

P. T. LEMASTER.
BURNER.

APPLICATION FILED FEB. 7, 1912.

1,049,110.

Patented Dec. 31, 1912.

2 SHEETS-SHEET 1.

Fig. 1.

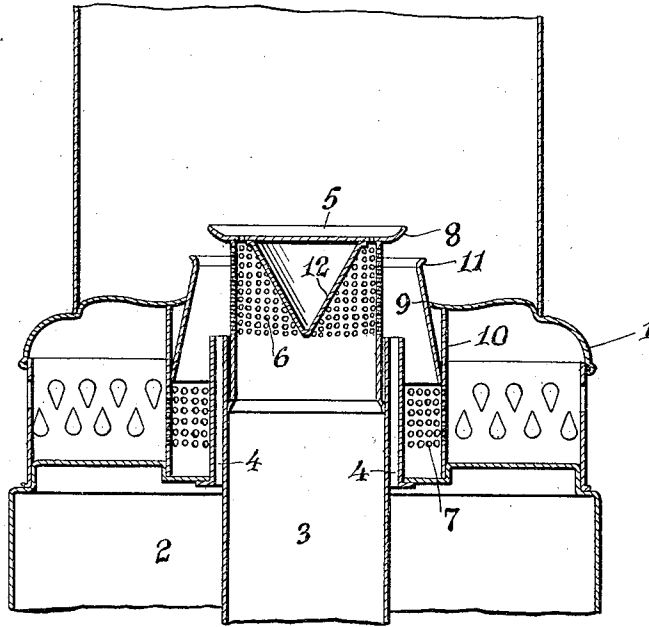
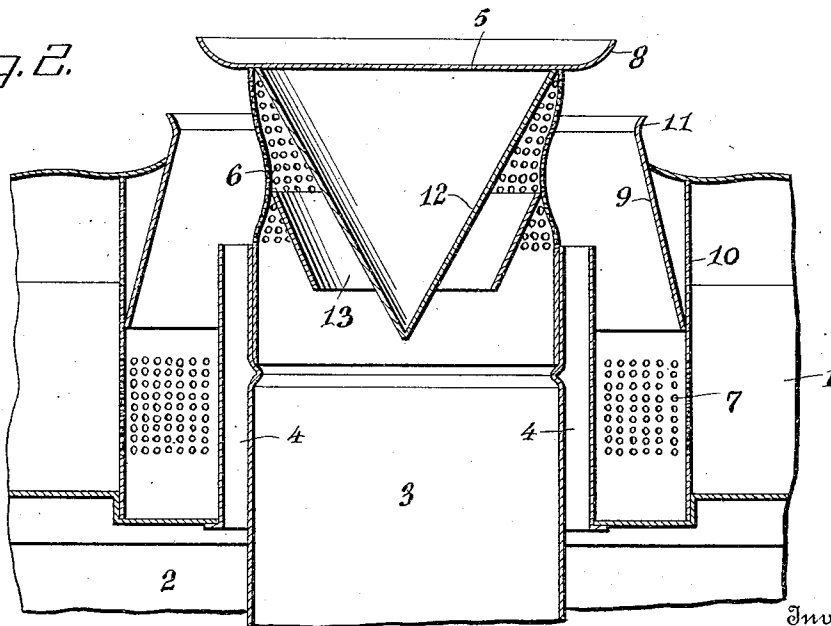


Fig. 2.



Inventor

P. T. Lemaster

Witnesses

Malcolm F. Gannett.
P. M. Smith.

By *Victor J. Evans*

Attorney

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2 SHEETS-SHEET 2.

Fig. 3.

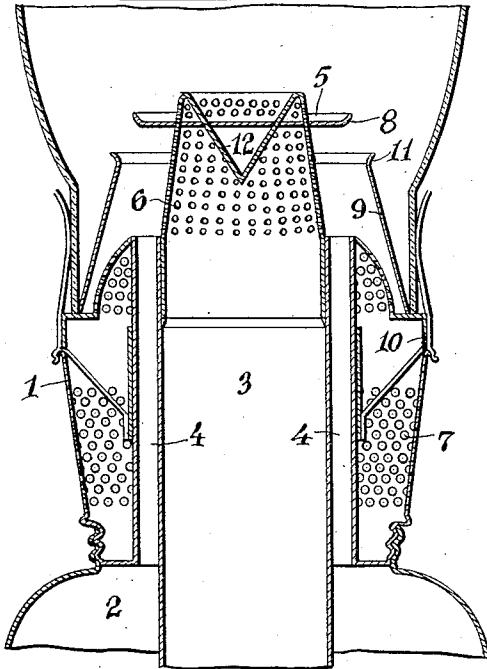


Fig. 4.

