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P. J. FITZGERALD.

INCANDESCENT GAS BURNER FOR HYDROCARBON LIQUIDS.

(Application filed Jan. 20, 1898.)

(No Model.)

Fig. 1.

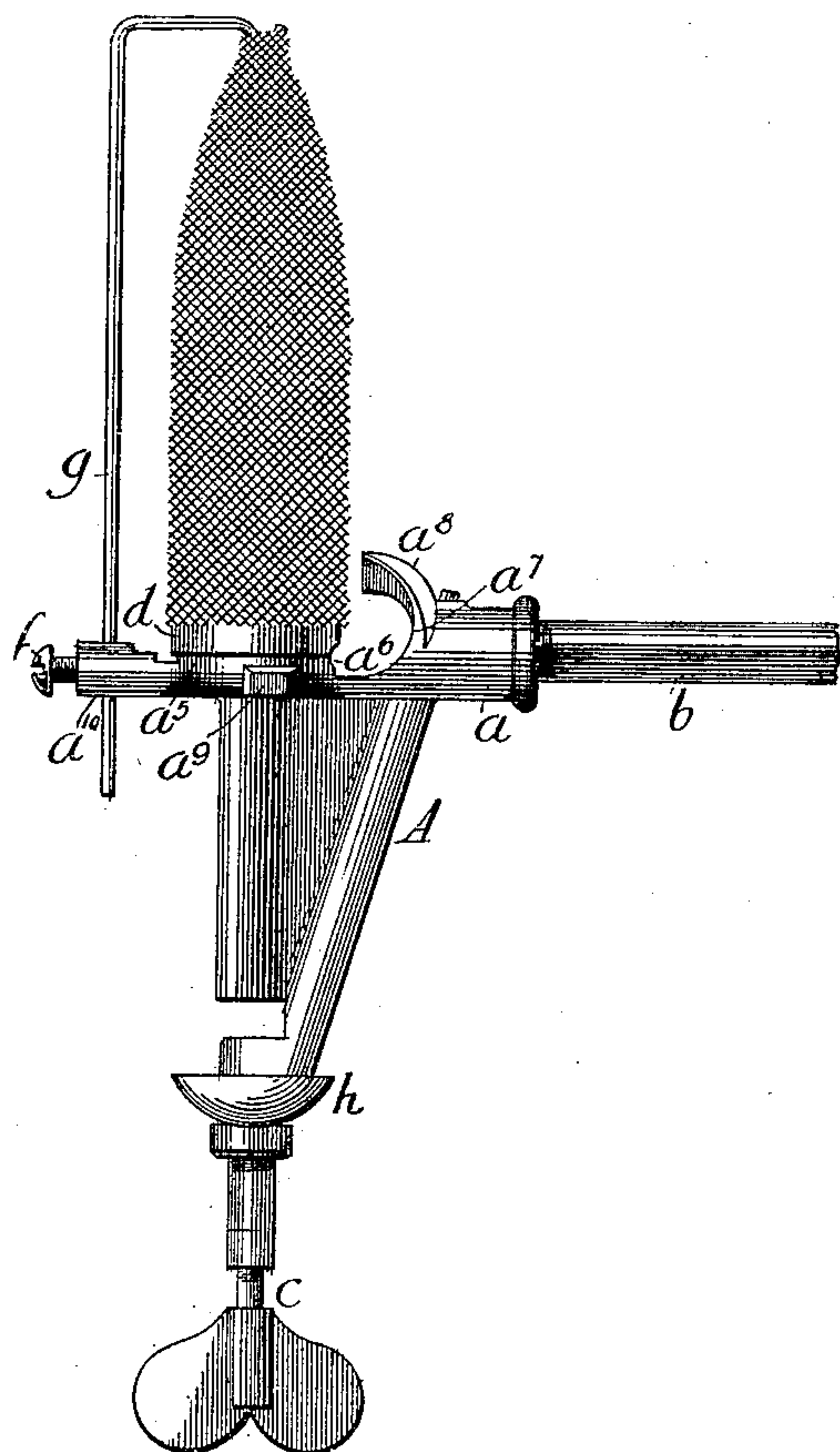
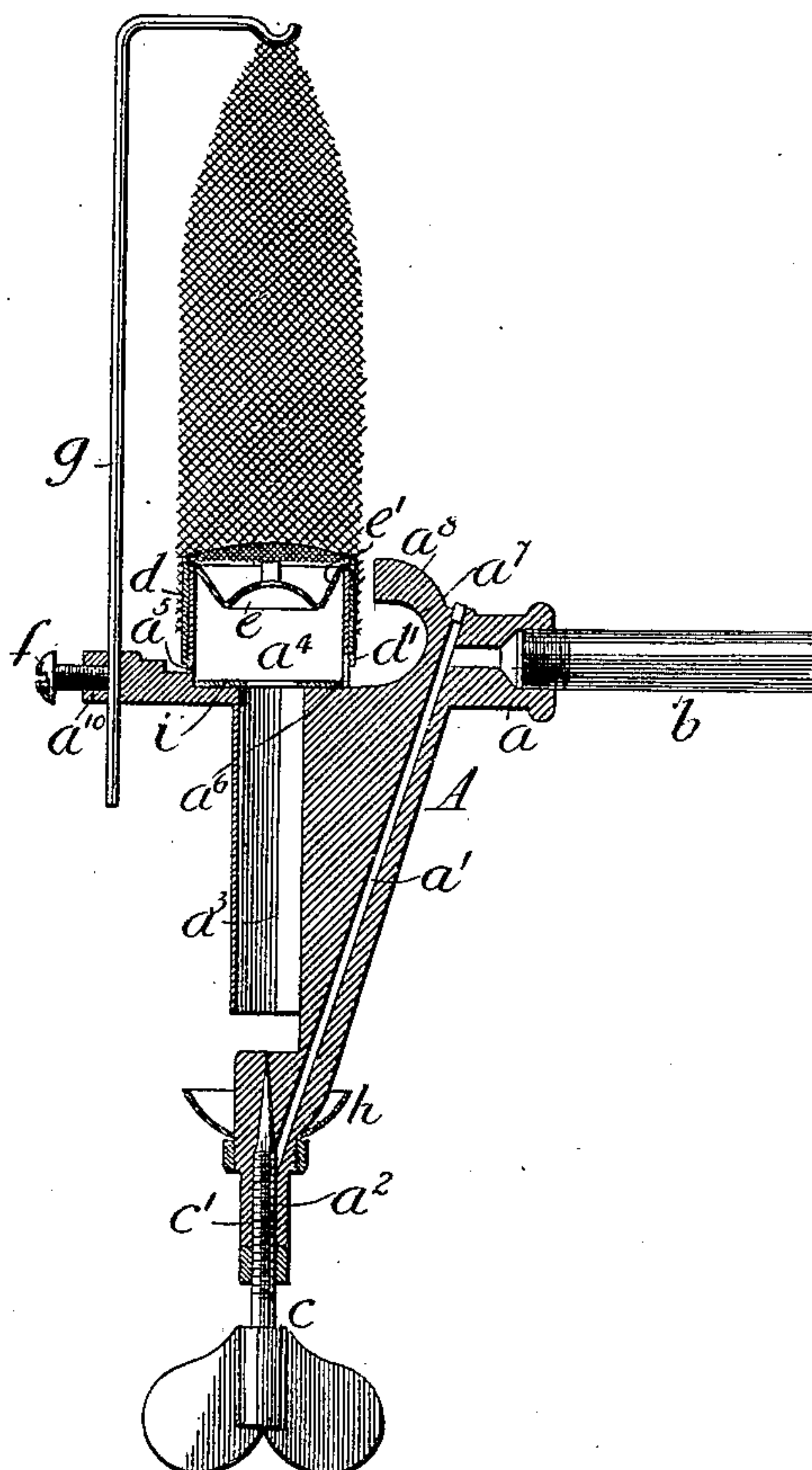


