L. F. MILLARD.

HYDROCARBON GAS BURNER.

APPLICATION FILED MAY 18, 1908.

960,366. Patented June 7, 1910.

FIG. 1.

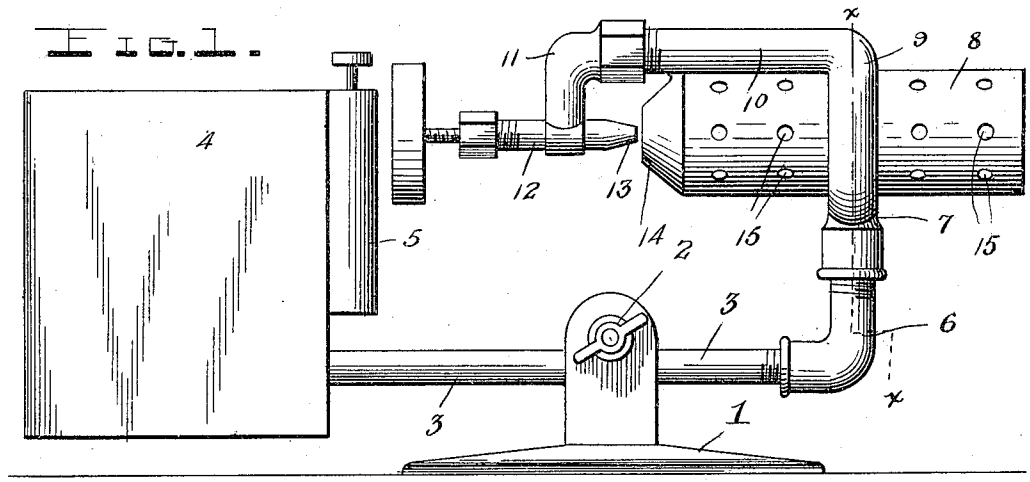


FIG. 2.

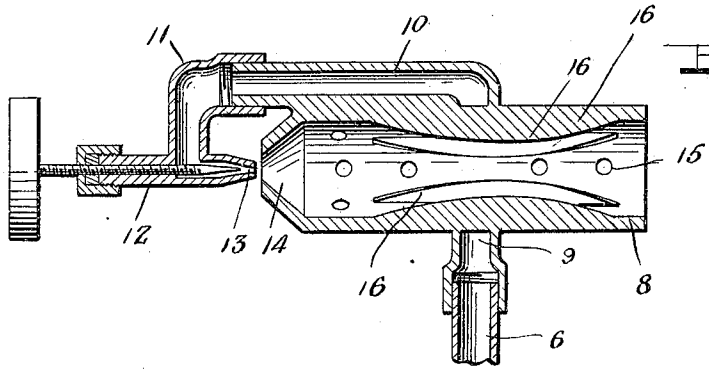
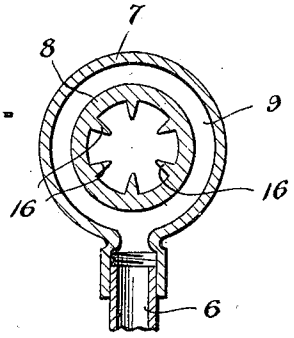


FIG. 3.



Witnesses
Chas. L. Griesbauer.
D. O'Hilton

Inventor
Leo F. Millard.
By H. B. Williamson & Co.
Attorneys

UNITED STATES PATENT OFFICE.

LEO F. MILLARD, OF WHITEWATER, WISCONSIN.

HYDROCARBON-GAS BURNER.

960,366. Specification of Letters Patent. **Patented June 7, 1910.**

Application filed May 18, 1908. Serial No. 433,521.

To all whom it may concern:

Be it known that I, LEO F. MILLARD, a citizen of the United States, residing at Whitewater, in the county of Walworth and State of Wisconsin, have invented certain new and useful Improvements in Hydrocarbon-Gas Burners; and I do 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 appertains to make and use the same.

My invention relates to hydro-carbon burners, and particularly to portable burners for brazing, soldering or similar purposes.

The object of the invention is to provide a device of this character which will be cheap to manufacture, efficient in operation and convenient of transportation.

Several features are essential in burners of this type. First the gas coming from the needle valve to the combustion chamber should be thoroughly mixed with the air and the interior of the chamber should be of such construction as to produce a pointed flame. Second the maximum heat which is generated at the front end of the burner should be properly radiated back to the generating tube or retort, and the combustion chamber should be so trussed and supported that the front end will not wilt and become shapeless from excessive heat.

All these objects are necessary in a good burner, and it is endeavored herein to produce such a device with such objects.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claim.

In the drawings, Figure 1 is a side elevation, Fig. 2 is a longitudinal section of the burner, Fig. 3 is a transverse section on the line x—x of Fig. 1.

Referring more especially to the drawings, 1 indicates a suitable stand provided with a clamping device 2, which holds the feed tube 3 in adjusted position. At one end the feed tube supports the usual supply tank 4, provided with the pressure pump 5, as is usual. The opposite end of the fuel tube 3 is connected by an elbow 6 to the generating ring or retort 7, which surrounds and is cast as a part of the combustion chamber 8. The generating ring is better shown in Fig. 3, where 9 indicates a channel running therethrough, which connects at its upper end with a generating tube 10, running along the top of the combustion chamber 8, and connecting at its inner end with the elbow 11, supporting and communicating with the needle valve 12, whose nozzle 13 projects inwardly toward the contracted opening 14 in the rear of the combustion chamber. As is usual the chamber 8 is cylindrical and is provided with a plurality of air holes 15, which admit air for proper commingling with the gas under pressure from the nozzle 13. The interior of the combustion chamber 8 is provided with a series of longitudinally extending ribs or radiating vanes 16, which project inwardly from the inside of the chamber toward its center. A single rib is located between each row of openings 15 and tapers from a point just forward of the generating ring to the front and rear end respectively. As the front end of the burner receives the most heat I preferably run the forward ends of the vane closely adjacent the discharge end of the combustion chamber so that they will properly support this end of the chamber, and at the same time pick up the excess heat at this point and transmit it to the retort 7 and generating tube 10.

Any suitable means may be provided for initially heating the retort, and as this forms no part of my invention I have not illustrated such a device. After the retort has once been heated it is only necessary to regulate the amount of flame by the provision of the needle valve, as is well understood by those versed in the art.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claim.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

A one-piece hydro-carbon burner comprising a perforated tubular combustion chamber open at both ends, the opening of the rear end being contracted, a plurality of

laterally spaced longitudinally extending solid ribs, on the inner face of said combustion chamber and tapering from their centers toward their opposite ends to form a maximum heating surface, said ribs terminating nearer the front than the rear end of said chamber, a retort arranged on the exterior of said chamber around its thickened portion and having means at one side for connection with the source of fuel supply, and a generator tube at its other side, said tube extending longitudinally of the combustion chamber and provided with means at its free end for connection with an injector.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LEO F. MILLARD.

Witnesses:
H. R. MELSTER,
M. E. ROOD.