(No Model.)

J. E. PATTERSON & A. NOTEMAN.

HYDROCARBON BURNER.

No. 384,067. Patented June 5, 1888.

Fig. 1.

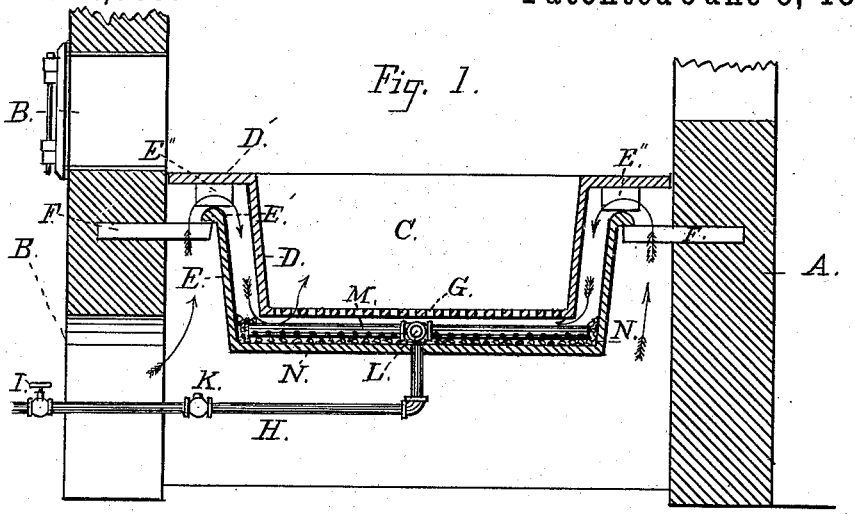
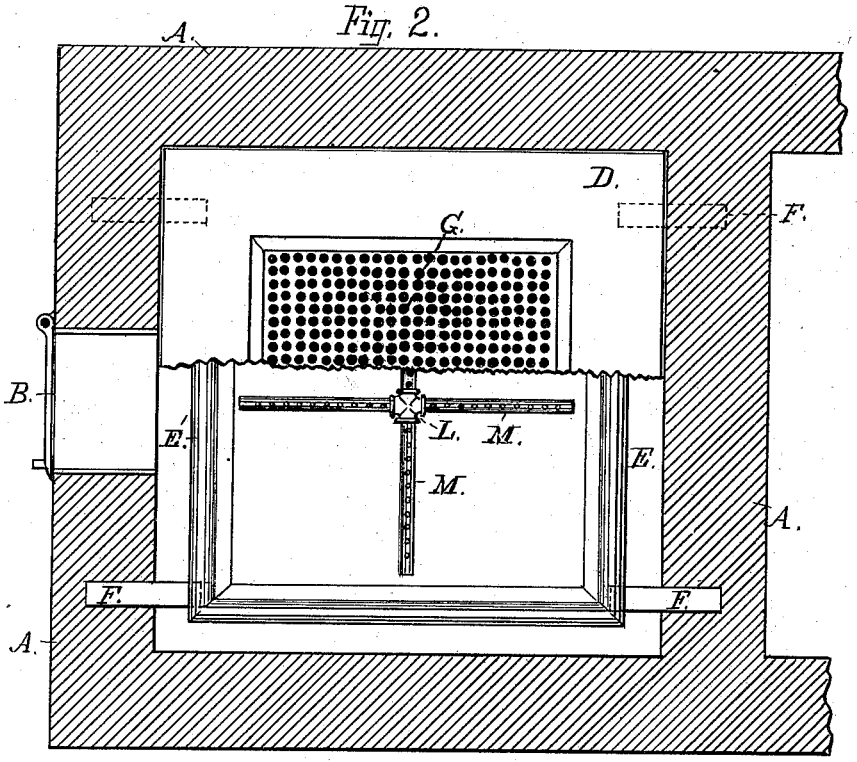


Fig. 2.



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UNITED STATES PATENT OFFICE.

JESSE EARLAND PATTERSON AND ALONZO NOTEMAN, OF TOLEDO, OHIO, ASSIGNORS OF ONE-THIRD TO WALTER C. LLOYD AND GEORGE F. WORTS, BOTH OF SAME PLACE.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 384,067, dated June 5, 1888.