Fig. 2.



WITNESSES

Benjamin Webster
S. E. Zimmerman

INVENTOR

Peter J. Fitzgerald
By *W. W. Dudley & Co.*
his Attorneys.

UNITED STATES PATENT OFFICE.

PETER J. FITZGERALD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO WILLIAM FINDLAY BROWN, OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT GAS-BURNER FOR HYDROCARBON LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 621,333, dated March 21, 1899.

Application filed January 20, 1898. Serial No. 667,297. (No model.)

To all whom it may concern:

Be it known that I, PETER J. FITZGERALD, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Incandescent Gas-Burners for Hydrocarbon Liquids; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the class of incandescent gas-burners which are adapted for the consumption of hydrocarbon liquids, such as naphtha, gasolene, and the like; and it contemplates the provision of an improved structure of burner capable of obtaining high efficiency and reliability in operation and which possesses the further very desirable advantage of being simple in construction, and hence cheap to produce.

The nature of the invention will be found to be fully and clearly set forth in the following detailed description, which is to be read in connection with the accompanying drawings.

In the said drawings, Figure 1 is a plan view of a burner embodying my invention, and Fig. 2 is a vertical central sectional view of the same.

Referring to the said drawings by letter, A denotes the body of the burner, which is provided with an interiorly-threaded extension a for connection with the liquid-supply pipe b and with an inclined passage a' , leading from said extension downwardly to a vertical passage a^2 , also provided in said body, the latter passage being controlled by a needle-valve c , the threaded stem c' of which engages interior threads formed in an integral extension a^2 . In vertical alinement with the passage a^2 is a passage a^3 of comparatively large diameter, the lower end of which is open to the atmosphere for the admission of air, and which at its upper end communicates with a chamber a^4 , formed by an integral collar a^5 at

the top of the body A. At the base of the collar is an aperture a^6 , and adjacent to the aperture is the closed inner end of the extension a , which end is shaped to provide a curved surface a^7 . From the extension projects a plate a^8 , the inner side of which is a continuation of the surface a^7 . Fitting on the collar a^5 is a cap-piece d , which may have frictional engagement with the collar or may, as shown, be screwed onto the latter, and said collar is provided with an aperture d' , which registers with the aperture a^6 . The upper end of the cap is perforated, or, in lieu of perforations, a wire-gauze may be employed. In the chamber is a baffle-plate e , preferably convex in cross-section and centrally apertured and supported above the aperture a^6 by arms $e' e'$, which rest on the upper end of the collar a^5 . The body A is provided with integral arms a^9 , to which the chimney-support is attached, and also with an apertured lug a^{10} and set-screw f for the attachment of the mantle-support g .

At h is shown a cup for containing the liquid by the ignition of which the preliminary heating of the burner is obtained. This cup may, however, be dispensed with, as the preliminary heating may be effected by the use of a suitable torch.

In practice the liquid enters the passage a' through the extension a , and the valve c being opened the cup h is partially filled, after which said valve is closed. The contents of the cup are then ignited, and the heat produced vaporizes the liquid contained in the passages referred to. The valve c is then again opened and the vapor passes into the passage a^2 , being mixed with air, and is ignited at the cap-piece d . The ignited vapor fills the chamber a^4 , and a small jet of flame is projected through the aperture d' and impinges against the curved surface a^7 , and thereby supplies the heat necessary for the continuous vaporization of the liquid. The function of the baffle-plate is to check the flow of vapor sufficiently to allow of the formation of the vaporizing-jet, and in addition to said plate I may employ an apertured disk i to contract the opening from the passage into the chamber. Obviously the size of the

aperture in the disk, as well as of the aperture in the plate *e*, may be varied as circumstances demand.

5 The aperture *d'* in the cap-piece *d* may be dispensed with where said cap-piece is screwed onto the collar, and in lieu thereof the lower edge of the cap-piece may come above the aperture *a*⁶ or may be moved to partly close the latter to adjust the size of the vaporizer-
10 flame.

I claim as my invention—

1. An incandescent gas-burner for hydro-carbon liquids, comprising a body having an apertured extension, a passage leading from
15 the extension downwardly into a vertical passage, a valve in the latter passage, a cylindrical chamber in the vertical passage having an opening through which ignited vapor is projected against the wall of the extension,
20 and a baffle-plate supported in the chamber

between said opening and the burner-opening, substantially as described.

2. An incandescent gas-burner for hydro-carbon liquids comprising a body having an apertured extension, the inclined passage *a'*
25 leading from the extension downwardly into the valved vertical passage *a*², the vertical passage *a*³, the chamber *a*⁴ forming a continuation of the passage *a*³ and provided with the aperture *a*⁶, the cap-piece *d* adjustable to con-
30 trol the aperture, and the apertured disk *i* and baffle-plate *e* in said chamber, substantially as described.

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

PETER J. FITZGERALD.

Witnesses:

WILLIAM O. CHILDS,
W. T. FITZGERALD.