

No. 630,996.

Patented Aug. 15, 1899.

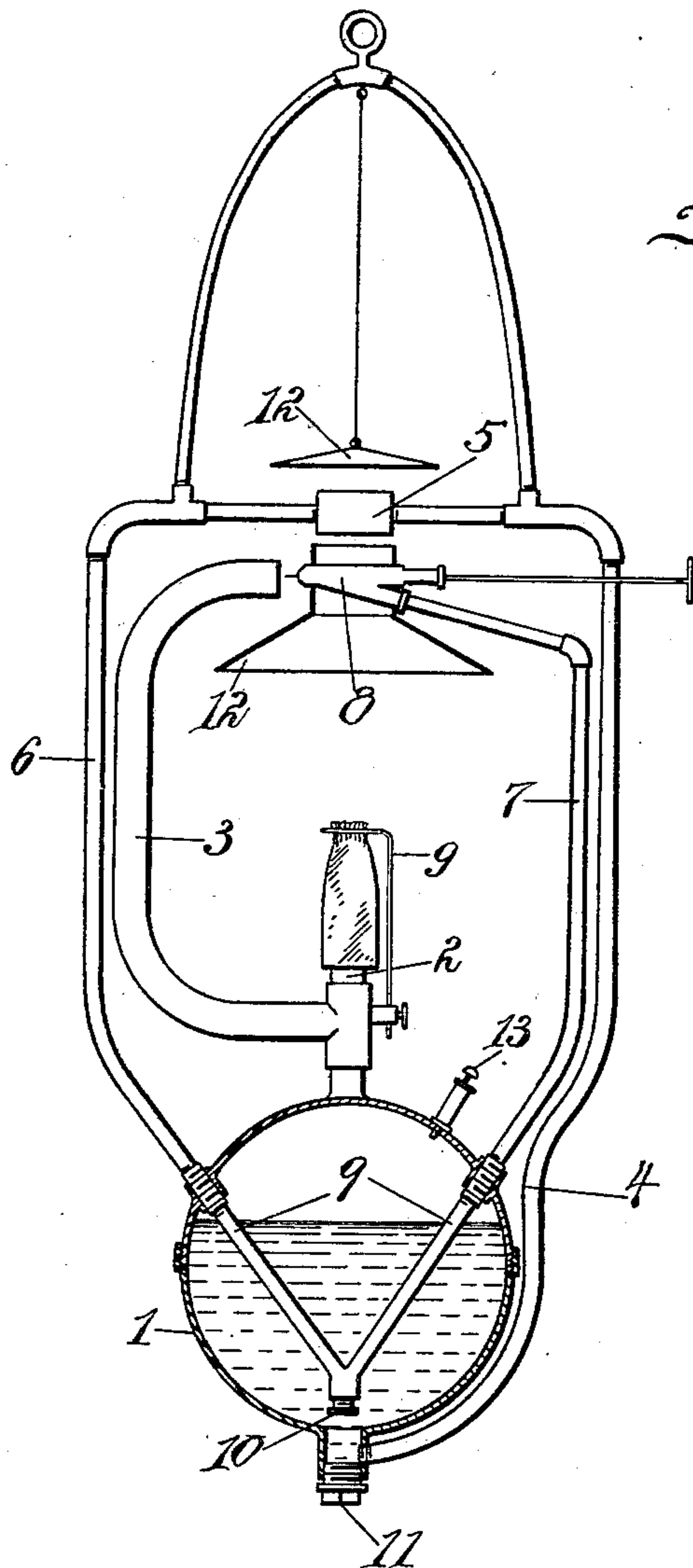
V. H. SLINACK.

HYDROCARBON BURNER FOR INCANDESCENT LIGHTS.

