

(No Model.)

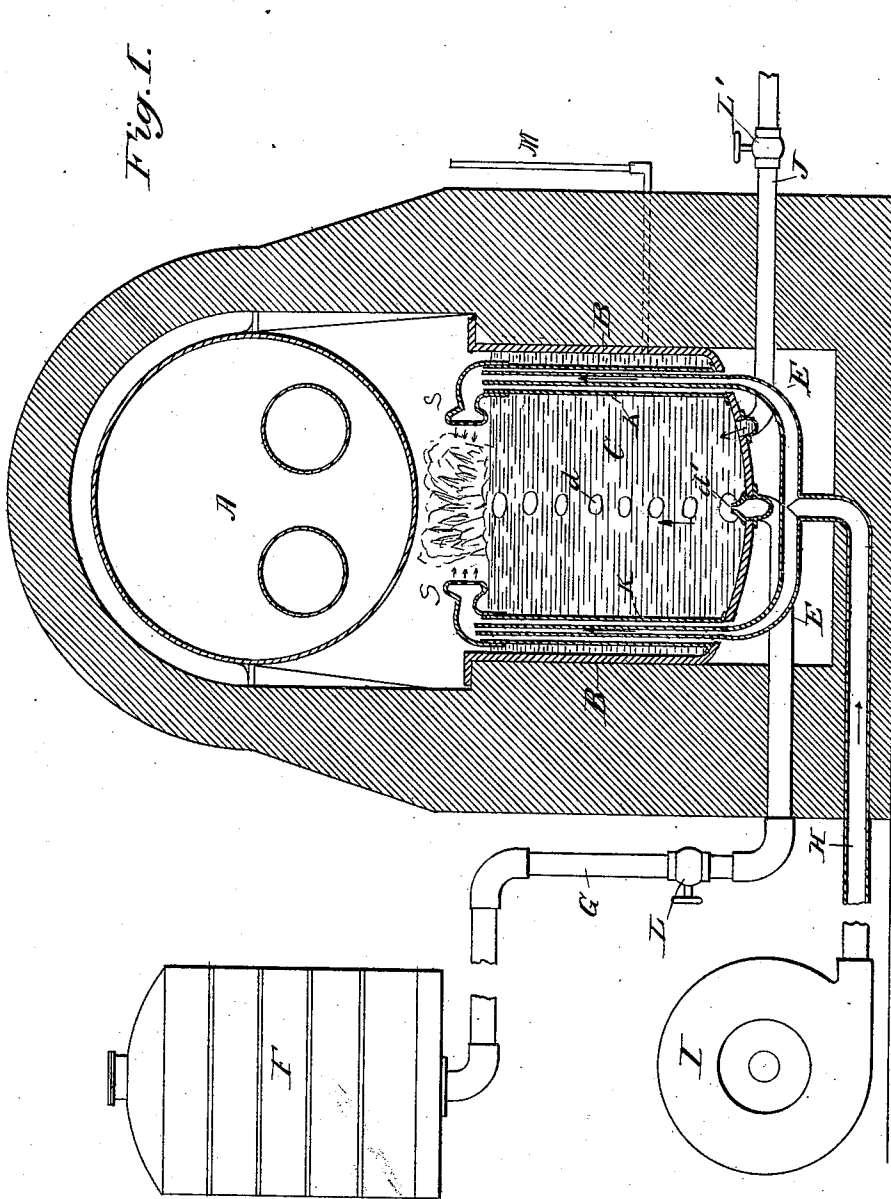
2 Sheets—Sheet 1.

D. MOORE.

WATER BASE OIL BURNER.

No. 370,883.

Patented Oct. 4, 1887.



