

Nov. 19, 1940.

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2,222,202

HEATER

Filed July 16, 1938

Fig. 1.

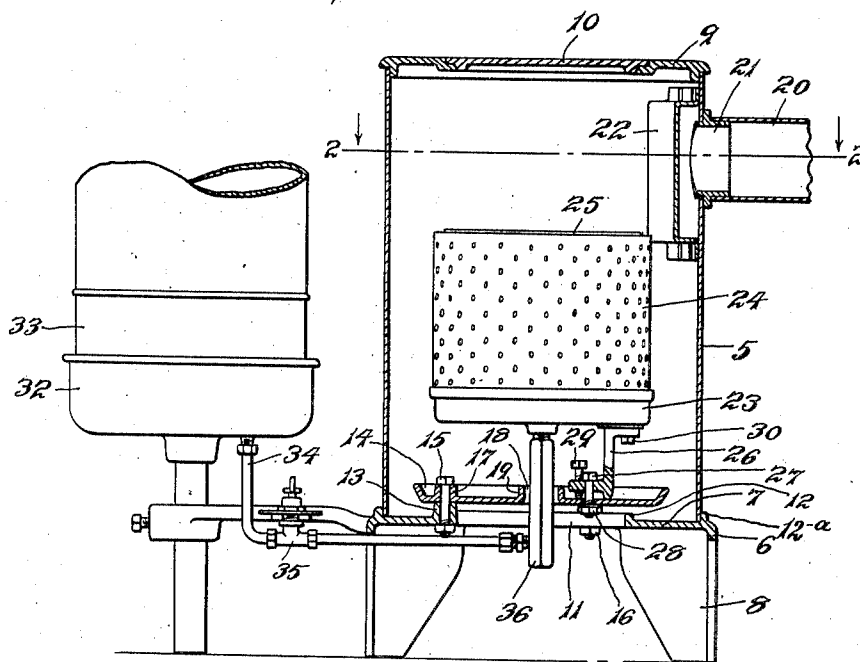
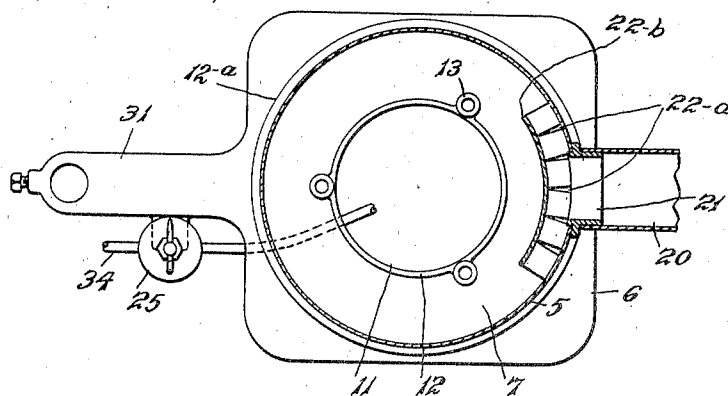


Fig. 2.



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2,222,202

HEATER

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Application July 16, 1938, Serial No. 219,612

2 Claims. (Cl. 126-93)

This invention relates to heaters and more particularly to the type of heaters which are designed to be used in connection with oil burners of the atmospheric type.

5 In order to obtain maximum efficiency and most satisfactory operation, in the use of such oil burners, it is important that the air which is supplied to the burner, through the heater, be prevented from forming air currents which will
10 strike the burner in a direct manner so as to cause it to cool and, therefore, burn unevenly.

Such burners of the atmospheric type, receive hydrocarbon fuel from a fuel supply reservoir and, when the said fuel enters into the base of the burner while the burner is in operation, it
15 becomes heated to the point of vaporization and mixes with the air which enters through the base and the perforations in the shells of the burner; thus forming a combustible mixture. It is well
20 known, by those skilled in the art, that the efficiency of such burners depends entirely upon the degree to which the said fuel is vaporized and mixed with the oxygen in the air and that such vaporization is more complete and the operation of the burners more constant when the
25 base of the burner is maintained at a high and constant temperature.

Heretofore it has been found, by actual experience, that if the air currents which are supplied
30 to a burner through a heater come in direct contact with the burner, they will affect the operation of the burner to such an extent that it will not give satisfactory results. Such drafts will tend to cool the burner so that the vaporization of the fuel is not completed. In some cases it
35 has been found that the burner will fluctuate to such an extent that it has been practically impossible to control its operation by the adjustment of the fuel valves. Further, it will be readily understood that changes in atmospheric conditions surrounding the heater, such as when a window is opened and cold air is permitted to enter a room, or when there is no circulation of air surrounding the burner, will vary the operation
40 for the reason that a direct current of cold air will cause it to cool and an absence of air currents will cause it to heat; thus the burner will operate either at a high or low heat on the same adjustment.

50 It is, therefore, very much desired to have such burners operate constantly at the degree for which they are set by the fuel valves. In order to accomplish this it is necessary that the air which is supplied to the burner be so controlled
55 that air currents which may strike the burner

directly are eliminated and that air is furnished the burner in a constant supply.

The object of my invention, therefore, is to provide in a heater of this class, means for controlling the passage of air through the heating
5 chamber in a manner whereby a uniform supply thereof will be provided throughout the said heating chamber indirectly and without forming drafts.

A further object is to provide means in connection with such heaters, whereby the passage of air therethrough is affected in such a manner that there will be a constant supply of air to the burner without the usual accompanying
10 drafts which act to cool the said burner.

