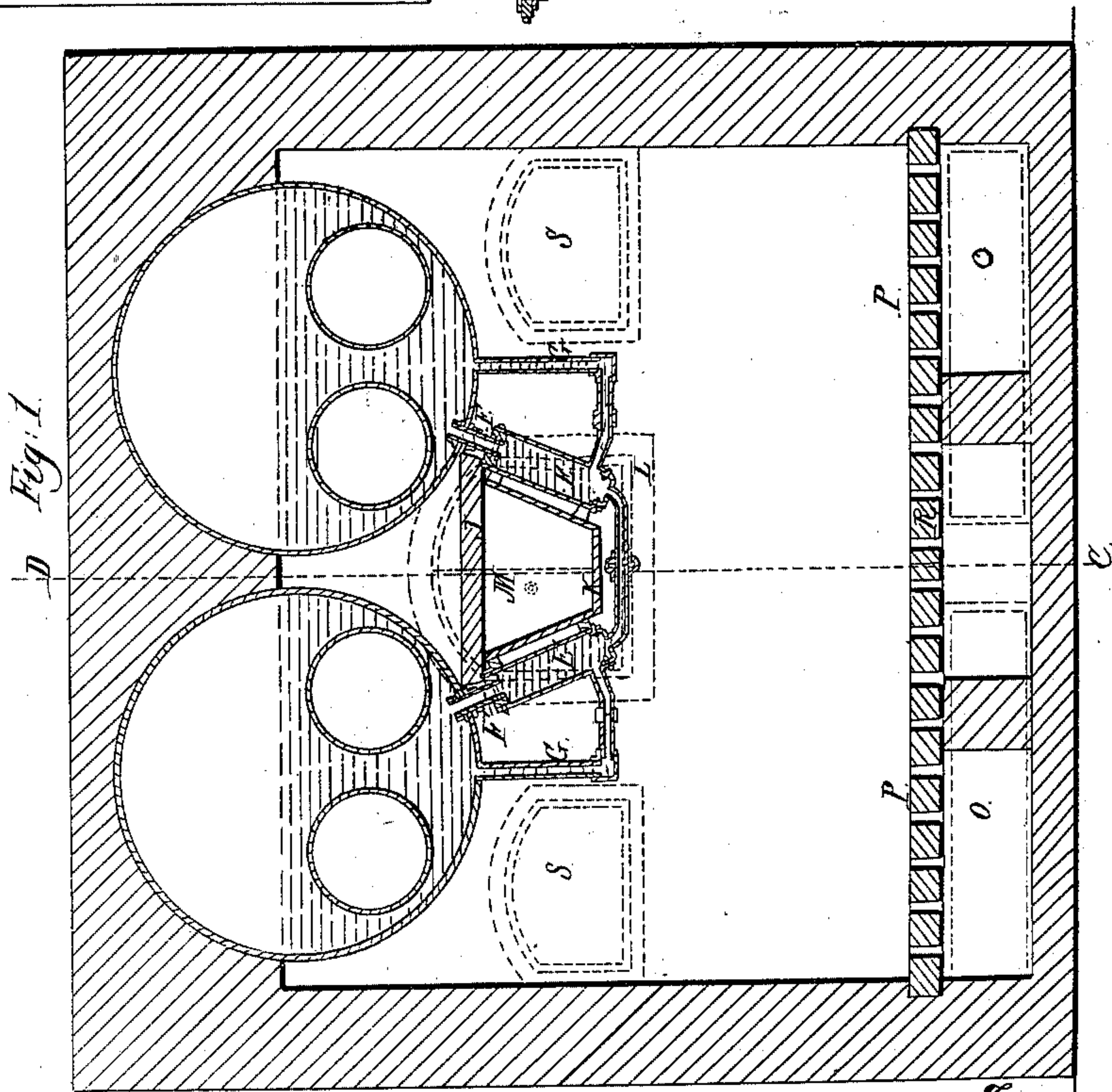
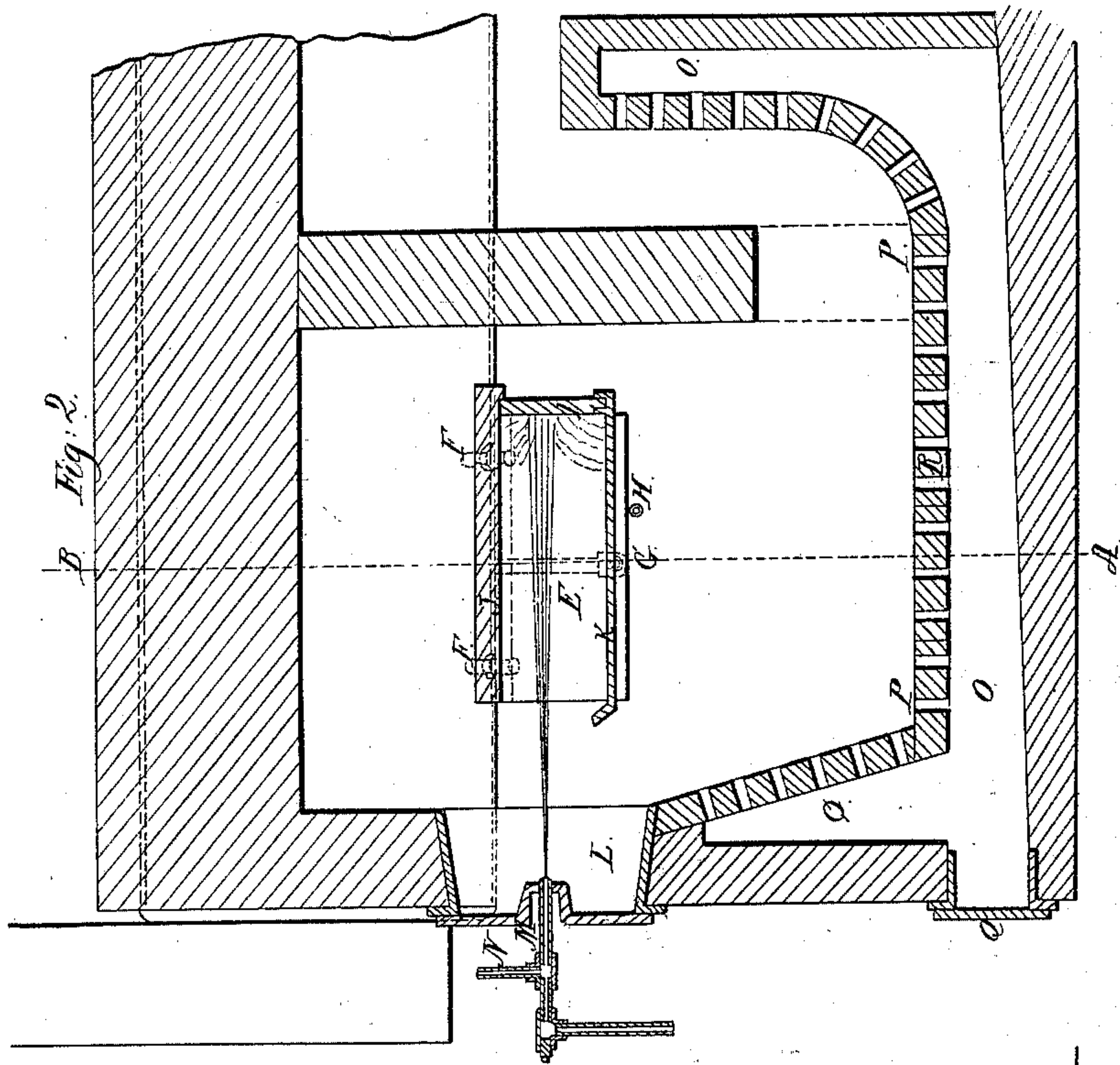