Attest:

Attest:
Frank S. Moore,

Inventor:
Daniel Moore

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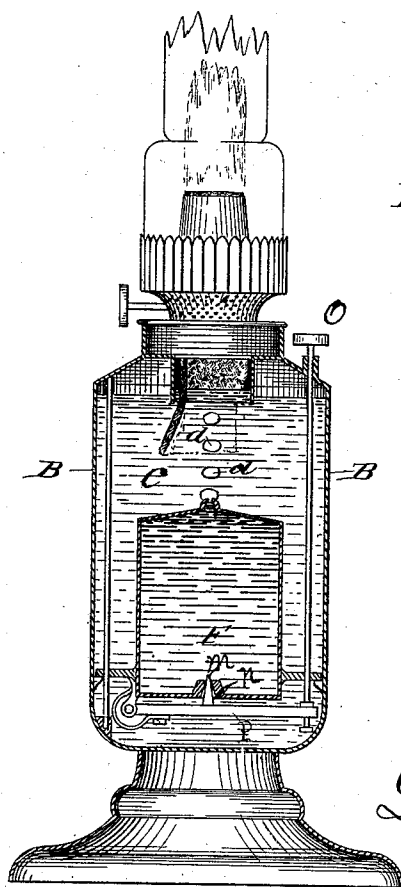
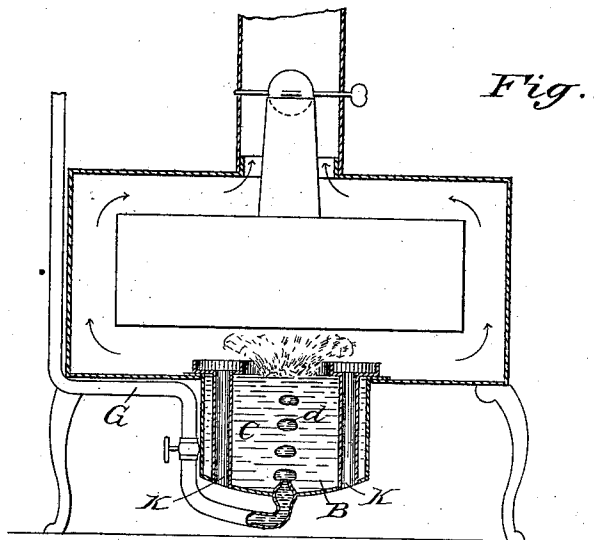
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No. 370,883.

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Attest:

Andrew H. Steiger,
Frank S. Moore

Inventor:

Daniel Moore

UNITED STATES PATENT OFFICE.

DANIEL MOORE, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO
WILLIAM HAAKER, OF MONTCLAIR, NEW JERSEY.

WATER-BASE OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 370,883, dated October 4, 1887.

Application filed February 1, 1887. Serial No. 226,183. (No model.)

To all whom it may concern:

Be it known that I, DANIEL MOORE, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improvement for the Burning of Petroleum or other Like Substances on the Surface of Water, and the following is a description of the invention, that will enable others skilled in the art to which it appertains to make and
10 use my invention, reference being had to the drawings accompanying this specification and forming a part thereof.

My invention relates to the burning of petroleum or other inflammable substances having a less specific gravity than water on or
15 above the surface of water contained in a reservoir, and may be used in heating or lighting, as in a boiler, stove, or lamp, or in other places of combustion.

20 The object of the invention is to operate a method and produce a device which will be safe, economical, and convenient.

The invention consists in a method of feeding the combustible fluid through the water
25 to the place of consumption; also, in certain mechanisms hereinafter pointed out in the claims.

In the drawings, Figure 1 illustrates a vertical section of a steam-boiler and a section of
30 apparatus for supplying oil or other light combustible fluid under the boiler, and for maintaining the combustion of the same. Fig. 2 is a vertical section of a device for applying my improvement to heating-stoves, and Fig.
35 3 is a sectional view of a lamp provided with appropriate construction for using my device.

