner.

To enable others skilled in the art to make and use

my improvements, I will proceed to describe their construction and operation.

A, in the drawings, represents the ordinary air-tube. The upper extremity is furnished with the tip B, provided with the usual slit for the outlet of the gas. On its lower extremity it is jointed with the socket of the burner, and has the usual passages, D D, for the supply of air.

E represents a portion of the gas-generating chamber, which connects, by means of the passage F, with the valve-opening or seat O, in which the upper portion of the screw-valve G is fitted, while its lower part is provided with the usual screw-thread fitted in the socket of the burner.

Now, in order to provide for sufficient heat for generating the gas, and for the better supply of oxygen in the flame, I arrange and form on each end of the slit in the tip of the burner peculiar outward and upward curved projecting wings, H H, which may be either slotted or drilled, in order to keep the flame united.

In order to guide the flame underneath these wings, so as to obtain a greater amount of heat, I turn their sides downwards, as shown in fig. 4; also that the gas may escape and burn both above and below the heater-wings, as shown in fig. 1.

It will be clearly observed, that by arranging and forming the heater-wings H H, as above described, the same do not objectionably obstruct the light, while they are effectively heated by the flame presenting a larger heating-surface and being in contact with the flame on both sides, and cannot be affected by a draught.

K represents the plug of metal which serves for mixing and regulating the supply of air in the air-tube A. The same is fitted to slide across the tube A, and has a small stem, L, which passes through the one side of the tube, while the remainder is of larger diameter, and passes through the other side of the tube A. Both ends of the plug are provided with shoulders outside of the tube of which the shoulder M, on the large end, serves as a handle for regulating it by, while the shoulder N, on the small end, serves to prevent the plug from being withdrawn entirely from the tube and being lost.

The object of the enlarged part of the plug is to reduce or increase the passage in the air-tube more or less by sliding it further in or withdrawing it, and in that manner to regulate the flow and supply of air in the tube. The small portion of the plug serves to obstruct the passage in the air-tube, and thereby divide and mix the flow of air and vapor when the larger

part is withdrawn, being an advantage over the ordinary screw, which leaves a vacancy and allows the air and vapor to rush up and make the flame ragged.

Having fully described my invention,

What I claim therein, and desire to secure by Letters Patent, is—

1. In vapor-burners the employment of heater-wings, constructed and arranged in such a manner that a flame will protrude above and below them, heating both sides at the same time, without obstructing the

light, substantially in effect and for the purpose herein stated.

2. The employment of the plug K, when constructed and arranged, and operating in combination with the air-tube A, substantially as and for the purpose herein described.

W. H. SMITH.

Witnesses:

A. B. MALCOMSON, Jr.,

R. BOEKLEN.