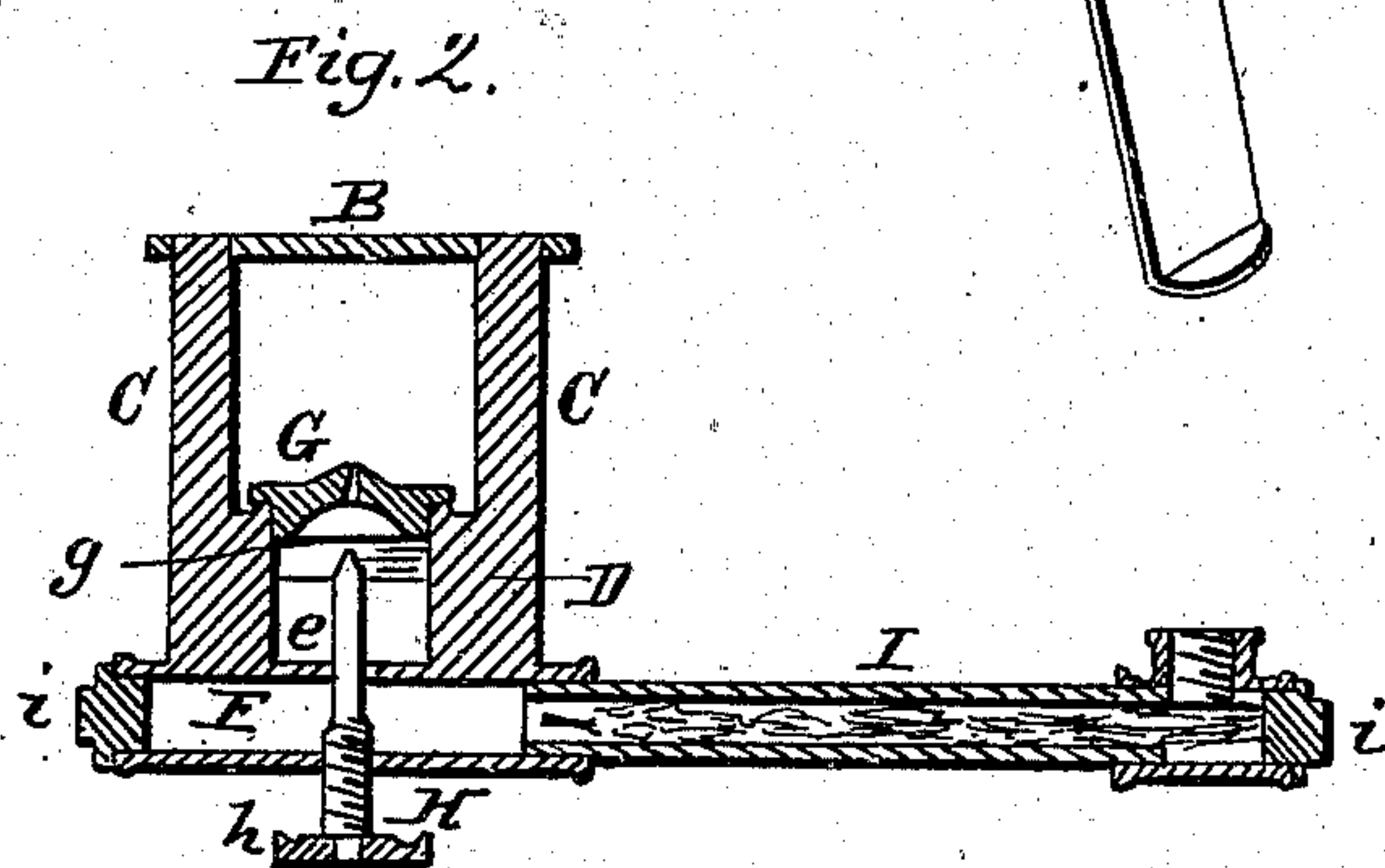