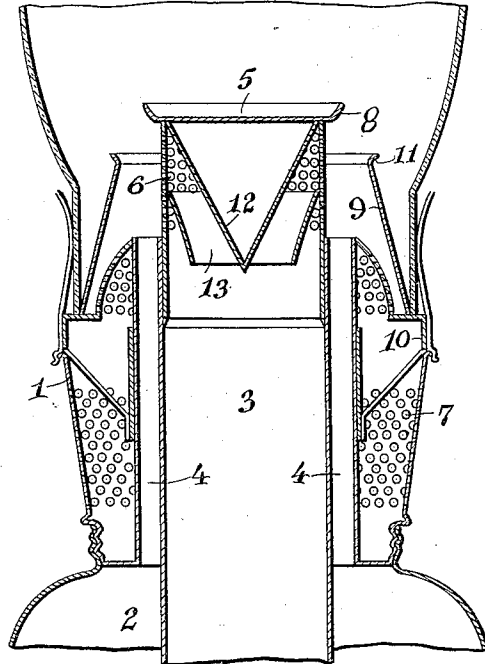
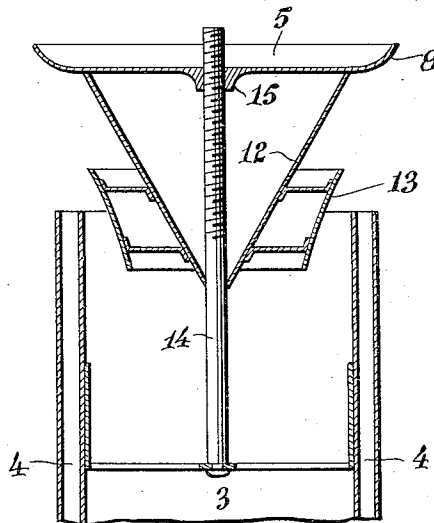


Fig. 5.



Inventor

P. T. Lemaster

Witnesses

Malcolm F. Gammatt.
P. M. Smith.

By *Victor J. Evans*
Attorney

UNITED STATES PATENT OFFICE.

PLEASANT T. LEMASTER, OF SPARTANBURG, SOUTH CAROLINA.

BURNER.

1,049,110.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed February 7, 1912. Serial No. 676,053.

To all whom it may concern:

Be it known that I, PLEASANT T. LEMASTER, a citizen of the United States, residing at Spartanburg, in the county of Spartanburg and State of South Carolina, have invented new and useful Improvements in Burners, of which the following is a specification.

This invention relates to hydrocarbon burners and the invention is designed for use in connection with lamps, stoves, and heaters of various kinds in which a central draft tube and tubular wick or the equivalent thereof are used, the improvements being applicable to any burner of the type described using kerosene or other other hydrocarbon liquid.

In the center draft tubular wick burners in use in the present day, the draft of air coming from the sides of the burner is allowed to pass upwardly in a vertically straight uninterrupted path or stream and in a comparatively cold condition, no attempt being made to concentrate or direct the draft from the side upon the flame. This large volume of air passing inward through the sides of the stove or lamp burner carries away much of the unconsumed gases and causes the burner to smoke and emit disagreeable and harmful fumes, also cooling the flame to such an extent that it is of poor quality both as regards heat and light. Furthermore, in a short time the wick becomes foul and the efficiency of the burner for heating or lighting purposes is greatly impaired.

The object of the present invention is to provide simple and economical means whereby the side draft is gradually and evenly concentrated upon the flame rising from the wick and such air is thereby heated and rises to supply the flame with oxygen in a heated state. This is at once productive of thorough combustion and a white hot flame producing the maximum number of heat units and a fine soft light admirably adapted for illuminating purposes.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts, set forth in and falling within the scope of the appended claims.

