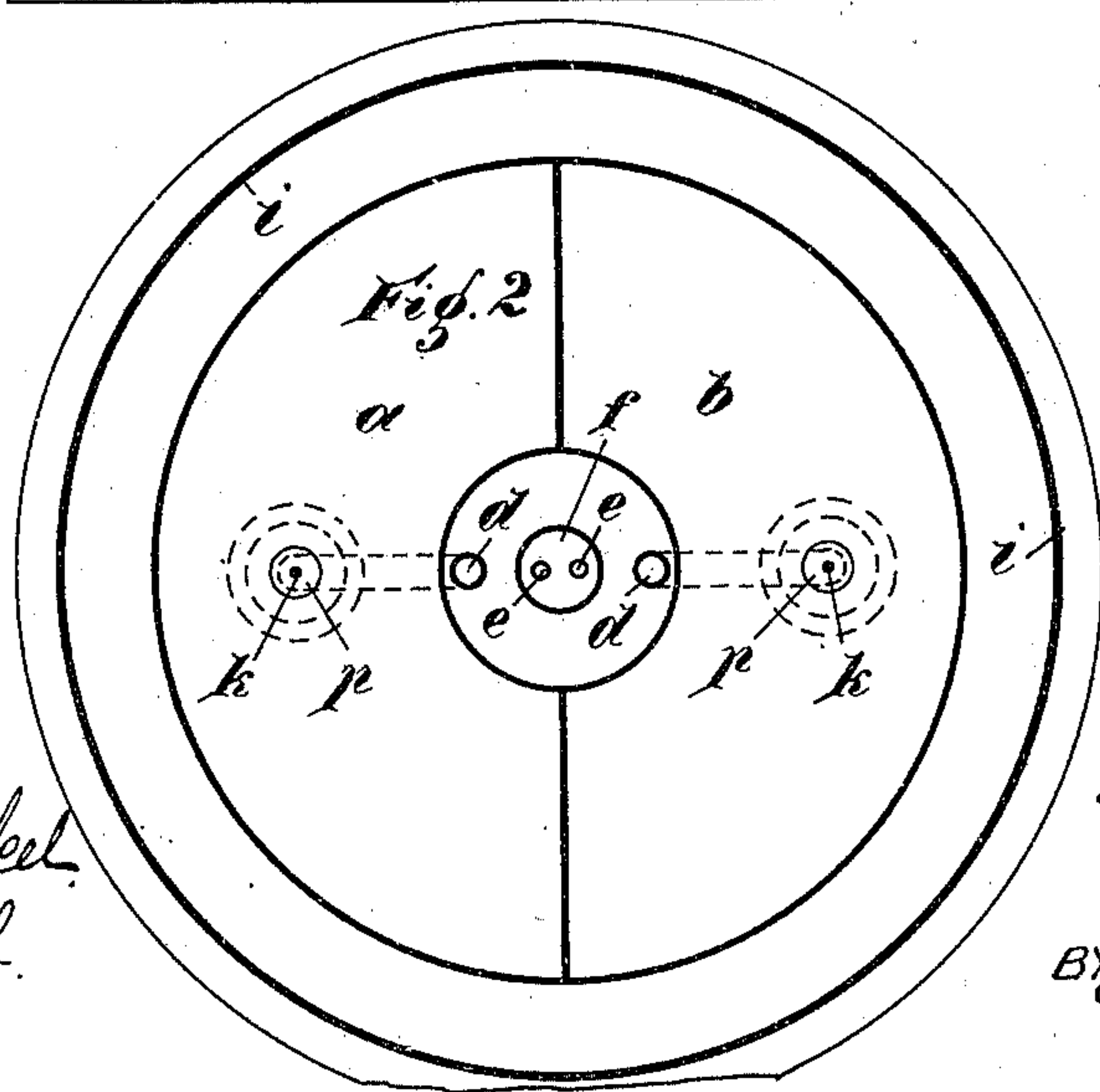