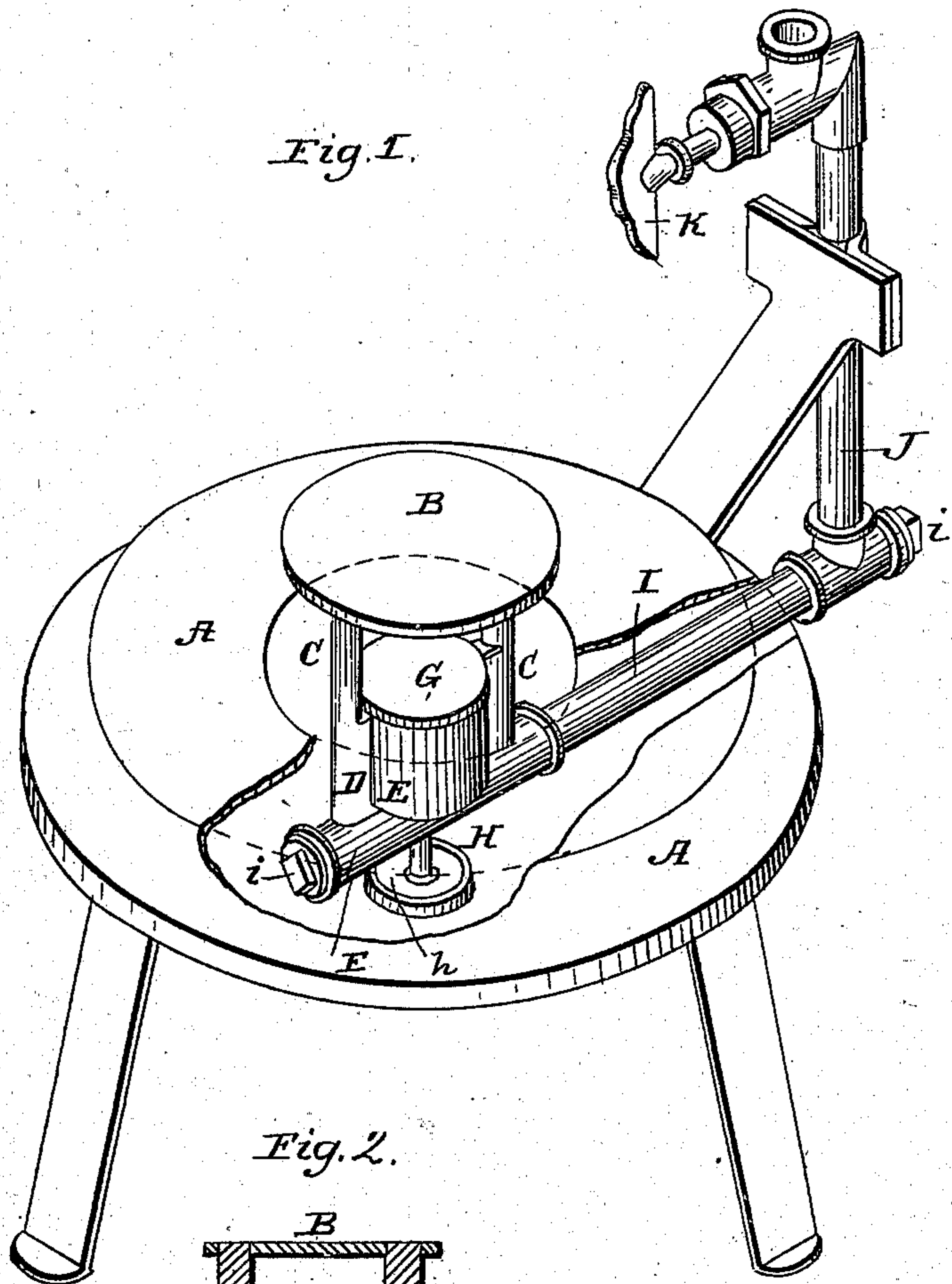


