

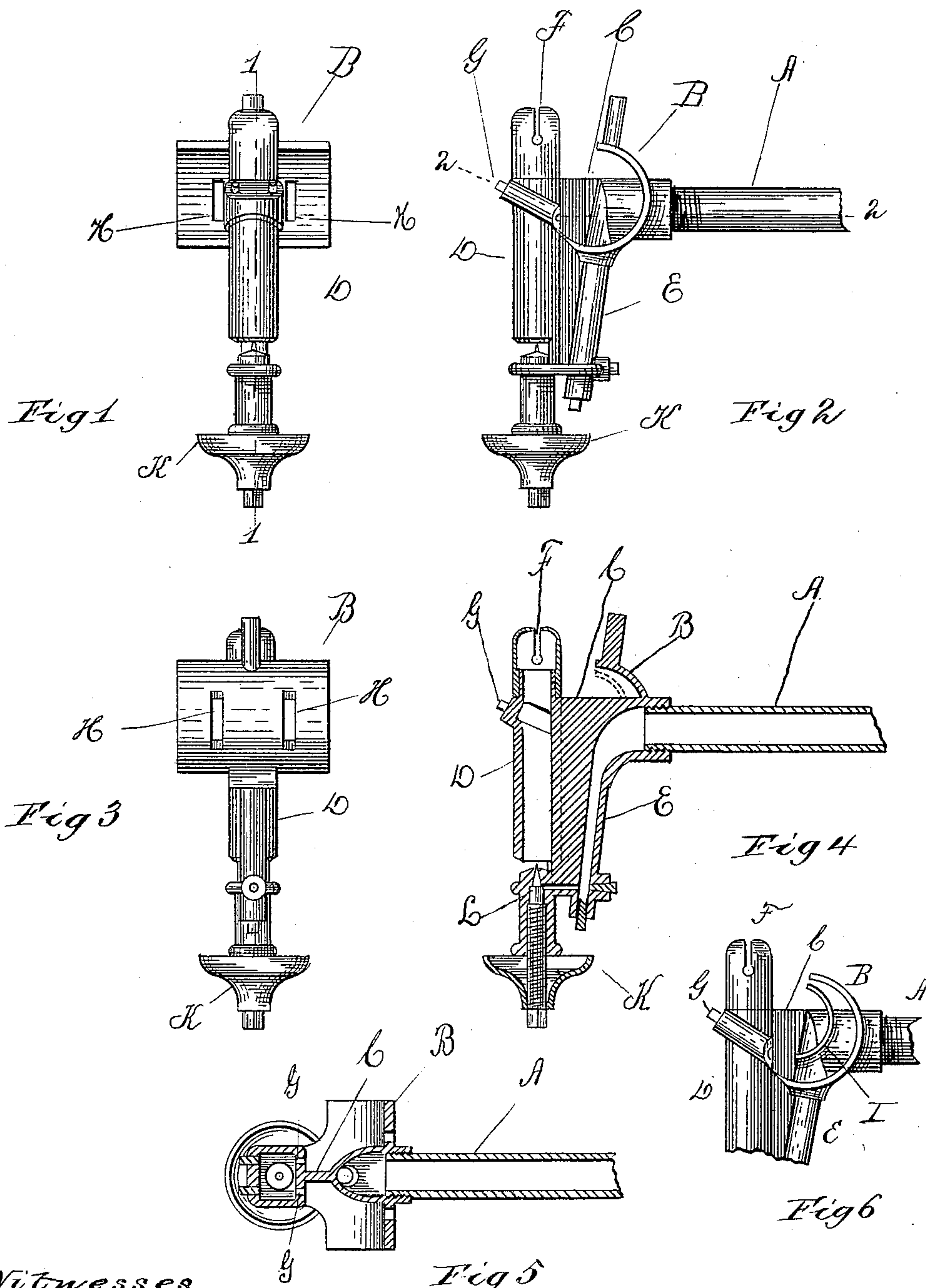
(No Model.)

