

No. 681,851.

Patented Sept. 3, 1901.

T. GORDON.  
INCANDESCENT VAPOR BURNER.

(Application filed Aug. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.

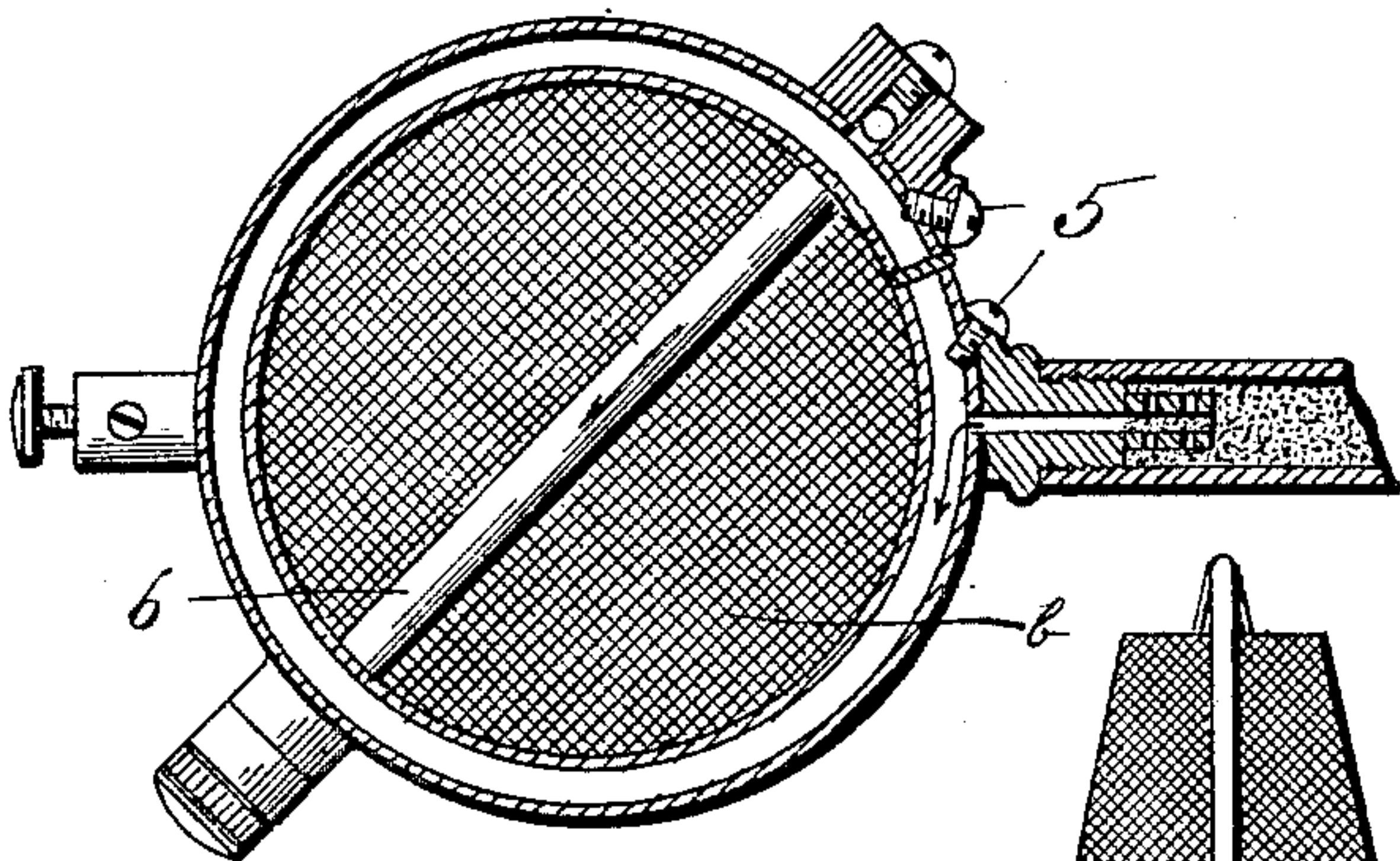


Fig. 6.