R. R. LEWIS.

Vapor Stove.

No. 43,215.

Patented June 21, 1864.



Witnesses:

John Meigs.  
J. Howard Fell

Inventor:

R. R. Lewis  
By Balaban & Son  
Atty.



# UNITED STATES PATENT OFFICE.

RUSSEL R. LEWIS, OF NEW YORK, N. Y.

## IMPROVEMENT IN VAPOR-STOVES.

Specification forming part of Letters Patent No. 43,215, dated June 21, 1864.

*To all whom it may concern:*

Be it known that I, RUSSEL R. LEWIS, of the city, county, and State of New York, have invented a new and useful Improvement in Vapor-Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a view in perspective of so much of my improved heating apparatus as is necessary to illustrate my invention, a portion of the stand which supports the apparatus being broken away to show the parts more clearly; and Fig. 2 represents a vertical longitudinal central section through a portion of the same.

It is the object of my invention to provide a cheap, simple, and efficient apparatus for adapting the heavier hydrocarbons, such as coal-oil, naphtha, &c., to both heating and cooking purposes; and to this end my improvement consists in combining, with a fluid-duct connected with the reservoir an expansive chamber, a jet, and a heater-cap, in such manner that the vapor shall impinge upon and be distributed on or over the under surface of the cap in a thin stratum, where it can be freely supplied with oxygen, as hereinafter more fully described.

In the accompanying drawings, which exemplify a convenient mode of carrying out the object of my invention, the apparatus is shown as supported upon a stand, A. A disk or heater-cap, B, rests upon two solid standards, C, connected with a block, D, containing an expansion-chamber, E, which communicates with a fluid-chamber, F, beneath it by means of an opening, *e*. A screw-cap, G, closes the expansion-chamber at top. A tapering hole, *g*, is drilled through this cap to form a jet for the escape of the fluid.

A set-screw, H, passes up through the fluid chamber and into the expansion-chamber, being reduced in size where it passes through the hole in the bottom of the expansion-chamber, in order to permit the vapor to pass up from the fluid-chamber. This screw likewise has a tapering point to fit into the opening of the jet *g* in order to regulate the escape of the vapor or to shut it off altogether.

A wick-tube, I, connects the fluid-chamber F with a tube, J, leading to a reservoir situated at any convenient point above the level of the burner. The wick-tube is filled with cotton or other suitable wick, in order to regulate the flow of the fluid and prevent its oscillation in the chamber.

A stop-cock, K, serves to shut off or regulate the flow of the fluid from the reservoir.

Screw-plugs *i* are inserted in the ends of the wick-tube and fluid-chamber in such manner that they can be readily removed when the pipes require cleansing.

The operation of my improved apparatus is as follows: The stop cock K is turned so as to permit the fluid to flow through the wick-tube into the fluid-chamber F. The head of the screw H has a shallow depression or channel, *h*, in its upper surface, into which a little alcohol or burning-fluid is poured and ignited. The combustion of this fluid warms the chamber F enough to vaporize the fluid which passes up through the opening *e* into the expansion-chamber E, which may be filled with emery or other granulated refractory material. It then escapes through the jet *g* and impinges against the under surface of the heater B, over which it is diffused in a thin sheet where it can mix freely with air, and where it is ignited. The heater-cap soon becomes hot, and communicates its caloric through the standards C to the fluid and expansion chambers, especially to the latter, by which means the vaporization is constantly maintained. After the parts become sufficiently warmed, the expansive force is very great, and the vapor is expelled through the jet with the force of a compound blow-pipe.

The flow of the fluid is regulated by the stop-cock K, while that of the vapor is controlled by the screw H, so that the apparatus is under perfect control.

The article to be cooked or heated may of course be arranged around the heater in any suitable manner.

It is obvious that by this device I can attain a high degree of heat with a small expenditure of fluid, and that the amount of caloric evolved can be regulated with great precision.

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

1. The combination of the set-screw H with the fluid and expansion chambers, substantially as described, for the purpose of forming a heater-cap of the screw-head, as set forth.

2. The combination of a heater-cap, the standards, an expansion-chamber, a fluid-

chamber, an adjusting-screw, and a wick-tube, substantially in the manner and for the purpose described.

In testimony whereof I have hereunto subscribed my name.

RUSSEL R. LEWIS.

Witnesses:

W. E. SLOCUM,

FREDK. B. SWIFT.