(Application filed Mar. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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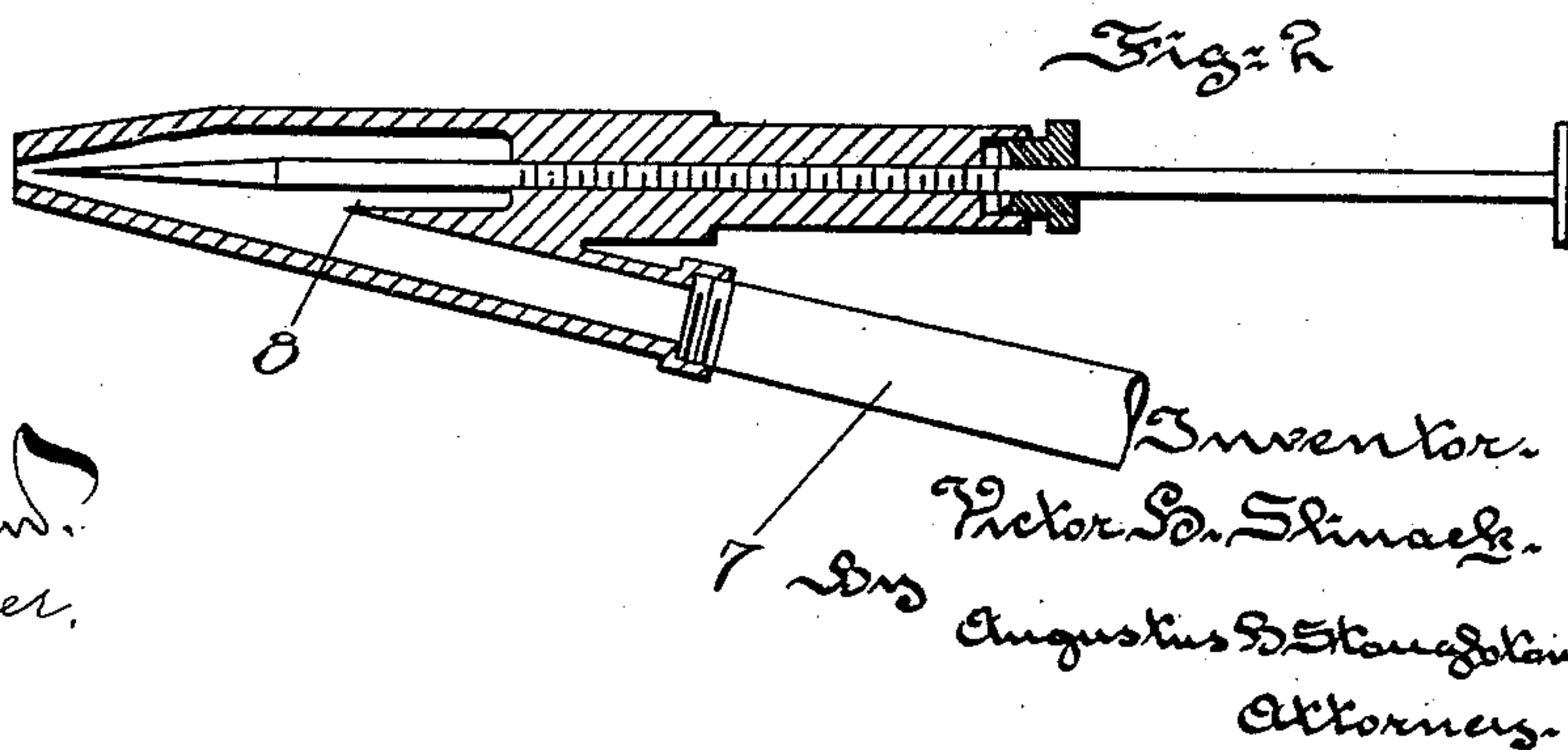


