

1,254,293.

Patented Jan. 22, 1918.

Fig. 1

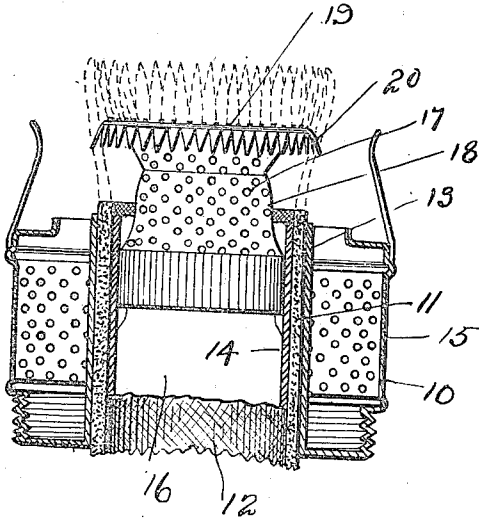


Fig. 2

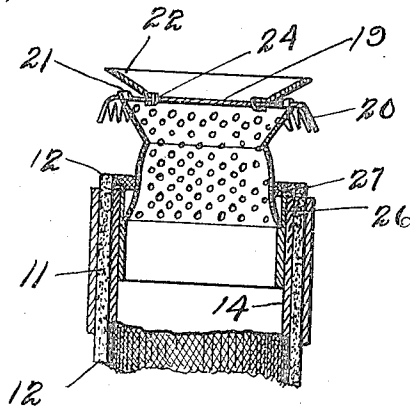


Fig. 3

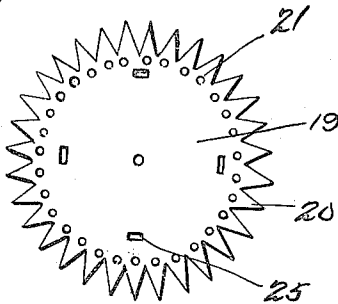


Fig. 4

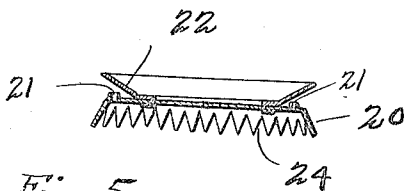
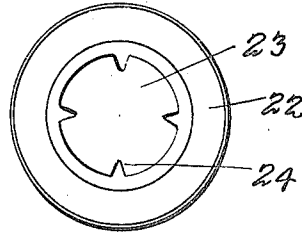
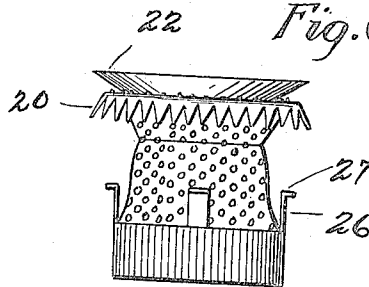


Fig. 5

Fig. 6



Witnesses
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UNITED STATES PATENT OFFICE.

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BURNER.

1,254,293.

Specification of Letters Patent.

Patented Jan. 22, 1918.

Application filed January 3, 1916. Serial No. 69,769.

To all whom it may concern:

Be it known that I, JOHN P. TRUESDELL, a citizen of the United States, and resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Burners, of which the following is a specification.

This invention relates to improvements in oil burners of the class adapted to be applied to lamps or stoves for the purpose of increasing either their lighting or their heating efficiency.

The flame in the ordinary oil burning wick lamp is of a reddish cast which indicates imperfect combustion or the presence of unconsumed particles of carbon.

The object of this invention is to provide an improved burner of this class designed to act upon and break up the flame and so permit the oxygen of the air to mix more thoroughly therewith to oxidize or decompose these unconsumed particles of carbon and so render combustion more perfect and produce a whiter light, thus materially increasing both the luminosity as well as the heat value of the flame over that obtained from the ordinary oil burner.

A further object of this invention is to provide my improved burner with a multiplicity of fingers or projections arranged to extend into or in proximity to the flame issuing from the wick so as to break up or separate the sheet of heated gases into a multiplicity of streams whereby the unconsumed particles of carbon are more thoroughly decomposed and combustion is more perfect.