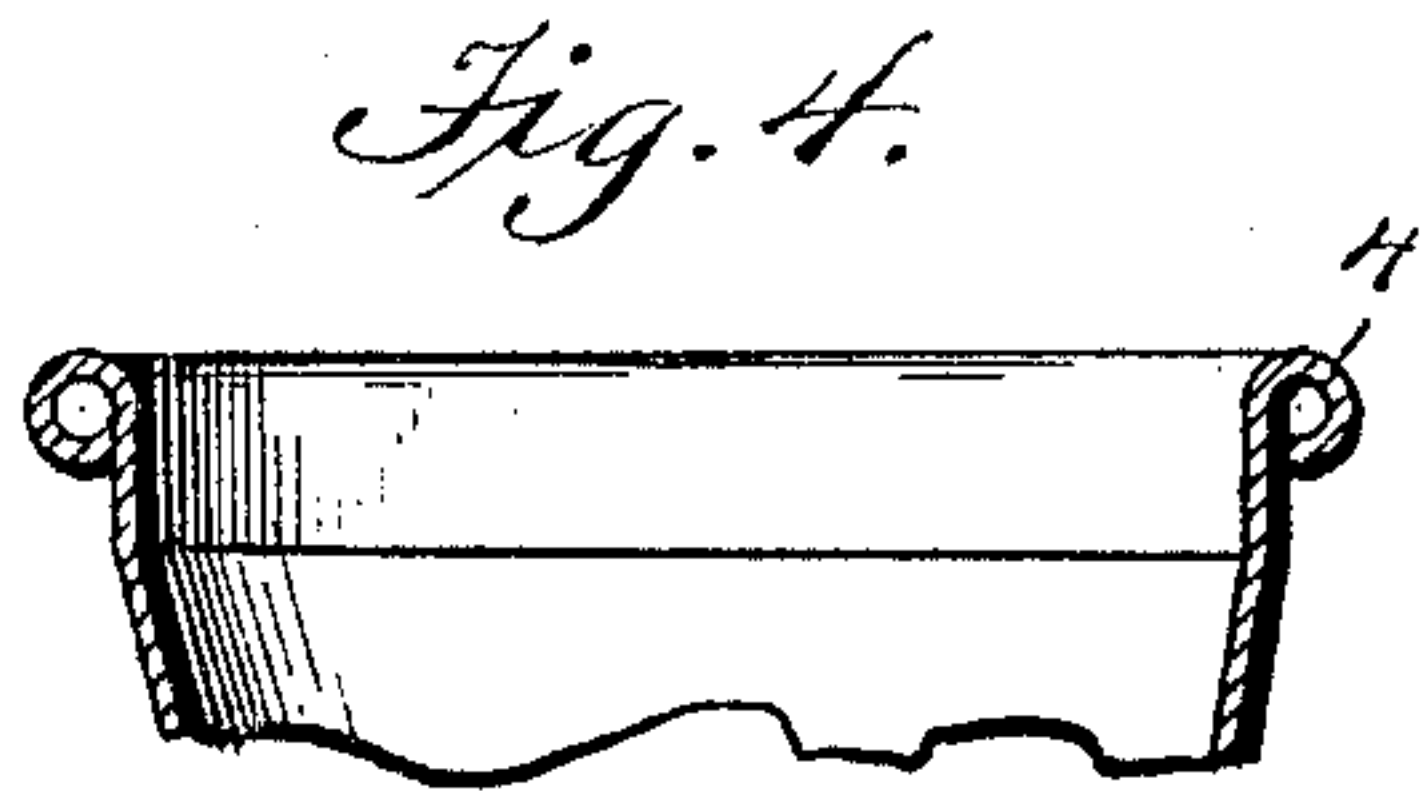