Fig. 2

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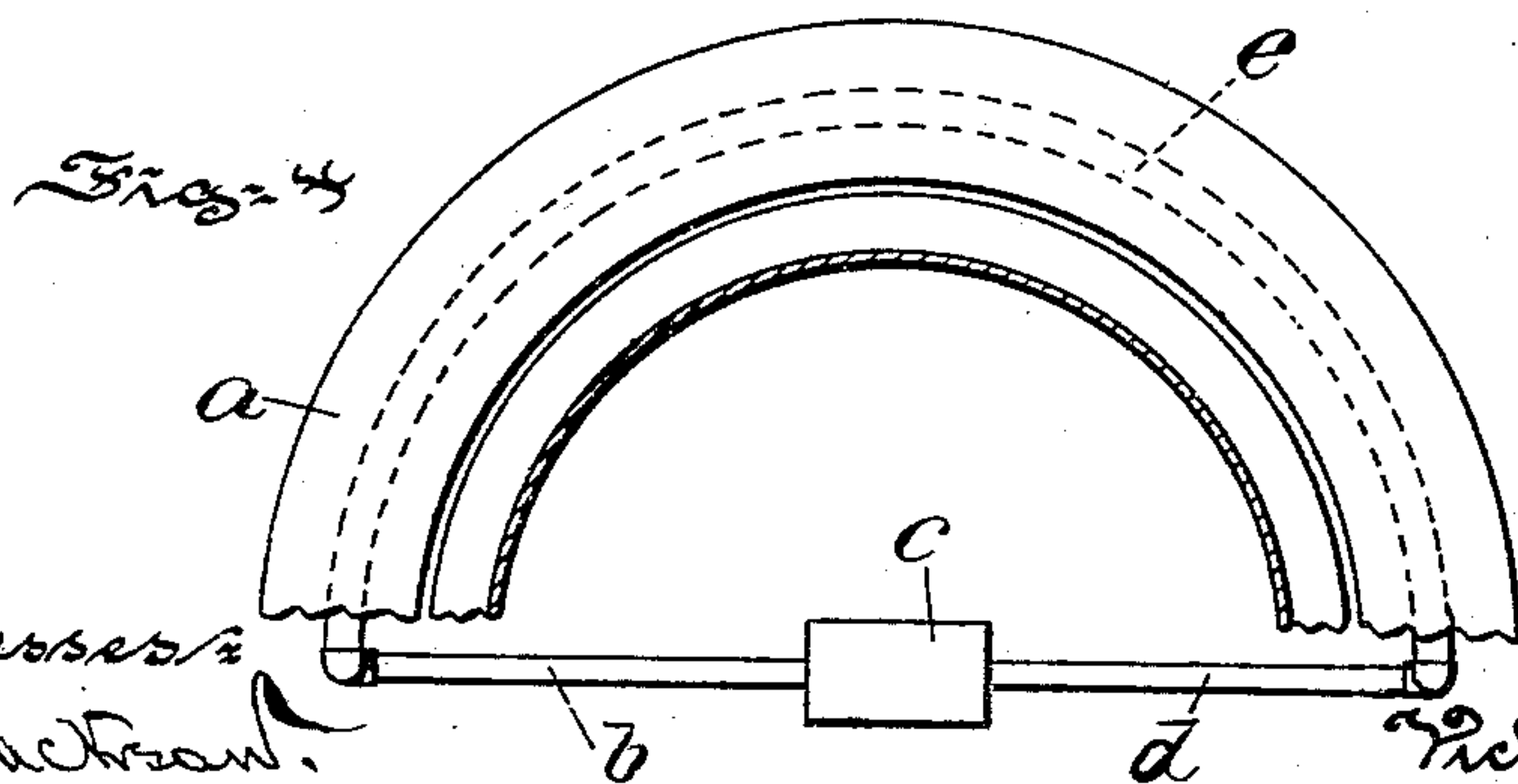
