

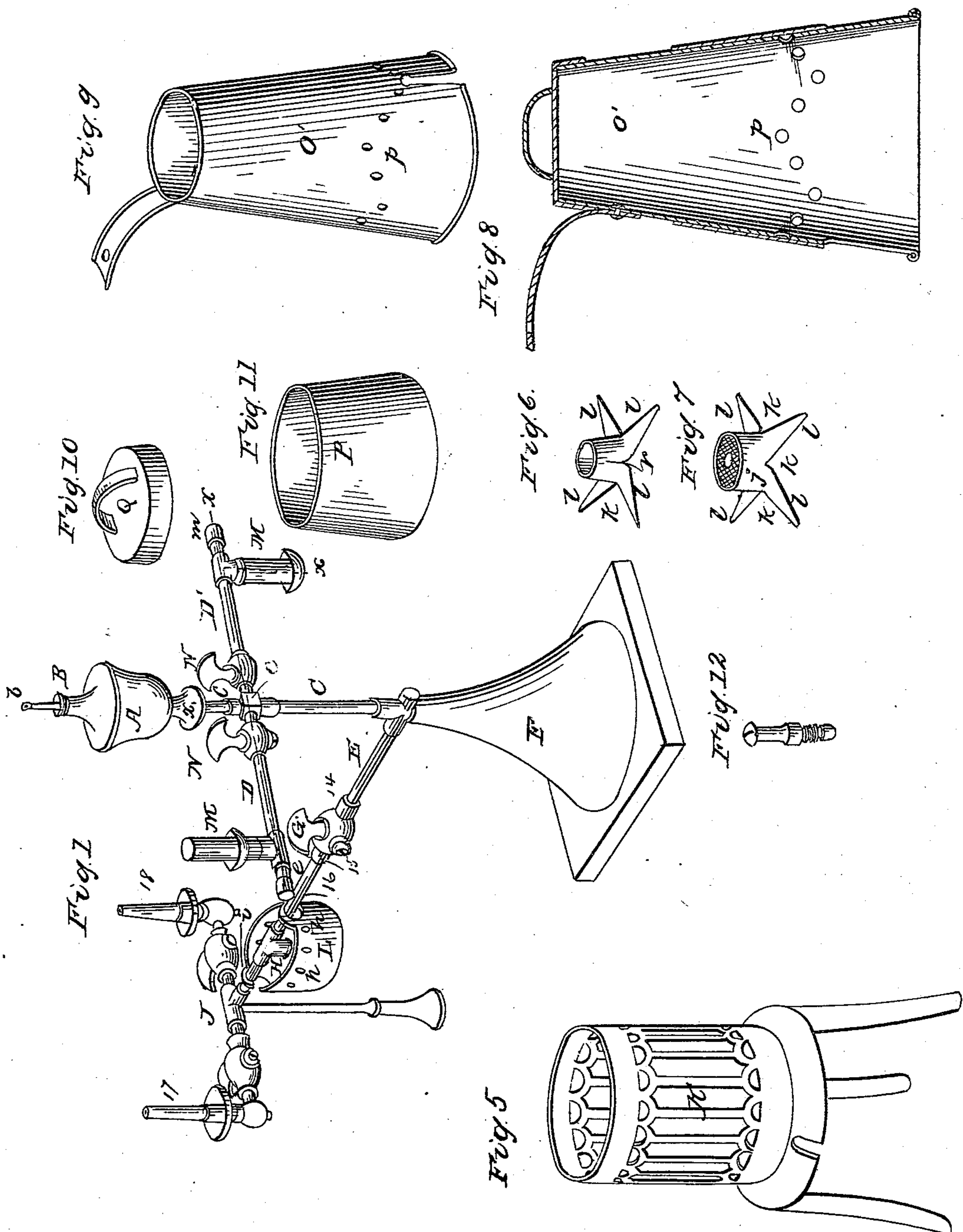
D. H. LOWE.

2 Sheets—Sheet 1.

Gas Heater.

No. 84,889.

Patented Dec. 15, 1868.