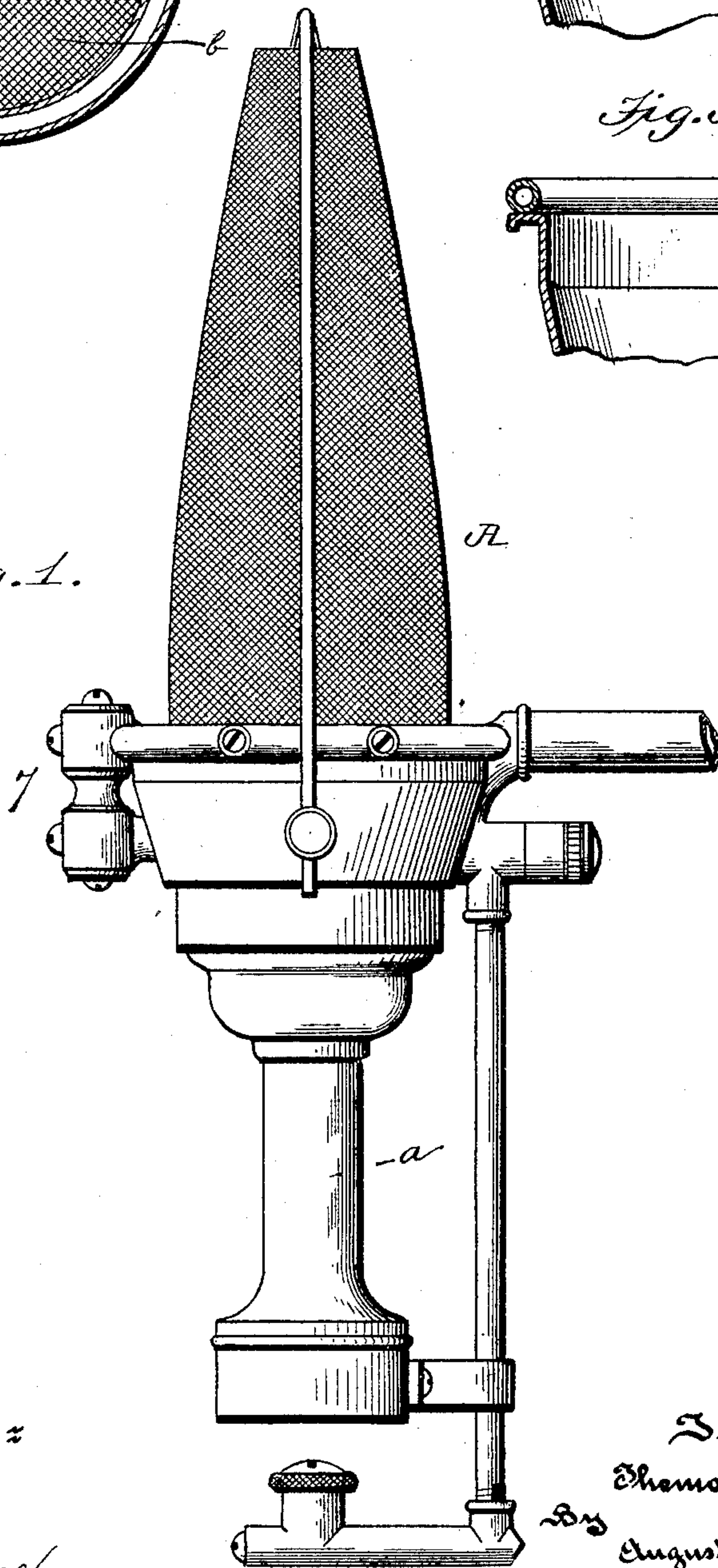