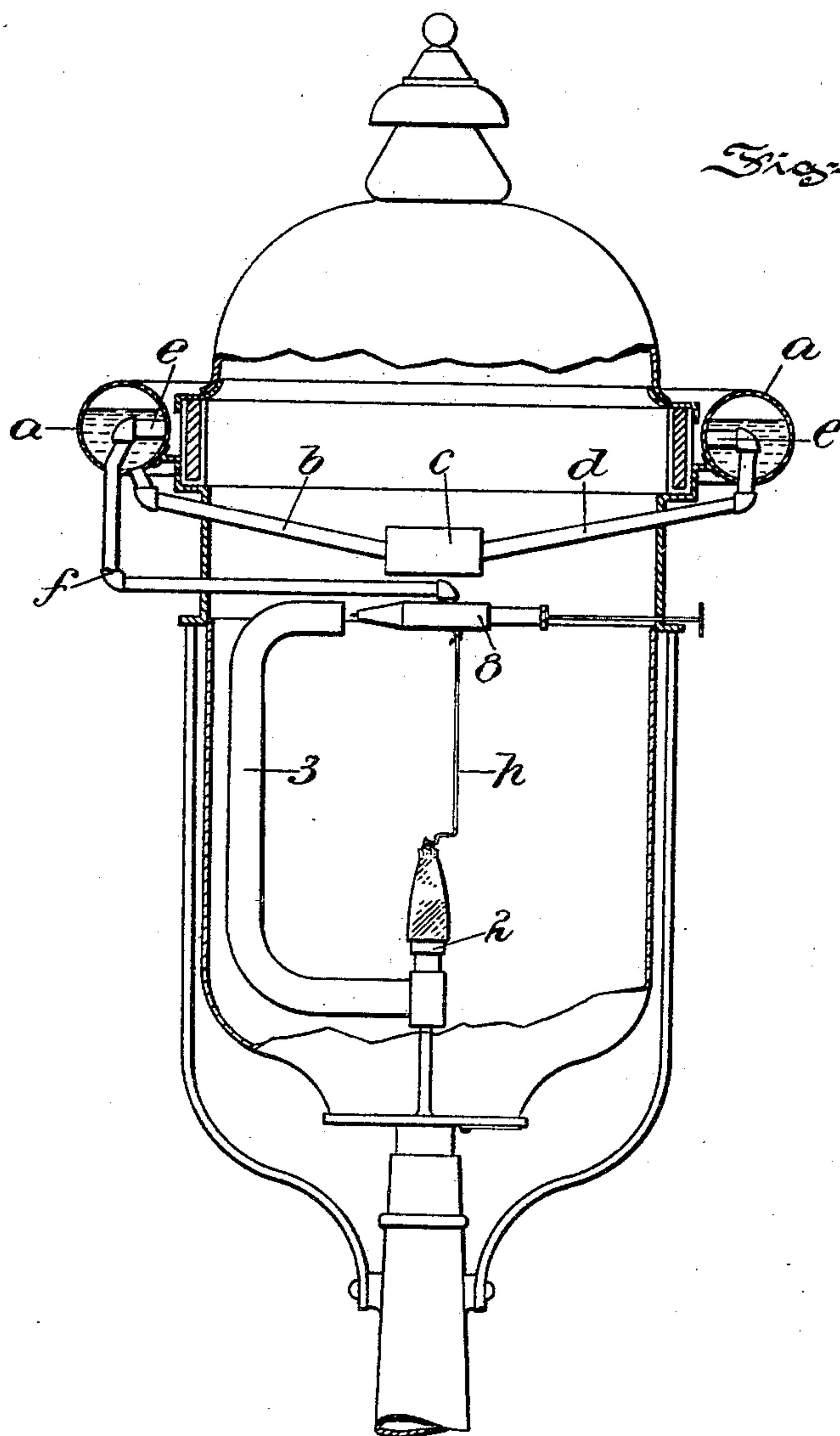
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER FOR INCANDESCENT LIGHTS.