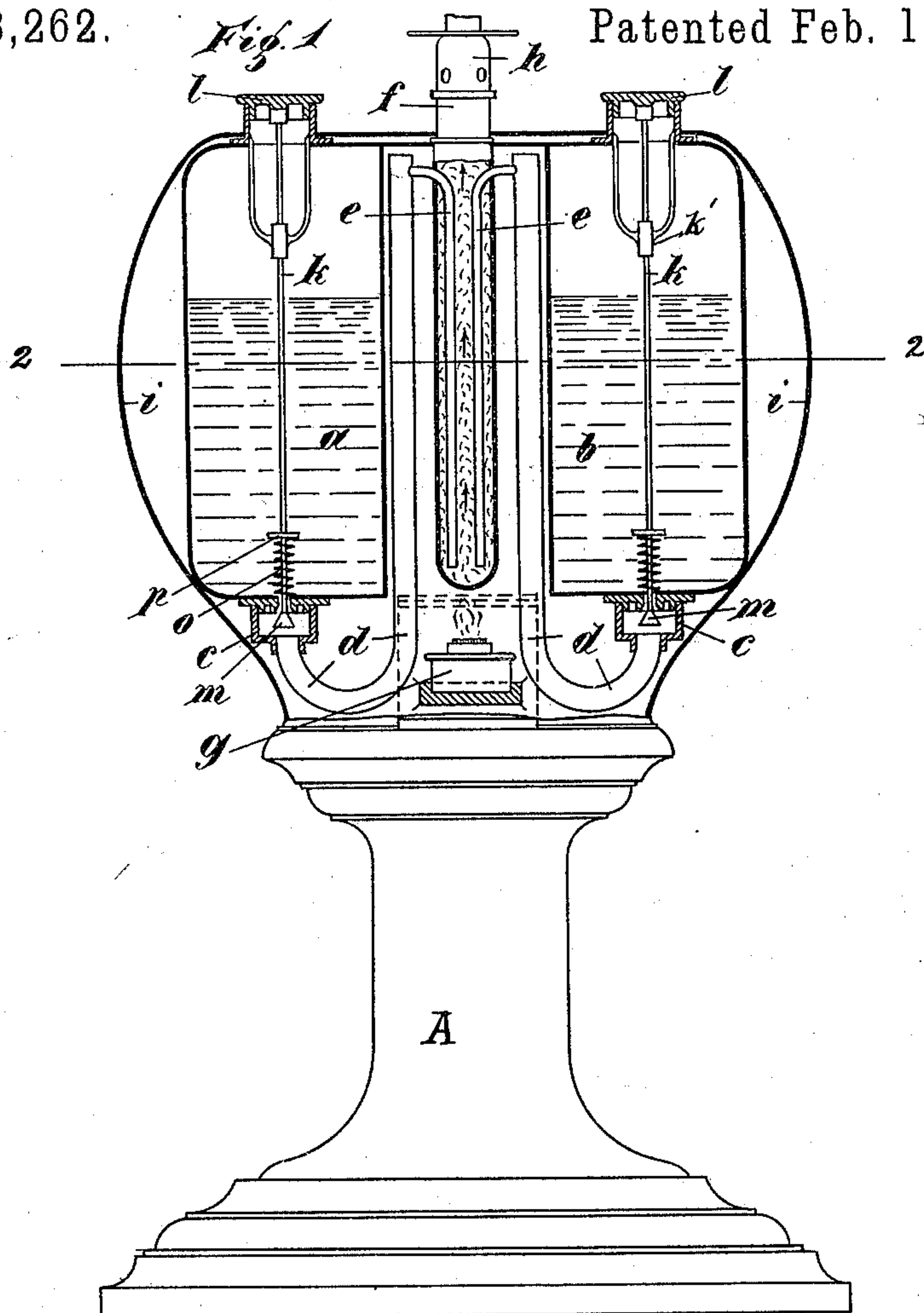


