

(No Model.)

J. DARBY.
HYDROCARBON BURNER.

No. 499,720.

Patented June 20, 1893.

Fig. 3.

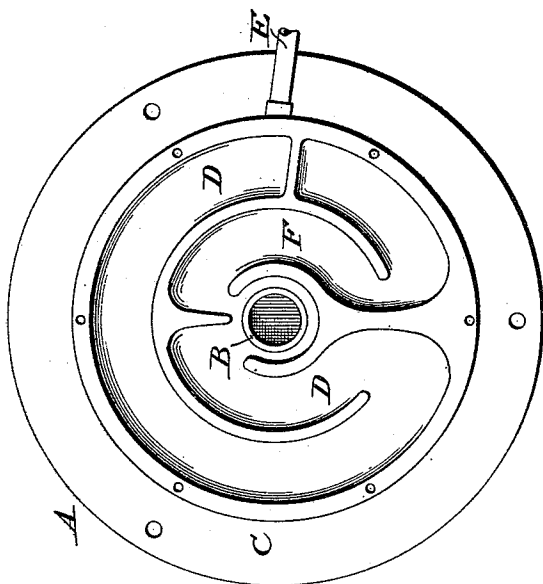


Fig. 4.

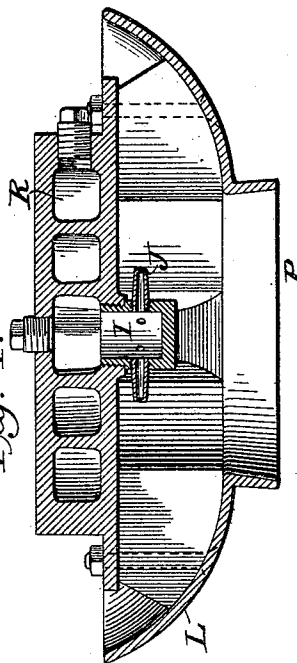


Fig. 1.

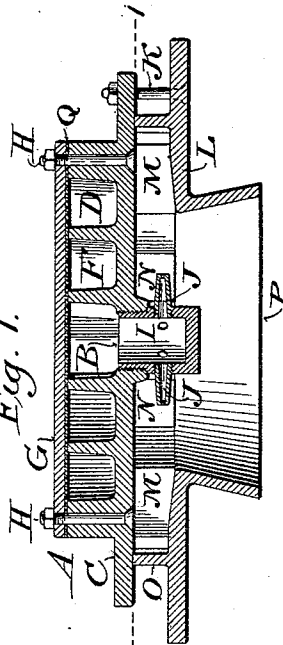
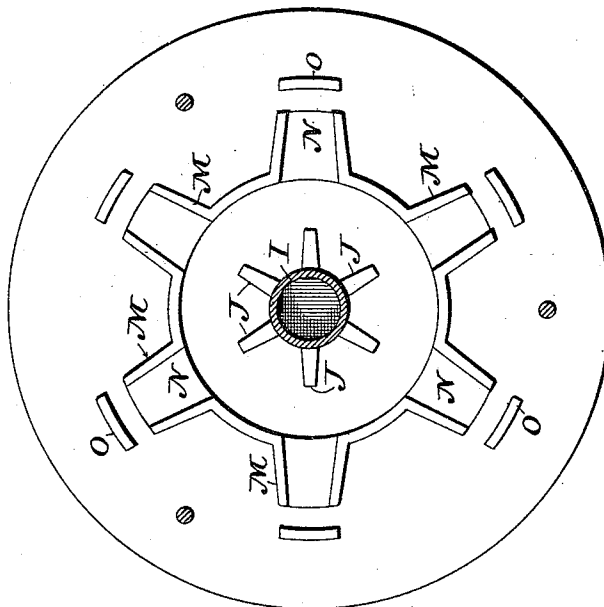


Fig. 2.



Witnesses

James F. Duhamel.
Horace A. Dodge.