E. J. SCHAUER.

VAPOR BURNER.

No. 389,412.

Patented Sept. 11, 1888.



Witnesses
Russell H. Curtis
Charles E. Anthony.

Fig 5

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UNITED STATES PATENT OFFICE.

EDWARD J. SCHAUER, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM P. BUTLER, OF SAME PLACE.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 389,412, dated September 11, 1888.

Application filed April 28, 1887. Serial No. 236,409. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. SCHAUER, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Vapor-Burners, of which the following is a full description.

The objects of my invention are to construct the heating shield or drum of vapor-burners with a bridge extending from the mixing-chamber to the shield or drum, so as to protect the sub-jets from being extinguished by the wind, and also to utilize the sub-jets by reason of the improved construction of the shield or drum to heat the latter both in front and rear, and also the supply-pipe back of the same, and to construct the burner so as to make it capable of using and burning oils of low gravity—such as naphtha, kerosene, &c.—as will hereinafter more fully appear. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of my improved burner; Fig. 2, a side view of the same; Fig. 3, a rear view; Fig. 4, a vertical section through the line 1 1 of Fig. 1; Fig. 5, a cross-section through the line 2 2 of Fig. 2, and Fig. 6 a detail side view showing a supplemental heating-shield.

Referring to the drawings, in which similar letters indicate like parts throughout the several figures, A is the supply-pipe, through which the fuel flows indirectly from the reservoir to the burner F; B, the heating-shield; C, a bridge extending from the mixing-chamber D to the shield B, on each side of which play the sub-jets through the openings G G.

E is a tube or canal to convey the fuel from the supply-pipe A to the mixing-chamber D.

F is the burner fixed to the top of the mixing-chamber D, while I, in Fig. 6, is a supplemental heating drum or shield. The shield B is provided with the slots or openings H H, and both shields are concavo-convex, as shown.

K is a cup for heating the burner, and L a needle-point for regulating the flow of vaporized fuel to the chamber D.

My invention operates as follows, viz: The burner being first heated in any of the well-known ways, fuel is allowed to flow through the pipes A and E, and becomes vaporized in its passage by contact with the heated metal of the pipes and openings through which it flows on its way to the mixing-chamber D, in which it is mixed with air and flows from the burner F and the openings G G. The vapor being ignited at these points, the jets of flame from the openings G G impinge against the shield B, and the bridge C thereby maintaining a proper temperature in these parts, and also those which come in contact with them by conduction, so as to properly vaporize the fuel as it passes on its way from the reservoir to the burner. This temperature is increased by reason of the slots or openings H H, which permit the flame to pass through the shield B, heating it from the rear as well as the front, and also heating the supply-pipe A back of or to the rear of the shield B. The shield B, in connection with the bridge C, as shown, forms a protection for the sub-jets, which prevents both of them being extinguished by the wind at the same time. If oils are used as fuel which require great heat in the burner to vaporize them, a supplemental shield, L, is used, as shown in Fig. 6, being so located as to allow the flames from the sub-jets to pass under its lower end and up between it and the shield B. The distance between the shields B and I, being greatest at the lower end and narrowing toward the top, tends to retain the flame from the sub-jets between the shields, thereby utilizing as much as possible the heat from the flame, and at the same time aids the passage of the flame through the openings or slots H H in the shield B.

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

1. In a vapor-burner, the combination of

the mixing-chamber D, the burner F above
said chamber, the sub-jets G G, the concavo-
convex shield B, provided with slotted open-
ings H H and having its upper end curved
5 toward the burner, and the horizontal bridge
C between said mixing-chamber and shield,
substantially as described.

2. In a vapor-burner, the combination of
the mixing-chamber D, the burner F, the sub-
10 jets G G, the concavo-convex shields B and

I, having an intermediate space of greatest
width at their lower ends and narrowing at the
top, and the bridge C between said mixing-
chamber and shields, substantially as de-
scribed.

EDWARD J. SCHAUER.

Witnesses:

THOS. J. RODMAN,
CHARLES E. ANTHONY.