Further objects will be more clearly understood from the following description and from the drawing in which:

Figure 1 is a side view in vertical section of a heater embodying my invention and showing the
20 fuel supply means and burner in elevation.

Figure 2 is a plan view of a heater in cross section on line 2-2 of Figure 1 and showing some of the parts removed therefrom.

As illustrated in the drawing, the numeral
25 5 denotes the casing of a heater which is mounted on a base 6 comprising a heater bottom 7 and legs 8. A plate 9 is preferably mounted at the top of said casing and has an opening therein for which is provided a cover 10.

The said bottom 7 has an air inlet opening
30 11 therein which is surrounded by a wall 12 and has upright posts 13, of which there are preferably three, with openings extending there-through. An annular wall 12-a surrounds said
35 bottom to form a recess for retaining liquid on said base and within which the casing 5 is mounted.

A baffle plate 14, in the form of a dish, is mounted upon the tops of said posts and is secured
40 thereon by means of bolts 15 which extend downwardly through the openings in the posts and have nuts 16 threaded thereto. The said plate 14 is also provided with upright posts 17
45 through which the said bolts extend and has an opening 18 through the center thereof which is surrounded by a vertical wall 19.

An air outlet pipe 20 is provided and connects with the interior of the heater through a collar
50 21 near the top of the casing 5 and a baffle plate or shield 22 is mounted to the inner wall of the said casing, in front of the outlet opening which leads to the said outlet pipe.

The said shield is preferably constructed with L-shaped bends at the top and bottom edge
55

thereof which are slit so as to provide air openings 22—*a* by the separation of said slits when the plate is curved to conform with the curvature of the casing and mounted thereto.

5 A burner comprising a base 23, perforated shells 24, and a cover 25, is mounted by means of an adjustable support 26 which rests upon the plate 14 and is adjustably secured thereto by means of a bolt 27 and a nut 28. The said post
10 is adjustable by means of leveling screws 29, as commonly provided with burners of this type, and the burner is mounted upon the said post 26 by means of a bolt 30 threaded into the base thereof.

15 In the embodiment shown, the base 6 of the heater is provided with an arm 31 upon which is mounted a constant level reservoir 32, of a common form, which receives a fuel supply tank 33 therein. A fuel supply pipe 34 extends from said
20 reservoir, through an adjusting valve 35 and into a fitting 36, commonly known as a carbon leg, which extends through the opening 18 in the plate 14 and is connected to the bottom of the burner base 23 for communicating a supply of
25 fuel thereto.

In the embodiment of my invention as illustrated; when the burner is in operation, the heat, generated thereby in the heating chamber of the
30 heater, will cause air to enter through the opening 11 and pass through the said heater and out through the outlet pipe 20. In entering the heating chamber through the opening 11, the air will strike the baffle plate 14 and be dispersed so that
35 it will enter the heating chamber through the spacing between the top of the wall 12 and the bottom of the plate and pass through the said chamber without striking the burner directly. In the passage of the air out of the heating chamber, the said air will enter between the baffle 12
40 and the wall of the heating chamber, past the edges 22—*b* of said baffle and through the openings 22—*a*, provided by the slits, and out of said heating chamber through the outlet pipe 20.

It will, therefore, be noted that the air passing through the said heater is baffled upon its
45 entry therein and also before its exit therefrom so that there is a constant supply of air in the heating chamber with surrounds the burner and passes therethrough to provide the necessary
50 oxygen for proper combustion without permitting any drafts that may affect the constant operation of the said burner. The baffle shield 22 will also tend to retard the exit of the air through the outlet pipe 20 so that the said air builds up

within the heating chamber and is thus prevented from forming air currents within the heating chamber. The burner will, therefore, be permitted to operate without fluctuation and thereby render maximum efficiency.

The baffle plate 14 is purposely made in a dish shape so that any fuel which may leak or drip from the burner will be caught therein and prevented from dripping on the floor below the
10 heater. The post 17 will prevent the fuel from passing through the bolt openings therein and the wall 19 will prevent it from passing through the central opening.

The opening through which the bolt 27 passes through the plate may be sealed by means of a
15 washer inserted between the nut 28 and the bottom of said plate. In case fuel should overflow from the dish shaped plate 14, it will be caught on the base 7 and prevented from passing through the opening 11 by means of the upright annular
20 wall 12 surrounding said opening.

It will be understood that, while I have shown a burner of the atmospheric type, in the embodiment illustrated, other types of burners may be
25 used and the heaters may also be constructed in other forms wherein the advantages of my invention may be attained without departing from the scope of the appended claims.

I claim:

1. For a heater of the character described, a
30 supporting base comprising an integral member including a plate having an opening therein, legs on said plate, upright posts adjacent said opening, a plurality of annular upright walls surrounding said opening and forming a recess in
35 said base, a baffle plate mounted on said upright posts and spaced thereby from said opening, a burner mounted on said baffle plate, and a casing mounted on said base within said recess and surrounding said burner.

2. A heater of the character described comprising a casing forming a heating chamber, a base plate forming the bottom of said chamber and having an opening, an upright annular wall surrounding said opening, vertical posts adjacent
45 said opening and integral with said base, a dish shaped baffle plate mounted on said vertical posts and spaced thereby above said wall, said baffle plate having an opening therein surrounded by a vertical wall, a burner supported by said baffle
50 plate and means extending through said opening for supplying fuel to said burner.

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