*F. Cook;*

*Burning Hydrocarbon.*

*N<sup>o</sup> 68,703.*

*Patented Sep. 10, 1867.*



*Witnesses:*

*J. A. Bissett*

*Edw. F. Brown*

*Inventor*

*F. Cook*



# United States Patent Office.

FREDERIC COOK, OF NEW YORK, N. Y.

*Letters Patent No. 68,703, dated September 10, 1867.*

## IMPROVEMENT IN VAPORIZING AND BURNING LIQUID HYDROCARBONS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, FREDERIC COOK, of the city, county, and State of New York, have invented certain new and useful Improvements in Vaporizing and Burning Liquid Hydrocarbons; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing.

Figure 1 represents a cross-section through line A B, fig. 2.

Figure 2, a longitudinal section through line C D, fig. 1.

Similar letters of reference indicate like parts in both figures.

The nature of my invention consists in making a retort or combustion-chamber for vaporizing and burning inflammable oils, a part of which is composed of suitably-shaped water-legs attached to a steam-boiler, while the bottom of the retort or chamber is made of iron, or other suitable material, and exposed to the direct heat of the furnace, so as to vaporize and decompose the hydrocarbon; therefore the retort or vaporizing chamber is in part a portion of the boiler, and the bottom, which is easily renewed, arranged to be highly heated as a vaporizing and decomposing surface.

The drawing shows the application of my improved vaporizer to a pair of double-flued boilers. E E are water-legs connected to the boilers by the pipes F F, secured by nuts and washers, or other suitable means. G G are water-connections from the bottom of the boilers to insure a circulation of water, and H is a water-connection between the water-legs. I is a fire-tile end, and J is a fire-tile cover, forming the top of the vaporizing chamber and protecting the boilers from the heat. K is a pan, of metal, that slides in or out from the end next the furnace-door L, and on which the hydrocarbon falls from the pipe M, through which it is forced by a force-pump, or other suitable means. N is a water pipe connected to the force-pump of boiler to admit a little water to mix with the oil as it passes to supply steam vapor inside the furnace. O is an air-box or chamber, built in the masonry, to admit air to the furnace through it and the perforations P, and Q is a draught-door. R is a fire-tile perforated hearth, which answers the double purpose of distributing air and to make a fire on to get up steam. As soon as steam is raised the oil can be injected and the oil fire started. The suspended vaporizer K may also be supported by pipes attached to the bottom of the boilers, passing under it, similar to G G, if G G were connected together and the water-legs left out. S S are fire-doors for firing up with wood or coal to raise steam. The vaporizer is placed in the upper part of the furnace for the purpose of allowing room in the lower part to get up steam with wood or coal, or to run the boiler with this fuel in case of any accident to the oil supply.

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

1. A retort or vaporizing chamber for oil-burning furnaces, the upright portions of which are made of water-legs or pipes communicating with the boiler, and the bottom of iron, fire-clay, or other suitable material, as a vaporizing surface, substantially as shown and described.

2. In an apparatus for vaporizing and burning hydrocarbon liquids, I claim a retort or chamber having a removable bottom-plate, as set forth.

3. The retort or vaporizing chamber suspended from the boilers, substantially in the manner specified and shown.

FREDERIC COOK.

Witnesses:

J. A. BASSETT,  
EDM. E. BROWN.