A further object of this invention is the provision of a plate so located as to be heated to a high temperature by the flame and to provide this plate with a multiplicity of openings through which the atmospheric air is adapted to pass.

It is found in practice that the luminosity of the flame may be further increased by the use of such a plate which serves to conduct the air over its heated surface and thence through the holes therein thus permitting the air thus heated to enter the flame from the inside of its tubular surface to again assist combustion and a further decomposition of the particles of carbon.

The invention further consists in the provision of a baffle plate set upon the first named plate for deflecting the heated air

radially outward as it rises through the holes in the plate causing it to immediately enter the flame.

The invention further consists in the provision of a central draft hole in the plate which further assists in spreading the flame and intensifying the illuminating effect.

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

In the accompanying drawings:

Figure 1— is a view showing a portion of a so-called tubular or center draft oil burner partly in section and illustrating my improved attachment connected thereto and its dividing effect upon the tubular sheet of flame.

Fig. 2— is a sectional elevation showing a portion of the tubular burner and illustrating my improved device attached thereto for dividing the flame also showing the baffle plate for deflecting outwardly the atmospheric air rising through the passageways in the first named plate.

Fig. 3— illustrates the central toothed plate or disk as cut from sheet stock showing its serrated edge and circle of draft holes also the center draft aperture.

Fig. 4— is a top view of the baffle plate representing its center portion as removed and a plurality of fingers as formed thereon by which this plate is connected to the serrated plate.

Fig. 5— is a sectional view illustrating the baffle plate as connected to the serrated plate.

Fig. 6— is a view of the center member of the burner detached with my improvements connected thereto also illustrating the fingers which engage the wick tube for determining the position of the serrated plate relative to the wick.

Referring to the drawings 10 designates a well-known type of oil burner of the tubular or center draft construction, only such portions being shown as is necessary to illustrate the operation of my present invention. The wick 12 is in a tubular form adapted to be raised and lowered by the usual means (not shown). This wick is mounted in the circular chamber 11 between the walls 13 and 14. The tubular form of flame in this type of lamp is supplied with atmospheric air on its outside through the multiplicity

of openings in the outer wall 15 and on its inner side by air rising through the center tube 16, and through the perforations 17 in the tubular cap 18 which is removably secured in the center tube 14.

My invention consists primarily in the provision of means for breaking up, dividing or separating the tubular flame as it rises from the wick in order to permit more of the oxygen of the atmospheric air to mix with the flame to insure a more perfect combustion and produce higher luminosity. To accomplish this in a simple and practical manner, I have provided a plate 19 which may be constructed of any suitable material such as nicked-steel, tungsten or other material which will not crumble or be consumed by being heated continually or continuously to a very high temperature and around the periphery of this plate or disk, I have formed a multiplicity of tapering or pointed fingers or members 20. Those illustrated in the drawing are of a saw tooth shape and are found to produce excellent results in practice, but fingers or projections of any shape and supported in any desired way may be employed to produce a dividing or separating effect upon the flame.

It is found in practice that the best results are obtained by inclining the points of these fingers downward on an angle so that they will stand slightly outward permitting their points or extremities to extend into the flame and divide the same into a multiplicity of streams corresponding in number to the spaces between the teeth or fingers.

In adapting this plate to the tubular or center draft burner lamp, I have mounted this serrated plate on the upper end of the short perforated tubular cap 18 so that the pointed ends of the fingers or teeth when positioned shall be located a predetermined distance above the wick tube so that it will engage the flame at a substantial distance above its source.

It is found in practice by heating the air prior to entering the flame, that a more perfect combustion is obtained. To accomplish this, I have provided a series of cone shaped cavities or holes or apertures 21 in the plate 19 whereby the air is permitted after passing over this heated plate to move upward through these apertures or auxiliary air supply and pass into the flame above the point where it has been divided. To better control the flow of this auxiliary air supply, I have provided a baffle plate 22 which is composed of a ring, see Fig. 4, having its center portion 23 removed and a plurality of fingers formed therein, which fingers are passed through corresponding openings 25 in the serrated plate 19 and clenched, see Figs. 2 and 5, to secure the two plates together. The outer edge portion of this baffle plate is set on an angle and above the opening 21

through the serrated plate, whereby the air rising therethrough is deflected outwardly and directed into the flame.