(No Model.)

F. ALTMANN.
APPLIANCE FOR BURNING HYDROCARBON OILS WITH BLUE
OR BUNSEN FLAME.

No. 598,262.

Patented Feb. 1, 1898.



WITNESSES:
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UNITED STATES PATENT OFFICE.

FRITZ ALTMANN, OF BERLIN, GERMANY.

APPLIANCE FOR BURNING HYDROCARBON OILS WITH BLUE OR BUNSEN FLAME.

SPECIFICATION forming part of Letters Patent No. 598,262, dated February 1, 1898.

Application filed November 13, 1896. Serial No. 611,975. (No model.)

To all whom it may concern:

Be it known that I, FRITZ ALTMANN, a citizen of Germany, residing at Berlin, in the Kingdom of Prussia and Empire of Germany, have invented certain new and useful Improvements in Appliances for Burning Hydrocarbon Oils with Blue or Bunsen Flame, of which the following is a specification.

This invention relates to an improved means for burning hydrocarbon oils with a blue or Bunsen flame.

The object of this invention is to accomplish the burning of petroleum and other hydrocarbon oils with a blue flame by mixing a certain percentage of steam with the hydrocarbon vapor and conducting the mixture to the burner at which the flame is produced. By the introduction of the steam a considerable quantity of oxygen is supplied to the flame, so that a perfect combustion of the carbon in the same takes place. The result is a non-smoking hot blue flame, such as is required for incandescent lights. This blue flame is also useful on account of the properties referred to for cooking, heating, soldering, and other applications in the arts.

In the accompanying drawings two different forms of appliances are shown which can be used for carrying out my invention, in which—

Figure 1 represents a vertical central section of one form of the invention arranged in the nature of a lamp. Fig. 2 is a horizontal central section on line 2 2, Fig. 1.

Similar letters of reference indicate corresponding parts.

The appliance consists, essentially, of two semicircular chambers *a* and *b*, which are surrounded by an exterior body or shell *i*, which is made in the nature of a lamp-fount and which is supported on a suitable stand *A*. One of the chambers *a* and *b* is intended for receiving petroleum or other liquid hydrocarbon oil, while the other is intended for receiving water. The chambers *a* and *b* are provided at the bottom with small extension-chambers *c*, which connect with the chambers *a* *b* by small openings, the supply of liquids therethrough being controlled by means of conical valves *m*. The lower ends of the extension-chambers *c* are connected with

tubes *d*, which are located near a small heating-lamp *g*, so that by the heat of the same the liquids in the tubes *d* *d* are vaporized. The hydrocarbon vapors and the steam generated are then conducted by small tubes *e* *e*, which connect with the upper ends of the tubes *d*, into a tubular mixing-retort *f*, the lower end of which is located above the heating-flame of the lamp *g*, while to the upper end the burner *h* is applied. The hydrocarbon vapors are mixed with the steam in the retort *f* and retained at a high temperature by the heating-flame, so that the heated mixture is conducted to the burner when it is required for use.

The supply of hydrocarbon oil and water to the small chambers *c* is regulated by the valves *m*, which are provided with valve-stems *k*, that extend through the bottom openings in the chambers *a* and *b* into a guide-sleeve *k'* at the top of the same and through the top supply-openings of said chambers, the upper ends being acted upon by the screw-caps *l*, by which the supply-openings in the body *i* and the chambers *a* and *b* are closed. The valve-stems *k* are of such length that when the screw-caps are closed the valves *m* are pressed down sufficiently, so that they are opened and the supply of liquids into the chamber *c* takes place. When the screw-caps *l* are unscrewed for the purpose of refilling the chambers *a* and *b*, the valves *m* are automatically closed by the action of helical springs *o*, which are interposed between the bottoms of the chambers *a* and *b* and collars *p* on the valve-stems *k*. The valves *m* are opened when the screw-caps *l* are closed again by pressing the valve-stems *k* in downward direction against the tension of the springs *o*.

It is obvious that the apparatus hereinbefore described for burning hydrocarbon oils with a blue flame can be used not only for the so-called "heavy" hydrocarbon oils, but for light hydrocarbon liquids, provided that simultaneously with the vaporization of the same the water is evaporated and mixed with said vapors and then conducted in a mixture to the burner, where the mixed vapors are burned in a blue flame that can be readily burned in incandescent mantles or used for other purposes in the arts.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

- 5 1. An appliance for burning liquid hydrocarbons with a blue flame, which consists of two separate chambers, one being an oil-chamber and the other a water-chamber, placed in close proximity and constructed to provide a central space between them, a retort located
10 in said space and communicating with said chambers, a burner located above and communicating with the retort, and a subburner arranged under the retort for heating it, substantially as set forth.
- 15 2. An appliance for burning liquid hydrocarbons with a blue flame, which consists of two separate chambers, one being an oil-chamber and the other a water-chamber, said cham-

bers being placed in proximity and constructed to provide a central space between them, 20 tubes extending from the lower portions of said chambers up into the space between them, a retort arranged in said space, additional tubes connected with the upper ends of the aforesaid tubes and extending down 25 into the said retort, a burner located above and connected with the retort, and a subburner arranged under the retort for heating it, substantially as set forth.

In testimony that I claim the foregoing as 30 my invention I have signed my name in presence of two subscribing witnesses.

FRITZ ALTMANN.

Witnesses:

W. HAUPT,

KARL FRANZ, Sr.