Fig. 4.



Fig. 5.

Fig. 1.



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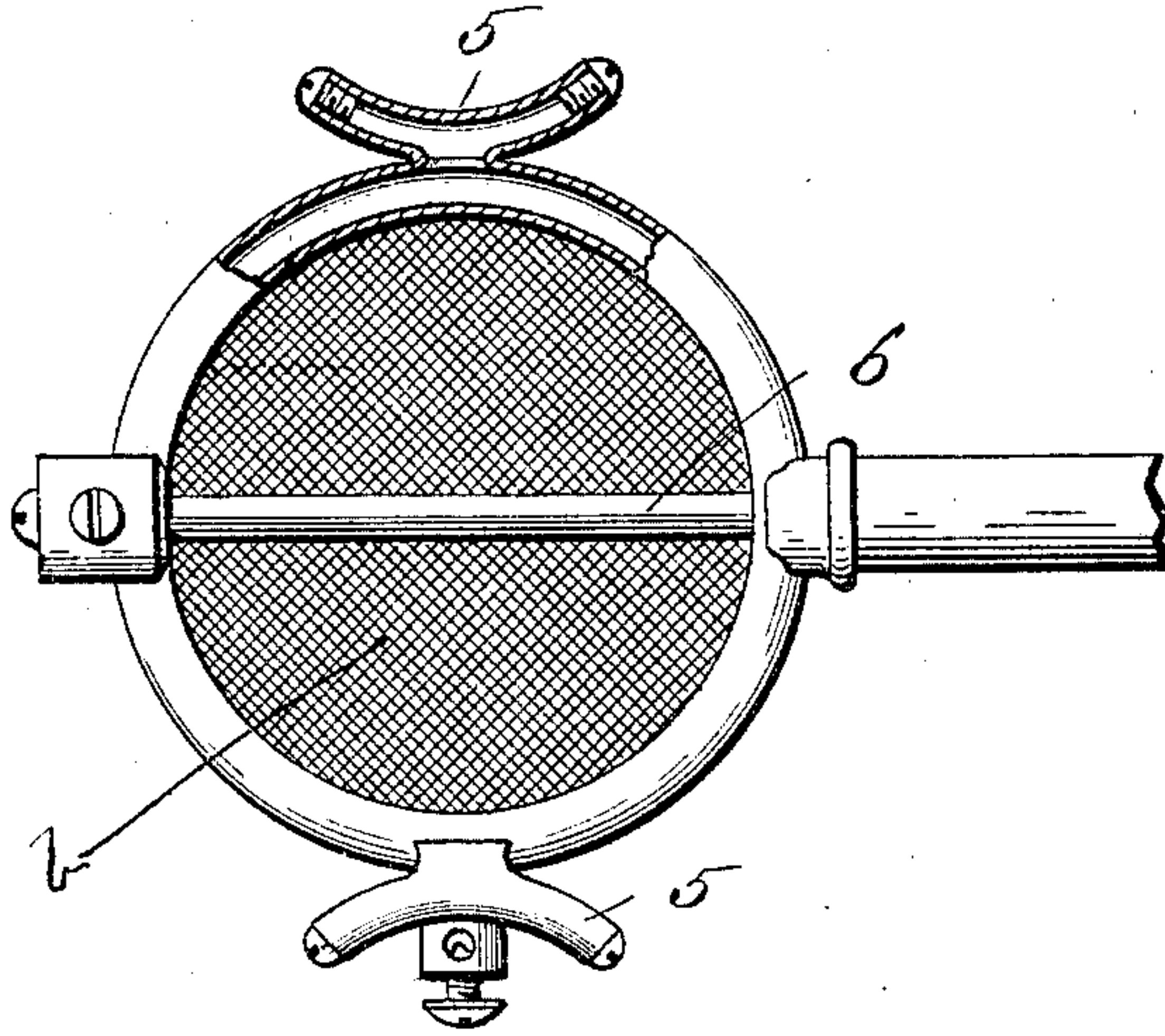
