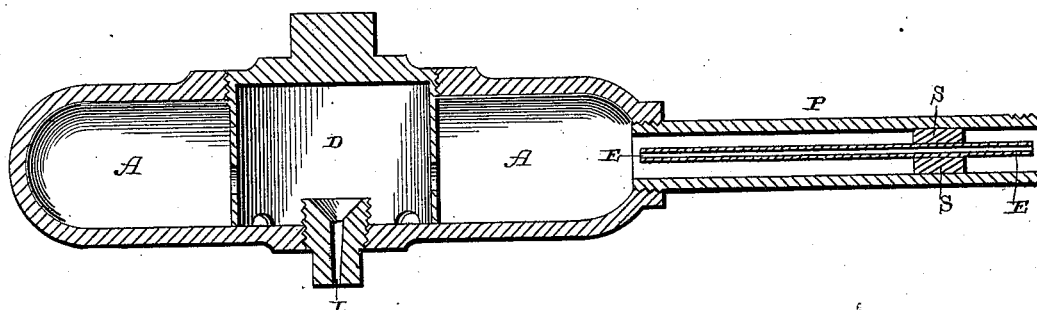


(No Model.)

E. RALPH.
OIL VAPORIZER AND BURNER.

No. 421,760.

Patented Feb. 18, 1890.



Witnesses:

E. P. Ellis,
L. L. Burket.

Inventor:

Ephraim Ralph
per
J. A. Lehmann,
att'y.

UNITED STATES PATENT OFFICE.

EPHRAIM RALPH, OF DULUTH, MINNESOTA.

OIL VAPORIZER AND BURNER.

SPECIFICATION forming part of Letters Patent No. 421,760, dated February 18, 1890.

Application filed March 8, 1889. Serial No. 302,492. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM RALPH, of Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Oil Vaporizers and Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to an improvement in oil vaporizers and burners; and it consists in the combination of a retort or chamber in which the crude petroleum, oil, gasoline, or benzine is converted into gas, an inside chamber or dry-gas cylinder which is placed in the center of the retort or chamber, an opening extending from the bottom of this inside chamber, a supply-pipe, and a feed-regulator and safety supply-tube, which is placed inside of the supply-pipe, as will be more fully described hereinafter.

The object of my invention is to provide a burner by means of which any of the hydrocarbon fluids can be converted into gas, so as to be used for heating stoves, furnaces, or boilers.

The accompanying drawing represents a vertical section of a burner which embodies my invention.

A represents a shell, chamber, or retort, which is preferably of a flat oval shape, and which will be of any desired size. Screwed into one side of this retort is a supply-pipe P, of any suitable size, and placed in this pipe P is a plug S, and passing through this plug is the feed-regulator and safety supply-tube E. This tube is of very small diameter and of such a length that flame cannot possibly pass through it and thus communicate fire to the reservoir or source of supply. When the hydrocarbon passes through this small tube E into the heated retort, the hydrocarbon is converted into a gas, and the pressure of this gas against the end of the tube E has a tendency to force back the supply of hydrocarbon; but by making the tube very

small the pressure of the gas upon the supply is reduced to a minimum and all pulsation of the fluid in the reservoir and supply-pipe is prevented. At the same time that the pipe is reduced in size, so as to overcome the pressure of the gas in the retort, the size of the pipe renders it impossible, as above stated, for flame to pass through it to the reservoir.

Through the top of the retort A is made a suitable screw-threaded opening, and passed down through this opening is a dry-gas cylinder D, of any suitable size or shape, and which has small perforations made through its sides, as shown, so that the gas which is generated in the retort can pass into this cylinder and through the small opening I at the center of the bottom of the retort. Gas is generated in the retort and passes into the inside cylinder, which serves as a division between the incomplete gas in the retort, because the cylinder prevents the dry and complete gas from coming in contact with the hydrocarbon which is being constantly injected into the retort. The consequence is that the gas passes freely through the opening I, and, striking against some object—such as a brick, block, or pan—placed at a suitable distance below it, the flame expands in all directions up and around the retort, heating both the retort and the feed-pipe P. The more intense the heat the more rapidly the hydrocarbon is converted into gas in the retort and the more perfect the combustion. The feed of the hydrocarbon to the retort is regulated by a stop-cock in the supply-pipe.

A burner constructed as here shown and described is equally well adapted for use in generating steam in stoves and fire-places and wherever heat is necessary. As the burner consists of only the retort, the inside cylinder, the supply-pipe, the safety-tube, and plug, it will be seen that a very cheap, simple, and easily-operated burner is produced.

Having thus described my invention, I claim—

The combination, with the oil-supply pipe, an oil-vaporizing retort provided with an out-

let for the vapor, a supply-opening, and an
opening in its top, of a cylinder extending
through said top opening, having its upper
end closed, its lower open end resting upon
5 the bottom of the retort and provided with
openings in its side, said cylinder inclosing
the vapor-outlet, substantially as described.

In testimony whereof I affix my signature in
presence of two witnesses.

EPHRAIM RALPH.

Witnesses:

ISAAC E. WEST,
HENRY H. COSSITT.