JOSEPH DARBY,
Inventor,

by *Dodges & Sons,*
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH DARBY, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-FOURTH TO
ELIJAH F. DARBY, OF SAME PLACE.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 499,720, dated June 20, 1893.

Application filed November 8, 1892. Serial No. 451,337. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DARBY, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to hydrocarbon burners, and consists of the various details herein-after set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional view of my improved burner; Fig. 2, a horizontal cross section on the line 1—1 of Fig. 1; Fig. 3, a top plan view with the cap-plate removed; Fig. 4, a sectional view showing a modified form of construction.

A indicates the main retort, which will advantageously be formed of a single casting provided at its center with a central threaded opening B, and further with a laterally extending flange C, as shown in Figs. 1 and 3. The retort is formed with a passage D into which the oil flows through the pipe E,—and also with an overflow or excess chamber F which takes up any unusual pressure of the oil and prevents the same from being forced through the burner too rapidly, thus securing an even and steady flow of the oil. The bottom of the oil passage and the overflow chamber will advantageously be formed slightly curved or rounded, so that the oil will more readily flow therefrom and deposition of carbon be prevented. The webs or dividing walls which form the passage D and overflow chamber E extend upward to the same height as the outer wall of the retort proper and to the upper face of these I secure a cap-plate G, by means of bolts H which pass through the outer wall of the retort. However, before placing the cap-plate in position, I place on the under side of said plate, a disk Q, of asbestos, and as the bolts are tightened up the upper edges of the walls are firmly embedded into this asbestos disk.

I indicates the lower retort or burner which is screwed into the opening B and is provided with a series of tips J, J, each of said tips being formed with a small opening in its end.

Secured to the under side of the retort A, by means of bolts K is a base-plate L, provided

with a series of dividing walls M, M, that extend up to the under face of the retort A and form a number of chambers or ways N equal in number to the tips J, J, which are opposite them. The walls M, M, are so arranged that the chambers which they form are wedge-shaped, the larger ends being near the tips J, J, while at the outer or smaller ends and a short distance therefrom, there is placed a series of retarders or abutments O, O.

P indicates a funnel-shaped opening formed in the base-plate L and through which air is furnished to the burner.

The operation of my burner is as follows: Oil having been admitted in the passage D through the pipe E, it finds its way through the lower retort or burner to the tips J, J, where it is ignited. The combustion will, in a short space of time, so heat the retort as to vaporize, or nearly so, the oil as it passes through the passage D. Air passing through the opening P, intermingles with the oil or gas jets as they issue from the tips J, J, and the mixture is burned in the chambers N,—the chambers presenting a hot surface to the air and gas, thus keeping the mixture in a heated state, and also preventing the mixture of too much air with the oil or gas. To insure complete combustion, the abutments or retarders O, O, are provided, against which any excess of gas is thrown and consumed.

In Fig. 4, I have shown a modified form of the upper retort and base-plate.

Instead of providing the retort A with the oil passage and the overflow or excess chamber, I simply cast it in one piece, coring out a spiral oil passage R. The base-plate L is, in this instance, curved so that the plate itself forms abutments against which the excess of gas is thrown and consumed.

Having thus described my invention, what I claim is—

1. In a hydrocarbon burner, the combination of an upper retort provided with an oil inlet,—a second retort connected therewith and provided with a series of horizontal burner tips, a series of substantially horizontal chambers or ways in line with said tips and into which they discharge, and an air inlet or opening common to all the burner tips.

2. In a hydrocarbon burner, the combination of an upper retort provided with oil inlet and passage, a second retort below and connected therewith and provided with a series
5 of tips, a series of chambers or ways in line with said tips and below the upper retort and a series of retarders or abutments at the outer ends of said ways.

3. In combination with retort A provided
10 with an oil inlet and passage and an excess or overflow chamber, retort I provided with

burner tips J, secured thereto, and a base-plate L also secured to the retort A, and provided with walls M, M, and retarders or abutments O, O.

In witness whereof I hereunto set my hand
in the presence of two witnesses.

JOSEPH DARBY.

Witnesses:

D. Z. GARDNER,
C. S. OLINGER.