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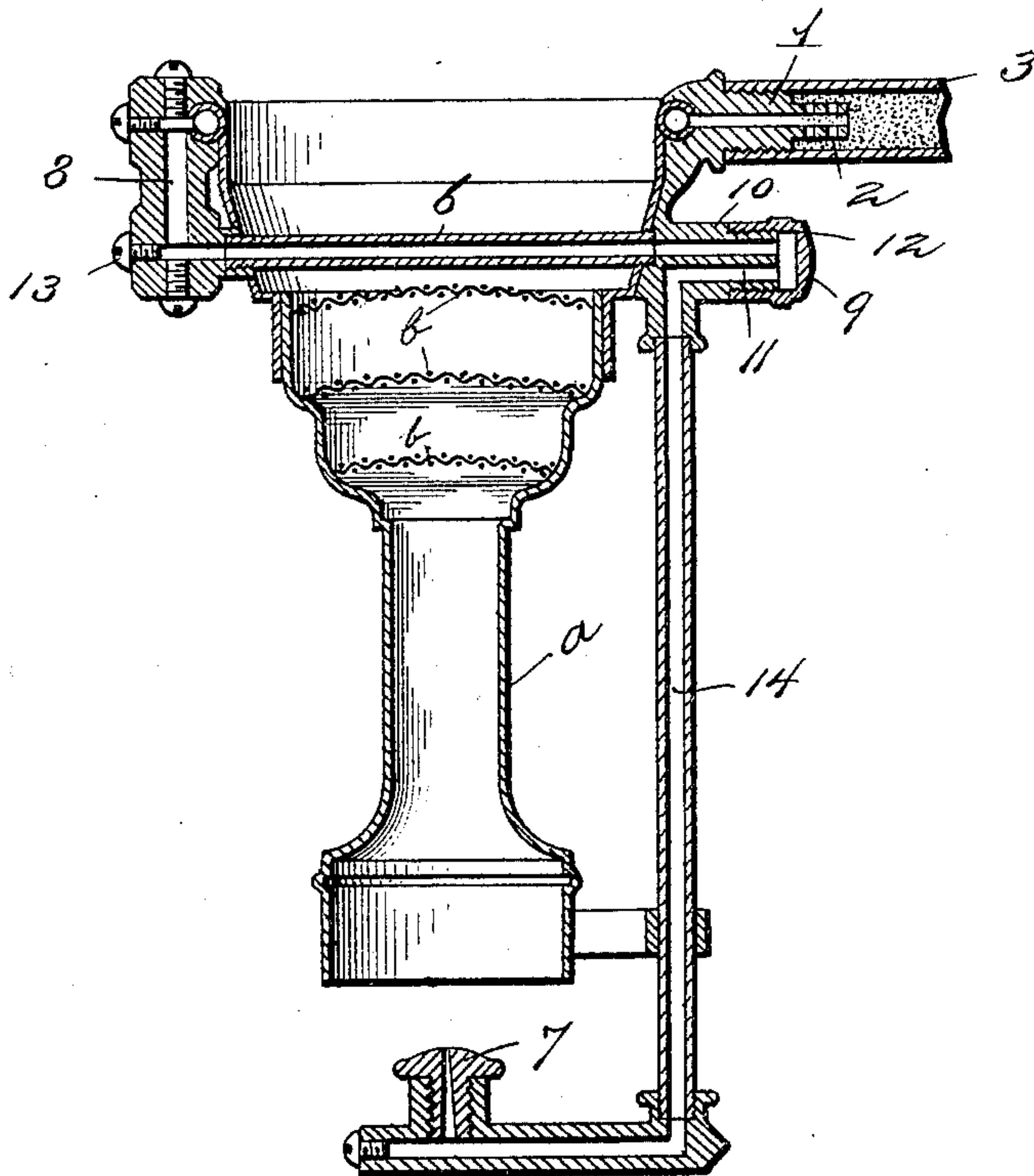
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*Fig. 2.*