Witnesses  
W. J. Lambidge  
D. E. Bakeller

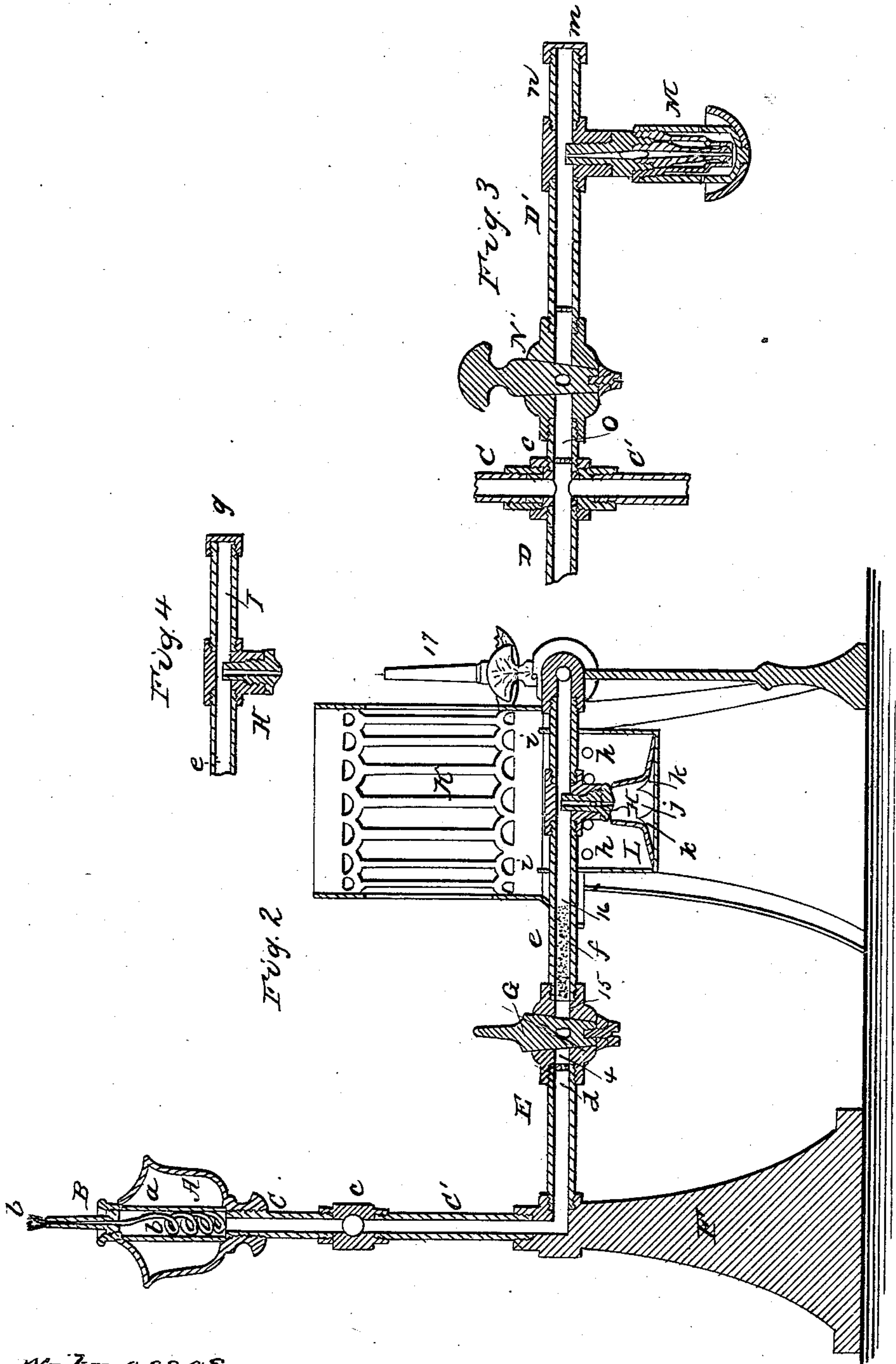
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# UNITED STATES PATENT OFFICE.

DAVID H. LOWE, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN GAS-HEATERS.

Specification forming part of Letters Patent No. 84,889, dated December 15, 1868.

*To all whom it may concern:*

Be it known that I, DAVID H. LOWE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Apparatus for Generating and Burning Gas from Naphtha, &c., for heating and illuminating purposes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of an apparatus for generating and burning gas from naphtha, forming the subject of a pending application for patent, together with some of my present improvements as applied thereto. Fig. 2 is a vertical longitudinal section through the center of the same, representing certain modifications of my improvements. Fig. 3 is a section on the line *x x* of Fig. 1; Figs. 4, 5, 6, 7, 8, 9, 10, 11, and 12, details to be referred to.

My invention particularly relates to certain improvements in apparatus for generating and burning gas from naphtha, for which Letters Patent of the United States were granted to me on the 11th day of August, A. D. 1868, and also has reference to certain improvements in such apparatus, forming the subject of another application made by me, and now pending.

In connection with the burner pointing downward, my invention consists in a fire-pot, from the bottom of which the flame is deflected (by a perforated or conical cap, or otherwise) under and around the bottom of the kettle or utensil in a nurse-lamp or stove; and

My invention also consists in a chamber formed in the gas-pipe beyond the burner, for heating the nurse-lamp or stove, the end of the said chamber being provided with a removable cap, in order that a branch bearing one or more burners for illuminating purposes may be attached thereto, the quantity of gas being sufficient to supply heat from the burner of the nurse-lamp or stove, and also light from the burner or burners attached to the said branch pipe to light the apartment; and

My invention still further consists in certain details, which will be explained hereafter.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is a reservoir con-

taining naphtha, the said reservoir being provided with a small cylindrical tube, *a*, which is perforated to prevent liability of explosion when a wick, *b*, of an ordinary lamp-burner, B, (see Figs. 1 and 2,) is employed for burning the naphtha to light the apartment.