In the drawings:—Figure 1 is a vertical section through an ordinary hydrocarbon heater embodying the center draft and tubular wick and showing the present invention

applied thereto. Fig. 2 is a similar view, showing the use of the distributing ring. Fig. 3 is a vertical sectional view of a lamp, showing the present invention applied thereto. Fig. 4 is a similar view, showing the use of the distributor ring in connection with a lamp burner. Fig. 5 is a detail vertical section, showing means for adjusting portions of the burner.

The drawings in the main show the conventional form of burner for hydrocarbon heaters and lamps in which 1 designates the body of the burner, 2 the oil reservoir, 3 the center draft tube, 4 the wick tube and 5 the spreader flange.

6 designates the central draft perforations through which the air is fed to the combustion space and 7 designates the perforations or draft openings through which the air is fed inward through the side of the burner upon the outer surface of the tubular wick which is adjustable in the usual manner up and down in the wick tube 4 and outside of the central draft tube 3.

In carrying out the present invention, the outer edge or margin of the flange 5 is dished upward as shown at 8 on an easy, gentle curve, thereby giving a natural stream or current to the air after it has combined with the flame. Extending around the center draft tube is a concentrating ring 9 which, it will be observed, contracts gradually toward its upper end, the lower edge thereof being attached to or arranged in close proximity to a vertical wall 10 within the body of the burner, such wall containing the side inlet openings 7 above referred to. It will be further observed that the lower edge of the concentrating ring 9 terminates above the side inlet openings 7 while the upper edge of said concentrating ring is flared outward on a gentle easy curve, as shown at 11, the said outwardly curved upper edge of the concentrating ring being arranged opposite to and slightly below the plane of the upwardly curved spreader so that in this way the air passing upward through the center draft tube and the air passing inward through the side draft openings 7 is combined just above the wick and is thereby thoroughly heated with the result that a more perfect combustion of the gases is obtained, this being productive of greater heat and, as has been found in practice, a much whiter flame.

It will be understood that the ring 9 concentrates the upwardly passing current of air admitted through the openings 7 and directs the same against the projecting upper edge of the tubular wick and directly into the flame. I have also found it advantageous to use a spreading cone 12 which extends from the top of the draft tube 3 downward and is adapted to throw the upwardly moving current of air in the center draft tube outward through the openings 6. It has also been found very important to have the maximum diameter of said spreading cone materially less than the internal diameter of the center draft tube 3, as this has been found to avoid the flickering of the flame so common to hydrocarbon burners of the center draft type. It has also been found advantageous to employ a distributing ring 13 surrounding the spreading cone and bearing a spaced relation to said cone and to the inner wall of the center draft tube. By reference to the drawings, it will be seen that said distributing ring is flared upwardly and has the upper edge thereof arranged in close proximity to or in actual contact with the center draft tube, it being preferred to attach said distributing ring to the inner wall of the center draft tube in order to form a support for said distributing ring. This distributing ring serves to spread or divide the upwardly moving current of air in the center draft tube and thus control the direction of movement of the air, as a whole, outward through the openings 6, where it is delivered to the flame in a heated condition.

In some cases, it may be found desirable, owing to variation in the quality of the hydrocarbon, to make the spreader flange 5 and spreading cone together with the distributing ring 13 adjustable up and down. This may be accomplished as shown in Fig.

5, by mounting said parts on a central threaded supporting rod 14. The spreader flange 5 is for this purpose centrally reinforced, as shown at 15, where it is threaded upon the rod 14. The cone 12 is attached at its upper edge to the spreader flange and the distributing ring 13 is in this instance attached to and movable with the spreading cone 12, the upper edge of said distributing ring being so positioned as to rest against or in close proximity to the inner wall of the center draft tube as will be readily understood from Fig. 5.

I claim:—

1. In a center draft burner embodying a tubular wick, a spreader flange encircling the center draft tube, and an upwardly contracting concentrating ring constructed and arranged to gather in the side air supply and direct the same to a point above the wick, the upper edge of the concentrating ring being arranged below the plane of the spreader flange.

2. In a center draft burner embodying a tubular wick and a spreader flange encircling the center draft tube, an inverted spreader cone projecting below the plane of the spreader flange and having a maximum diameter less than the internal diameter of the center draft tube, and an upwardly flared distributing ring encircling the spreader cone and arranged in spaced relation to the spreader cone and center draft tube and having its upper edge in close proximity to the center draft tube.

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

PLEASANT T. LEMASTER.

Witnesses:

J. P. DARDEN, JR.,
HORACE L. BOMAR.