*Fig. 3.*



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Attorney



# UNITED STATES PATENT OFFICE.

THOMAS GORDON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO PENNSYLVANIA GLOBE GAS LIGHT COMPANY, OF SAME PLACE.

## INCANDESCENT VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 681,851, dated September 3, 1901.

Application filed August 17, 1900. Serial No. 27,153. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS GORDON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Incandescent Vapor-Burners, of which the following is a specification.

Objects of the invention are to provide a neat, light, and comparatively inexpensive construction for a burner to prevent the light from rising and falling, or, in other words, to cause it to burn steadily, to arrange for cleaning the parts without danger of the material falling from one part of the burner into another, and to provide an improved type of incandescent vapor-burner adapted to produce, even with kerosene or like oil, a steady, brilliant, and satisfactory light.

To these and other ends hereinafter set forth the invention comprises the improvements to be presently 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 side elevational view of a burner embodying features of the invention. Fig. 2 is a top or plan view, partly in section, of the same. Fig. 3 is a central sectional view of the same. Figs. 4 and 5 are central sectional views illustrating the upper portions of the burners and showing the primary vaporizing-chamber at the top thereof, and Fig. 6 is a horizontal sectional view illustrating a modification of the invention.

In the drawings, 1 is a nozzle projecting from the burner-head into the packing which is contained in the oil-supply pipe 3. The packing is arranged around the nozzle, and the purpose of the nozzle is to prevent pulsations or rising and falling of the flame of the burner. Naturally the burner-head becomes very hot and a portion of the packing becomes charred. Thus oil collects in the pipe near its outlet to the burner when the burner is not in use. Upon starting the burner such oil is more or less suddenly vaporized, and a repetition of this sudden vaporization causes the flame to pulsate. How-

ever, the nozzle projecting backward as it does into the packing and having in it comparatively small apertures permits of the passage of only a comparatively small amount of vapor or oil, so that even in cases such as described the disadvantageous fluctuations of the flame are minimized. If desired, the nozzle may be provided with lateral openings, as 2. The burner head or casing consists of sheet metal, and the primary vaporizing-channel 4 or vaporizer is formed by spinning or otherwise turning the top of the sheet-metal burner-head back on itself or by mounting a bent tube thereon, as shown in Figs. 4 and 5. This is obviously an inexpensive construction, and, moreover, since the walls are thin, heat can readily reach the contents of the vaporizing-channel 4. The skirt of the mantle A depends within the annular vaporizer, which guides and holds it. As shown in Fig. 2, provision is made, as at 5, for plugs which may be removed in order to permit of the insertion of a flexible wire for cleaning the channel 4 when required. From the channel 4 the vapor is led to the superheater 6, from which it passes to the jet 7. As shown in Figs. 1, 2, and 3, the incoming oil or vapor divides and passes in opposite directions around the channel 4 and from thence downward by way of the part 8 to the superheater 6. As shown in Fig. 6, the oil or vapor passes in one direction around the burner-head and then follows substantially the same course as has been described with reference to Figs. 1, 2, and 3.

9 is a single fitting having separate passages 10 and 11 through it and having a projection 12, which receives a cap or fitting which forms, together with said passages, a return-bend.

To clean the superheater 6, the screw or plug 13 may be removed from one end and the cap from the other end, whereupon a suitable needle or wire may be passed in through the opening from which the plug or screw 13 has been removed. This needle or wire pushes out any matter that may have collected in the superheater, and such matter cannot fall into the passage 11 or into the tube 14, that leads down to the jet. The vaporizing-channel 4 encompasses the flame, and the superheater 6 extends through its root and is a



straight pipe or tube and may be readily cleaned, as has been described. The mixing-tube *a* is arranged, as usual, at the base of the combustion-chamber and is separated there-  
5 from by perforated caps or diaphragms *b*, of which three are illustrated, although the number is not important.

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 I do  
10 not limit myself to the precise construction and arrangement of parts hereinabove set forth, and illustrated in the drawings; but,

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

1. An incandescent vapor-burner comprising a shell forming a combustion-chamber and  
20 a mixing-tube and having its top turned over to form a vaporizing-chamber, an oil-supply pipe connected therewith, a perforated cap between the combustion-chamber and the

tube and a pipe leading from said vaporizing-chamber and crossing the combustion-chamber at the root of the flame and leading to a  
25 jet that discharges through the shell, substantially as described.

2. An incandescent vapor-burner comprising a shell forming a combustion-chamber, a  
30 primary vaporizing-channel arranged at the top, an oil-supply pipe connected therewith, a mixing-tube below the combustion-chamber, a perforated cap between the combustion-chamber and the mixing-tube, and a pipe  
35 forming a secondary vaporizing-channel leading from said primary channel and crossing the combustion-chamber at the root of the flame and leading to a jet that discharges  
40 through the shell, substantially as described.

In testimony whereof I have hereunto signed my name.

THOMAS GORDON.

In presence of—

W. J. JACKSON,  
FRANKLIN T. KALAS.