Some different makes of center draft lamps support their tubular cap member in different ways, and in order to insure the proper distance of the flame dividing points, relative to the wick tube, I have formed a number of hook shaped members 26, see Figs. 2 and 6, having outwardly turned ends 27 which are adapted to engage the upper edge of the inner tube member 14 and so effectually determine the position of the flame affecting portions, relative to the wick tube.

By the application of my simple attachment to the lamp of the ordinary center draft burner a much more perfect combustion is obtained producing a brilliant substantially white flame of greatly increased illuminating value over that of the flame which has a reddish cast.

When an oil stove having this type of burner is provided with my attachment, the additional oxygen permitted to mix with the flame greatly increases its number of heat units, thereby rendering such a stove much more efficient as a heater with the given quantity of fuel. Then again owing to the perfect combustion obtained by my improved device the objectionable odor which is caused by unconsumed particles of carbon is entirely eliminated.

I have shown and described means for dividing the flame into a multiplicity of streams but any means applied to an oil burner for acting upon the flame to divide or separate the same into a multiplicity of streams will fall within the spirit and scope of my invention.

I claim:

1. In an oil burner, a wick for forming the flame into a thin sheet and a notched plate located above the wick whose greatest diameter exceeds that of the wick for entering and dividing this sheet into a multiplicity of streams.

2. In an oil burner, a tubular wick for feeding the flame, and a center plate having a plurality of pointed fingers positioned to extend into the flame at a point a substantial distance above the wick when in raised position for dividing the flame into a plurality of streams.

3. In an oil burner, a tubular wick for feeding the flame and a member provided with a multiplicity of outwardly and downwardly extending fingers adapted to extend into the flame to interrupt its continuity.

4. In an oil burner, a tubular wick for feeding the flame, means for admitting a draft of air to the center of the flame and a plurality of pointed fingers extending into the flame at a point a substantial distance above the wick when in raised position.

5. In an oil burner, a tubular wick for

feeding the flame, means for admitting a draft of air to the center of the flame and a plurality of saw-toothed shaped fingers extending into the flame at a point a substantial distance above the end of the wick when in raised position, said fingers having a downward inclination.

6. In an oil burner, a tubular wick for feeding the flame and a member having a multiplicity of points extending into the flame for dividing the same, said member being provided with air passageways to permit the air to mix with the flame above said points.

7. In an oil burner, a tubular wick for feeding the flame and a plate having a multiplicity of pointed members extending into the flame for dividing the same, said plate being provided with air passageways to permit the air to mix with the flame above said members, and means for deflecting the air currents passing through said passageways into the flame.

8. An oil burner comprising a tubular wick, said burner being provided with a multiplicity of holes for supplying air to the tubular flame and a plate above said air supplying holes and having a multiplicity of pointed members adapted to extend into the flame to interrupt its continuity, said plate being provided with a plurality of auxiliary air passageways.

9. An oil burner comprising a tubular wick, said burner being provided with a multiplicity of holes for supplying air to the tubular flame, a plate above said air supplying holes and having a multiplicity of pointed members adapted to extend into the flame to divide the same, said plate being provided with a plurality of auxiliary air passageways and a baffle plate superimposed

on said plate for deflecting the air entering through said auxiliary passageways to the flame.

10. A burner comprising a tubular wick for feeding the flame, a central disk having its periphery positioned to extend into the path of the flame said disk being provided with air passageways through it to permit air to enter the flame at a point above the edge of the disk.

11. A burner comprising a tubular wick for feeding the flame, a central disk having its edge adapted to extend into the flame, said disk being provided with air passageways through it to permit air to mix with the flame at a point above the edge of the disk, and a baffle plate for deflecting the air into the flame after passing through said disk.

12. A burner comprising a tubular wick for feeding the flame, a central disk having its edge adapted to extend into the flame, said disk being provided with cone-shaped air passageways, and means for deflecting the air rising through said passageways into the flame.

13. An oil burner comprising a tubular wick, two spaced apart concentric tubes between which said wick operates, a burner plate provided with a multiplicity of members for dividing the flame and means engaging the upper edge of one of said tubes for determining the relative position of said plate.

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

JOHN P. TRUESDELL.

Witnesses:

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A. F. MACREADY.