The upper end of a short tube or pipe, C, enters the bottom of the reservoir, while the lower end of this pipe C is screwed into the top of a square block, *c*, from the opposite sides of which proceed horizontal branch pipes D D', while into the bottom of the block *c* is screwed a vertical pipe, C', into the under side of which is screwed a horizontal branch, E, which, together with the pipe C', is supported by a standard or pedestal, F.

The naphtha flows down the pipes C C' into the branch E, the size of the interior of which, at *d*, is contracted by means of a check or plate, 14, Fig. 2, being inserted therein, and provided with a small orifice, this construction being desirable to graduate the flow of the naphtha.

G is a cock, which opens or closes the passage of the naphtha into the portion *e* of the branch E, the interior of which is provided with a roll of wire-gauze, *f*, extending from about the point 15 to about the point 16, to still further regulate the flow of the naphtha to a burner, H, screwed into the under side of the portion *e* of the branch E, the top of the burner extending into the interior as far as the center of the pipe, to prevent scale or other impurities from passing into and clogging the burner H, the jets of lighted gas passing vertically down through its bottom.

I, Fig. 4, is a chamber formed in the end of the horizontal branch E, beyond the burner H, the end of the chamber being open, and communicating with the interior of a branch pipe, J, provided with ordinary burners, 17 18, Fig. 1, by which construction I am enabled to obtain sufficient gas for lighting the apartment after the burner H, for heating the nurse-lamp K, has been supplied, Figs. 2 and 5.

Should the branch pipe J not be needed, the end of the chamber I may be closed by screwing on the cap *g*, Fig. 4.

L is a fire-pot, provided with a series of perforations, *h*, near its top, Figs. 1 and 2, and is hung upon the pipe E under the burner H by means of hooked projections *i*, jets of flame from the burner passing down through a perforated tube, *j*, Fig. 7, resting on the bottom



of the fire-pot, and thence through spaces *k* between its legs or supports *l*, along the bottom of the pot *L*, and up its sides through the perforations, in which currents of oxygen are allowed to pass, in order to insure a steady flame without noise and with perfect combustion. The flame, after having been thus deflected and mixed with oxygen, strikes the under side of the kettle or other utensil belonging to the nurse-lamp *K*.

Should it happen at any time that the naphtha be carelessly allowed to collect in the fire-pot, it may be burnt and used to heat the nurse-lamp, (instead of employing the gas from the burner,) or be emptied by removing the pot; but such event need not occur.

The horizontal branch pipes *D D* are provided with burners *M*, (see Fig. 3,) one near each end of the said pipes, a portion of each of which extends a short distance beyond, and is closed by a screw-cap, *m*, thus forming a chamber, *n*, for the reception of the naphtha, which, when the burner *M*, projecting upward or downward, is employed, is converted into gas by the heat, and effectually prevents the flickering which would occur if there were no chamber beyond the burner. These burners screw into the pipe as far as its center, and are not provided with non-conductors, as I wish the heat to be transmitted to the pipe to generate gas. Each of these pipes *D D* is provided with a check, *O*, to contract the size of the pipe and regulate the flow of the naphtha to the cocks *N N'*.

In the bottom of the burner *H*, Fig. 12, is inserted a piece of cork, lava, block-meerschau, or other suitable porous material, the office of which is to retard the flow of the gas through the burner, to supply it thereto in just sufficient quantities equal to its capacity of consumption, the cork or other porous material also serving the same office when employed in connection with a burner for burning the naphtha before it is converted into gas.

*O* is a tube or cap of conical form, provided with perforations *p*, Figs. 8 and 9. This tube is designed to be used in connection with a

fire-pot of a petroleum-stove when a quantity of naphtha has been carelessly allowed to accumulate in the said pot, the conical tube being placed over the pot after the naphtha is lighted, air being supplied thereto through the perforation *p*, to prevent the oil from smoking.

When it is required to extinguish the flame, a conical band or sleeve, *P*, is slipped over the tube *O'*, so as to close its perforations, and a cap or cover, *Q*, Figs. 10 and 11, is put over the top of the tube *O'* to arrest and collect the smoke, the sleeve and cover thus serving as an extinguisher.

Instead of a cylindrical tube, *j*, with a perforated top, I may employ a conical tube, *r*, with its top open, as shown in Fig. 6, and I may apply my improvements to the heating and lighting of railroad-cars without departing from the spirit of my invention.

#### Claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A tube or deflector, *j*, which is either of a conical form and open at the top, or of other form and provided with a perforated top, and having openings *k k* at the bottom, in combination with a fire-pot, *L*, substantially as and for the purpose specified.

2. The burner *H* for heating the nurse-lamp, in combination with one or more burners, 17 18, for illuminating the apartment, all arranged and operating substantially as set forth.

3. A conical tube, *O*, provided with a series of perforations at its bottom, in combination with a fire-pot, *L*, substantially as and for the purpose described.

4. The conical sleeve *P* and cap or cover *Q*, in combination with a conical tube, *O*, provided with perforations for extinguishing the flame of the naphtha contained in the fire-pot *L*, substantially as described.

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