A denotes a steam-boiler. Under the boiler or other object to be heated there is a reservoir, B, which contains a quantity of water,
40 indicated by the letter C. A pipe, G, conveys oil or similar combustible fluid of less specific gravity than water to a point below the surface of the water. This pipe may be of any length, leading from a suitable reservoir, F.
45 In Fig. 3 the pipe is a mere nozzle.

It is essential that the delivery end of the pipe be of reduced diameter and of such form and size as to permit the escaping fluid to
50 pass upward into the water in drops or globules. These globules attach themselves to the

mouth of the pipe until the lifting power of the water (due to superior gravity) detaches a globule, when that globule rises to the surface of the water. This is done successively, and the operation is readily seen when the
55 vessel containing the water is made of transparent material. The oil is ignited when it rises above the water, and the globules rise fast enough to maintain combustion.

In Fig. 1 I show a pair of nozzles, S S, facing the position of the oil while undergoing
60 combustion. These nozzles are supplied with air through pipes E E, which are branches of pipe H, leading from fan-blower I, or from other suitable source of air-supply—as a reservoir of compressed air.

The water-supply in chamber B may be replenished through pipe J, controlled by a cock, as L. The oil-supply in pipe G is also controlled by a suitable cock or valve, as L.
70

In Fig. 2 the air-supply to the place of combustion is through pipes E; but for stoves, &c., a forced draft is not necessary, and the blower-connection to pipes E is not required.

In Fig. 3 the reservoir F for the oil is inside
75 the water-reservoir B, and the oil is fed out by admitting water to the bottom of said reservoir through aperture N, which is controlled by stopper M, attached to a lever operated by rod O. The oil-supply pipe (here
80 shortened to a mere nozzle) has its delivery-orifice of such size and shape as to deliver the oil only in drops or globules.

A wick of porous material extends from near the surface of the water to the point of
85 combustion. This wick receives rising globules and conveys them by absorption to the place of combustion.

A long series of experiments and practical tests demonstrates that the process of feeding
90 the oil by globules through water insures absolute immunity from explosions; also, that there is a great economy as compared with any other form of feeding with which I am familiar; also, that the feed can be arranged
95 with great uniformity, as the number of globules per minute of a given liquid which will pass through an orifice of a given size can be readily determined.

I am aware that it is common to feed oil in 100

a pipe to the bottom of a column of water and to permit it to stream to the surface, where it is burned; also, that there are means for regulating the supply of oil to such pipes; but, so far as I am aware, the method of feeding by globules has not been practiced, nor has the delivery-orifice of the oil-supply pipe ever been constructed with this object in view prior to my invention.

The gist of my invention lies in the fact that at no time is there a continuous flow of oil from the oil-supply reservoir to the place of combustion, there being always an interposed body of water between the globules.

I claim—

1. The method of burning a fluid of less specific gravity than water at a point above the water, which consists in conveying the combustible fluid below the surface of the water, there dividing it into globules which rise separately through the water, there receiving the globules in an absorbent material in which it is ignited and burned, as set forth.

2. A receptacle for oil or other combustible fluid, as described, a nozzle connected with such receptacle and opening below the surface of a body of water in a reservoir, said nozzle

of such size as to pass the oil in globules only, and mechanism for controlling the oil-supply, all in combination, as set forth.

3. A water-reservoir, an oil-supply reservoir having a delivery-orifice in the water and below the surface thereof, said orifice of such size as to deliver the oil in globules only, and air-supply pipes leading upward through the water-reservoir and opening toward the point of combustion, all combined and relatively arranged substantially as described.

4. The combination of a water-containing reservoir, an oil-supply reservoir having a delivery-orifice below the surface of the water of such size as to deliver the oil in globules only, and an absorbent material above the oil-delivery orifice to receive the oil-globules and convey them to the point of combustion, as set forth.

Signed at Brooklyn, in the county of Kings and State of New York, this 7th day of May, A. D. 1885.

DANIEL MOORE.

Witnesses:

ANDREW W. STEIZER,
FRANK S. MOORE.