

No. 692,839.

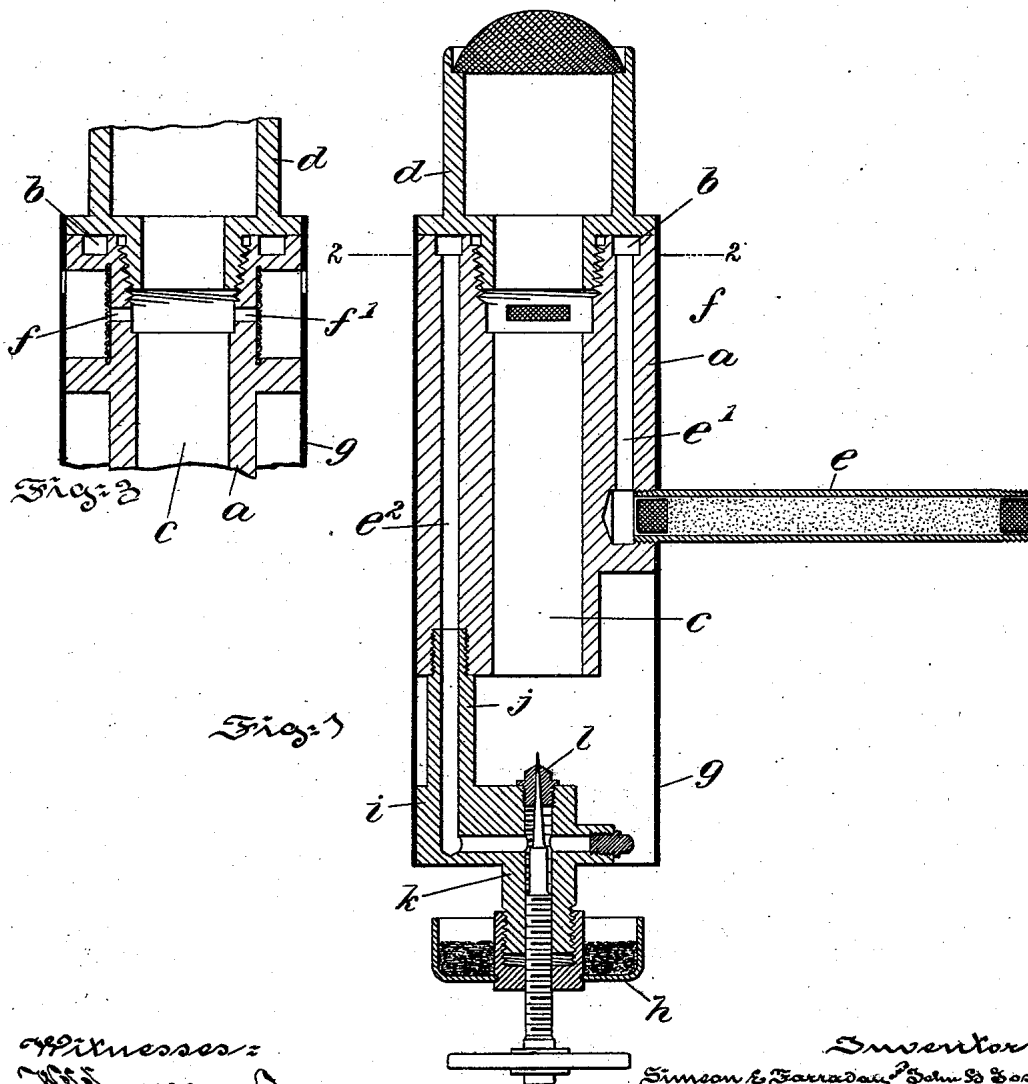
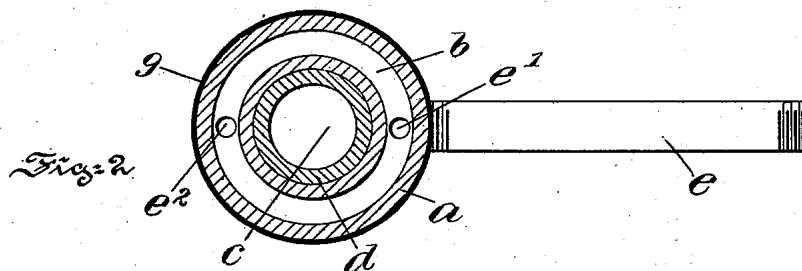
Patented Feb. 11, 1902.

S. E. FARRADAY & J. H. GOSS.

HYDROCARBON BURNER.

(Application filed Mar. 24, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

SIMEON E. FARRADAY, OF GLOUCESTER CITY, NEW JERSEY, AND JOHN H. GOSS, OF WATERBURY, CONNECTICUT, ASSIGNORS TO WELSBACH LIGHT COMPANY, OF GLOUCESTER CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 692,839, dated February 11, 1902.

Application filed March 24, 1900. Serial No. 10,018. (No model.)

To all whom it may concern:

Be it known that we, SIMEON E. FARRADAY, a citizen of the United States, residing at Gloucester City, in the county of Camden and State of New Jersey, and JOHN H. GOSS, residing at the city of Waterbury, in the county of New Haven and State of Connecticut, have jointly invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

The object of this invention is to provide an efficient and comparatively inexpensive burner which shall be composed of few parts, simple in construction and application, said burner having a series of subburners arranged to communicate directly with the mixing-chamber, whereby the vaporization of the oil goes on uninterruptedly when the lamp is in use irrespective of whether or not there is a flame at the main burner; and to these and other ends hereinafter set forth the invention consists of the improvements hereinafter described and claimed.