SPECIFICATION forming part of Letters Patent No. 630,996, dated August 15, 1899.

Application filed March 21, 1899. Serial No. 709,889. (No model.)

To all whom it may concern:

Be it known that I, VICTOR H. SLINACK, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Hydrocarbon-Burner for Welsbach and other Incandescent Lights, of which the following is a specification.

One object of the invention is to insure high candle-power and great brilliancy, and to this end pressure is automatically maintained upon the fluid fuel as it is fed to the air-mixing chamber.

The invention comprises the improvements hereinafter described and claimed.

The nature, characteristic features, and scope of my 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 an elevational view, partly in section, illustrating a burner embodying features of my invention. Fig. 2 is a sectional view drawn to an enlarged scale in order to illustrate the needle-valve shown in Fig. 1. Fig. 3 is an elevational view, partly in section, illustrating a modification of my invention; and Fig. 4 is a top or plan view illustrating details of the construction shown in Fig. 3.

In a device embodying features of my invention the oil is led from a reservoir or tank by way of a pipe or conduit which extends into range of the heat of the burner in order to heat its contents and from thence back into and through the tank or reservoir in order to impart heat to the contents thereof, so as to exert pressure upon it, and thence to a vaporizer and needle-valve, from which it is discharged into the air-mixing tube of the burner. This construction may be embodied in a variety of forms. However, referring to Figs. 1 and 2, 1 is a tank or reservoir, 2 a burner, and 3 the air-mixing tube. From the reservoir 1 extends a pipe 4 for conveying fluid into range of the heat of the burner, as at 5, where it is heated and vaporized. From 5 the pipe or conduit extends, as indicated at 6, into and through or across the interior of the tank or reservoir and from thence, as at 7, to the vaporizer 8, from which it is discharged into the

air-mixing pipe or tube 3. The portion 9 of this pipe or conduit that extends through or across the interior of the tank or reservoir is also continuous and has no communication with the interior of the tank or reservoir. 10 and 11 are plugs that may be removed for the purpose of cleaning the parts into which they are inserted, and 12 is a deflector that may be employed in order to concentrate the heat upon the parts 5 and 8, which operate as vaporizers.

The mode of operation of the device illustrated in Fig. 1 may be described as follows: To start the apparatus, pressure is created in the tank or reservoir, for example, by a few strokes of the air-pump 13. Such pressure causes the fluid to rise by way of the pipe 4 and at or about the point 5. Thus oil is vaporized initially by means of a suitable torch and afterward by the heat of the burner 2. From 5 the hot vapor traverses the part 6 and enters the part 9. In the part 9 this vapor gives up its heat by radiation and otherwise to the fluid contents of the tank. Heat thus imparted to the fluid contents of the tank vaporizes a portion thereof, and thus maintains the pressure in the tank, so that its contents are forced or fed continuously by way of the pipe 4. Thus the pressure on the contents of the tank is maintained throughout the operation of the lamp, it being borne in mind that the pressure initially created by the pump 13 would in a comparatively short time diminish and become inefficient. From the part 9 the condensed or partially-condensed vapors are expelled by way of the pipe 7 and delivered from the vaporizer 8 under pressure which is maintained upon them by reason of the heat applied at the part 5. Since the condensed or partially-condensed vapors traverse the vaporizer 8, which is exposed to considerable heat, they not only issue therefrom properly vaporized, but also under pressure, as has been described.

The construction and mode of operation of the modification illustrated in Figs. 3 and 4 are as above described, with the following exceptions: The tank or reservoir *a* is arranged in elevated position, so that its contents can flow by gravity through the pipe *b* to the point *c*, exposed to the heat of the

burner 2, thence by the pipe *d* and through the pipe *e*, which is contained within the tank *a*, and then by the pipe *f* to the vaporizer 8. In this case the air-pump is unnecessary, because the initial flow of oil or fluid fuel is started by gravity. I contemplate mounting the described burners either upon posts, as shown in Fig. 3, or upon other suitable supports, or I may suspend them, as indicated in Fig. 1, and I may employ these burners with or without lanterns; but where the latter are used they can in some cases be advantageously constructed to inclose all of the parts including the tank or reservoir, and in such cases they protect the latter to a certain extent from variations in the temperature of the atmosphere. The heat from a Bunsen burner, such as is employed in connection with Welsbach and other incandescent elements, is intense and in practice is sufficient to so affect a side support, as *g*, Fig. 1, as that in a short time it will bend inward toward the center of the burner, thus throwing the incandescent out of alinement and subjecting it to breakage by forcing it down onto and over the burner-cap. By attaching the mantle-support from above to the superstructure or dome of the lantern or to some provision thereof, as illustrated at *h*, Fig. 3, I can obviate the

above-mentioned defects and disadvantages and prevent the described displacement of the mantle or incandescent.

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

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

A hydrocarbon-burner comprising a reservoir, a burner, an air-mixing tube, and a pipe or connection extending from the reservoir into range of the heat of the burner and across or through the interior of the reservoir and then again into range of the heat of the burner and into position for discharging into the air-mixing tube, substantially as described.

In testimony whereof I have hereunto signed my name.

VICTOR H. SLINACK.

In presence of—

W. J. JACKSON,
THEODORA HESSER.