

(No Model.)

H. T. YARYAN.
HYDROCARBON BURNER.

No. 262,170.

Patented Aug. 1, 1882.

Fig. 1.

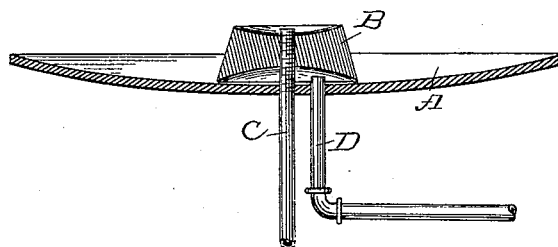


Fig. 2.

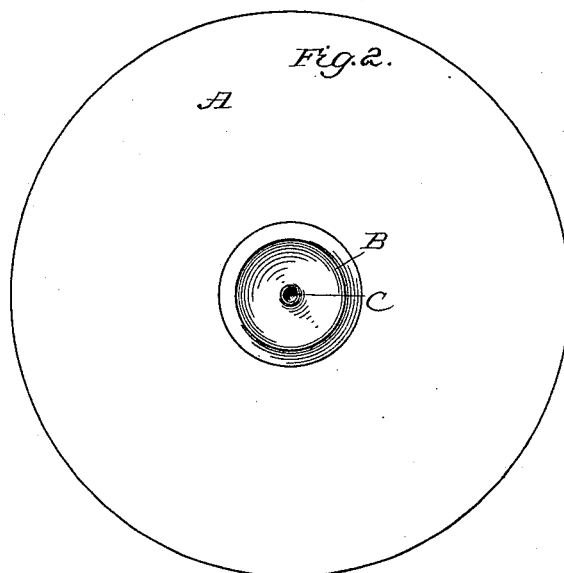
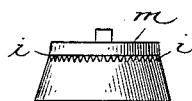


Fig. 3.



Attest:
© *Walter Donaldson*
J. L. Middleton

Inventor
Homer T. Yaryan
by
Wesley Spear
Atty

UNITED STATES PATENT OFFICE.

HOMER T. YARYAN, OF TOLEDO, OHIO, ASSIGNOR TO HIMSELF AND
EDWARD E. DWIGHT, OF SAME PLACE.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 262,170, dated August 1, 1882.

Application filed April 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, HOMER T. YARYAN, of Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Hydrocarbon-Burners; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved burner for liquid hydrocarbons.

The invention relates more particularly to the burning of petroleum or other liquid hydrocarbons in ordinary furnaces under boilers, whether stationary or in locomotives.

The object of the invention is to secure the complete combustion of the liquid fuel in the most economical manner and without injury to the boiler.

In the accompanying drawings, Figure 1 represents a vertical section of the apparatus; Fig. 2, a plan view, and Fig. 3 a side elevation, of a modification.

In these drawings, A represents a concave circular disk cast so as to form a true bearing for the cap B when the same is screwed down upon it. The said cap B is circular in form and made concave both on its upper and lower sides. It is screwed upon a pipe, C, which passes up through the center of the disk A. The cap B is adjusted upon the pipe C, so as to leave about one-sixty-fourth of an inch between the lower edge of the said cap and the upper surface of the disk A.

The apparatus described is set within the furnace, and the pipe C connected to any suitable reservoir of oil. The pipe D is connected with the steam-dome of the boiler, and should be provided with a valve to regulate the supply of steam.

In order to start the burner, a fire is built under the boiler with wood or coal until steam begins to be generated. Oil is then turned on, which, passing upward through the pipe C, overflows the cap B and passes down on the outside thereof. Steam being turned on, it escapes in a sheet through the narrow opening between the cap and the disk A entirely around the cap, and this sprays the oil as fast as it overflows. The concave shape of the disk prevents the blaze from striking the sides of the furnace, and gives it an upward circu-

lar motion, which fills the fire-box with blaze without impinging upon any particular part of the boiler.

The apparatus can be so nicely adjusted and the steam and oil so exactly proportioned that perfect combustion is obtained, which is indicated by the non-luminous blaze and the absence of smoke.

In large furnaces it may be necessary to have two or more burners in one furnace.

When using this apparatus to heat a locomotive-boiler I find it necessary to provide some means for preventing the unequal flow of the oil over the sides of the cap, occasioned by the motion of the locomotive. This can be done in various ways; but I find it most effective to use the form of apparatus shown in Fig. 3. This consists of a cap having fine notches *i i* around its upper edge, and a cover, *m*, fitted down closely to the notched edge, so as to compel the oil to flow through the openings. This prevents an unequal overflow over the edge of the cap.

Having thus described my invention, what I claim is—

1. A burner for liquid hydrocarbons, consisting of the concave plate A, the oil-pipe C, steam-pipe D, and cap B, the parts being combined and adapted to operate substantially as described.

2. The combination of the concave disk A, cap B, and the oil and steam pipes, the cap B being notched on its upper edge and provided with a cover, *m*, substantially as described.

3. A burner for liquid hydrocarbons, consisting of an overflow-cap, an oil-supply pipe and deflecting-plate, and a pipe for supplying a blast between the overflow-cap and the deflecting-plate, substantially as described.

4. In a hydrocarbon-burner, the concave-convex deflecting-plate A, in combination with oil-supplying devices and a blast, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HOMER T. YARYAN.

Witnesses:

MILTON TAYLOR,
A. B. BROWNLEE.