Application filed May 16, 1887. Serial No. 238,414. (No model.)

To all whom it may concern:

Be it known that we, JESSE EARLAND PATTERSON and ALONZO NOTEMAN, citizens of the United States, and residents of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Hydrocarbon-Burners; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

Our invention relates to a hydrocarbon-burner, and has for its object to so perfectly vaporize the oil fed thereto and at the same time supply the necessary amount of air to oxygenize the entire product that a perfect combustion shall result. We attain these results by the mechanism illustrated in the drawings, in which—

Figure 1 is a sectional elevation of a sufficient portion of the fire-box of the furnace to illustrate the preferred mode of attaching our combustion-chamber therein, the combustion-chamber being also shown in cross-section to better show the induction-pipe and its connections. Fig. 2 is a plan view with part of the upper portion broken away to show the interior arrangement of the combustion-chamber.

Like letters of reference indicate like parts throughout the several views.

A represents the furnace-walls; B, the upper and lower doors thereof; C, the combustion-chamber, composed of an upper and a lower pan, D and E, respectively.

E is the lower or fuel pan, being preferably square in horizontal cross-section and having slightly-inclined sides, the upper portion of which extends horizontally to form flanges E′, adapted to rest upon brackets or hangers F, attached to the furnace-wall. The upper pan, D, is of the same general shape, but smaller, thereby adapting it to rest within the fuel-pan and allow the space between the sides and bottoms of the two pans, and is suspended therein by means of flanges D′, formed upon the sides, of a width corresponding to the interior of the fire-box, said flanges resting upon lugs E″, (either separate or formed integral therewith,) the lugs resting upon flanges E′ of pan E. The bottom portion or diaphragm of pan D is perforated, as shown at G, for a purpose hereinafter stated.

H is the induction-pipe, leading from any preferred source of supply to the combustion-chamber, and is provided with a cock, I, whereby the supply of oil may be controlled, and also a check-valve, K, intermediate cock, I, and the fuel-pan, whereby when the supply of oil ceases, from any cause whatever, the valve K is closed, thereby obviating all danger of the fire communicating through the pipe to the reservoir. Pipe H is led in a horizontal direction to a point directly beneath the center of a combustion-chamber, and from thence vertically to a union-coupling, L, into which are attached short pipes M. In the present instance four are employed, extending at right angles to the coupling. Pipes M are closed at their outer end and are perforated on top in the direction of their lengths, and also on their sides at a point about one hundred and forty degrees from the top line of perforations.

N designates a layer of common ashes, asbestus, or any non-combustible material adapted to receive heat from the combustion of the petroleum vaporized by the fire and communicate the same to any volatile vapors contiguous thereto.

In operation, cock I is opened, allowing oil to flow through pipe H, valve K opening freely by the pressure of the oil, permitting the same to flow to pipes M, whereupon, being ignited, the flame passes through perforations G of the combustion-chamber C. A vacuum is created in the space between the sides of pans D and E, causing the external air to flow freely therein in the direction of the arrows, which commingling therewith not only supplies the proper amount of oxygen to thoroughly vaporize the products of the petroleum, but conducts the heat to the point desired. The bottom of fuel-pan E, being supplied with a heat-refracting medium, any of the baser products of the oil tending to descend are rapidly volatilized and consumed, thereby utilizing every portion of the oil.

While we have described our method as adapted to a furnace, we wish it understood that it is equally well adapted to a stove, locomotive, stationary engine, or any device where artificial heat is required, it being only necessary to conform the contour of the burner to the shape of the device to which it is to be applied. Pipes M may also be arranged as coils, or in any preferred manner, it only being necessary that the perforated pipes be intermediate the upper and lower portions of the combustion-chamber, and provision being made for an induced current of external air passing around the pipes.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination, with a fire-box, of a fuel-pan, means for supporting said pan in the fire-box, a perforated oil-supply pipe located in said pan, and an upper pan having a perforated bottom, and flanges for supporting the same within the fuel-pan, whereby an air-supply passage or flue is formed within the fire-box, as described.

In testimony that we claim the foregoing as our own we hereby affix our signatures in presence of two witnesses.

JESSE EARLAND PATTERSON.
ALONZO NOTEMAN.

Witnesses:
WILLIAM WEBSTER,
J. E. RAYMER.