The nature, characteristic features, and scope of the invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a central sectional view of a burner embodying features of our invention. Fig. 2 is a sectional view taken on the line 2 2 of Fig. 1, and Fig. 3 is a detail view of the upper portion of the burner in section.

In a burner embodying features of the invention there is a solid body portion *a*, which may be cast or otherwise formed in one piece and which is provided at its upper extremity with an annular recess which forms part of a vaporizing-chamber *b*. Extending through the center of this body portion *a* there is formed an opening which is the mixing-chamber *c*. Located at the upper end of this opening is a tapered and threaded recess adapted to receive a cap *d*, which is provided with the ordinary gauze, over which the mantle or incandescent is suitably mounted. This cap *d* has a tapered shank correspondingly threaded to engage in the top of the mixing-chamber *c* and fits snugly onto the top of the body

portion *a*, thus completing the vaporizing-chamber.

e is a pipe provided with the usual filtering material, which receives the supply of oil or fluid fuel which escapes from it into a passage *e'*, which is bored through the body portion *a* and communicates with the vaporizing-chamber *b*. From the vaporizing-chamber *b* there is another passage *e''*, also bored through the body portion, which may be termed the "outlet-passage" and which permits the discharge of the vaporized oil into the mixing-chamber.

As is plainly illustrated in Fig. 3, slots, *f* and *f'*, are cut in recesses in the upper or circular head portion of the body *a*, which slots permit of the escape of combustible material underneath the vaporizing-chamber *b*, where it is burned to heat the chamber.

At the lower end of the body portion *a* there is the usual cup adapted to contain alcohol and the like used in starting the operation of the burner, together with a needle-valve for regulating the flow of the fluid.

i is a casting provided with conduits, in this instance arranged in a right angle, and it is also provided with an extension *j*, which is fitted to the body portion *a*, and with another extension *k*. Onto the part *k* is screwed a thimble through which the threaded shank of the needle-valve works and which carries the cup.

l is a nozzle-plug screwed into the casting *i* and adapted to coöperate with the needle-valve.

Inclosing the body portion *a* is a shield *g*, which fits snugly around the same and may be brought into proper alinement by reference to the perforation which permits of insertion of the pipe *e* and also to the perforations which should come opposite the slots *f* and *f'*.

In use the alcohol in the cup *h* is ignited. The burner is heated before oil is admitted to any part, even the part *e*. The flame from the cup and hot air rise through the mixing-chamber, thus heating the inside of the body portion *a* and also the vaporizing-chamber *b*, part of it escaping through the slots *f* and *f'* and the remainder ascending through the

mantle, thus vaporizing the oil or fluid fuel (which has meanwhile been admitted to the burner) sufficiently to start the flow of gas. The fluid fuel has now become vaporized and
 5 descends through the channel e^2 , issues from the nozzle entraining air, with which it mingles, and ascends through the mixing-chamber to the mantle, thus producing a mixture
 10 of air and vapor which burns beneath the mantle with a blue flame and also at the subburners f and f' . The subflames at f and f' vaporize oil at all times, so that if the mantle should be broken all the flames would burn, which would not be the case if the main
 15 flame were relied upon to do all of the generation.

It will be obvious to those skilled in the art to which the invention appertains that modifications may be made in details without departing from the spirit thereof. Hence we do
 20 not limit ourselves to the precise construction and arrangement of parts hereinabove set forth, and illustrated in the drawings; but,

Having thus described the nature and objects of the invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A hydrocarbon-burner comprising a body portion having a bore or passage extending longitudinally thereof, which constitutes a
 30 complete mixing-chamber, and having in its top an annular groove or recess, a burner head or cap constructed to cover said groove and forming therewith a vaporizing-chamber having inlet and outlet passages, said body
 35 portion having circumferentially-arranged slots located under said vaporizing-chamber and communicating with the mixing-chamber, and a shield surrounding the body portion and having openings arranged opposite
 40 the slots, substantially as described.

2. A hydrocarbon-burner comprising a solid body portion having a central bore or passage extending the length thereof, which constitutes a complete mixing-chamber, and having
 45 in its top an annular groove or recess, a burner head or cap constructed to cover said groove and forming therewith a vaporizing-chamber and having a tapered tubular part

or shank which is screw-threaded to fit a correspondingly-threaded portion of the mixing-
 50 chamber, said vaporizing-chamber having suitable inlet and outlet passages, a vapor-discharge nozzle or jet communicating with said outlet and having an axial discharge into the mixing-chamber, subburners penetrating
 55 the wall of the mixing-chamber at points subjacent said tapered part or shank and arranged to heat the vaporizing-chamber, and a shield or skirt secured to said body portion and encircling the discharge nozzle or jet, substantially as described.

3. A hydrocarbon-burner comprising essentially two castings whereof one consists of a solid body portion that is provided centrally
 65 with a bore or passage constituting a complete mixing-chamber, and in its top with an annular groove or recess, and whereof the other consists of a burner head or cap constructed to cover said groove or recess and
 70 provided with a tapered tubular part or shank that is afforded a seat inside the mixing-chamber, said burner-cap and the walls of the groove conjointly forming a vaporizing-chamber, said vaporizing-chamber having suitable
 75 inlet and outlet passages, a vapor discharge nozzle communicating with the outlet-passage and arranged to discharge into the mixing-chamber from below thereof, subburners
 80 penetrating the walls of the mixing-chamber at points subjacent said tapered part or shank and arranged to heat the vaporizing-chamber, and a shield surrounding said body portion and encircling the discharge-nozzle having ventilating-openings to accommodate the
 85 subburners, substantially as described.

In testimony whereof we have hereunto signed our names.

SIMEON E. FARRADAY.

JOHN H. GOSS.

Witnesses to signature of Simeon E. Farraday:
 day:

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M. L. SPERRY,

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