J. BENSON.

Vapor-Burner.

No. 162,016. Patented April 13, 1875.

FIG. 3

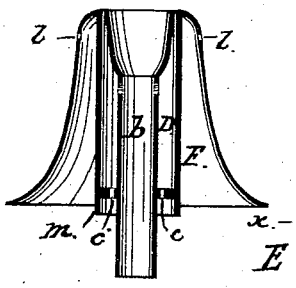


FIG. 1

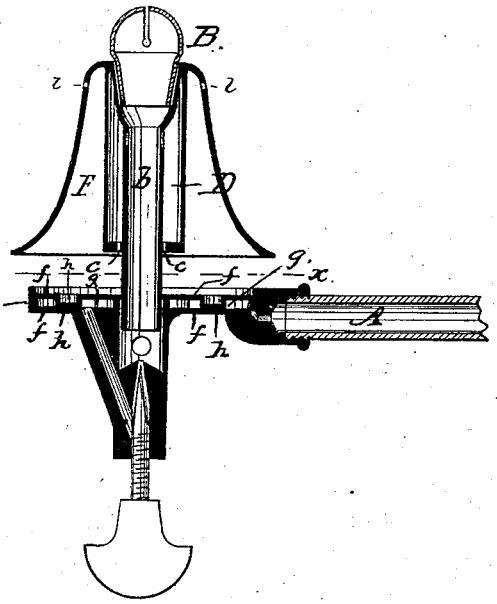
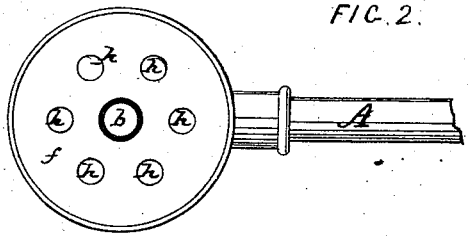


FIG. 2



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOSEPH BENSON, OF SOUTH BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **162,016**, dated April 13, 1875; application filed February 8, 1875.

To all whom it may concern:

Be it known that I, JOSEPH BENSON, of South Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Vapor-Burners, of which the following is a specification:

This invention relates principally to vapor-burners in which a chambered disk is employed, which communicates with the naphtha feed-tube; and my invention consists of a novel construction and arrangement of parts, which will be fully hereinafter described, and pointed out in the claims.

In the accompanying plate of drawings, a naphtha-burner made in accordance with this invention is illustrated, Figure 1 being a central vertical section of a burner constructed according thereto, and otherwise as ordinarily; Fig. 2, a horizontal section in plane of line *x x*, Fig. 1; Fig. 3, a sectional view, in part, of the burner-tube, showing my improved arrangement of the chamber about the burner-tube, and location of protecting-walls about the supplementary jets.

In the drawings, A represents the naphtha feed-tube of a naphtha-burner, and B the burner-tip. The tip B is at the end of a tube, *b*, and this tube *b*, as ordinarily, is surrounded with a chamber, D, that is in communication with the burner-tube, for the escape of gas from the burner-tube thereto, and has openings *c* for the supplementary jets of flames, for heating the naphtha, to generate a gas therefrom to be consumed at the burner-tip. E, a disk placed below the location of the supplementary jet-holes *c*. This disk is chambered, and it is in communication with the naphtha feed-tube, and through it the naphtha passes, and, by the impingement of the supplementary jets, is therein generated into a gas to be consumed at the burner-tip. This chambered disk E, in the present instance, is made of two plates, *f f*, of metal, leaving a chamber, *g*, between them; and these plates, at intermediate points, by depressions *h*, are in contact with each other, thus communicating the heat from the plate, which is subjected to the action of the supplementary jets, to the other plate, and, furthermore, the better subjecting the naphtha, which is passing through the chamber between the two plates, to the heat of the supplementary jets. F, a chamber surrounding the burner-tube. This chamber, at its lower end, opens to the flames from the supplementary jet-holes, and thus allows these flames to surround the burner-tube, for the purpose of superheating the gas which is passing through it. *l l*, holes in the upper end of chamber F, for the escape of air therefrom, as the flames from the supplementary jets enter the chamber, for insuring the better surrounding of the burner-tube with said flames, to superheat the gas passing through the burner-tube. The chamber F, in the present instance, is made by the location of a bell-shaped cap about the burner-tube; but obviously the shape may be varied, it being substantially only necessary that it surround the burner-tube, and open to the supplementary jets to accomplish the object of its use. The flames from the supplementary jet-holes, above the chambered disk, are protected against being extinguished by the extended walls *m*, which surround them. Supplementary jet-holes may be arranged to play against the chambered disk from below; and while this, in some cases, may be necessary, the location of the jet-holes above the chambered disk, as above described, has been found substantially all that is requisite.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the tube *b* and surrounding chamber D, having the supplementary holes *c* at its bottom, of the chambered disk E, communicating with the naphtha feed-tube, substantially as described, whereby jets are caused to play against the upper surface of the chambered disk, as and for the purpose set forth.

2. The combination, with the outer chamber F, having the vent-holes *l*, of the tube *b* and its surrounding chamber D, having its lower portion provided with the jet-holes *c*, as and for the purpose described.

JOSEPH BENSON.

Witnesses:

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GEO. H. EARL.