Oct. 22, 1946. J. T. GROTENHOUSE 2,409,677

OIL BURNER

Filed Oct. 15, 1942 2 Sheets-Sheet 1

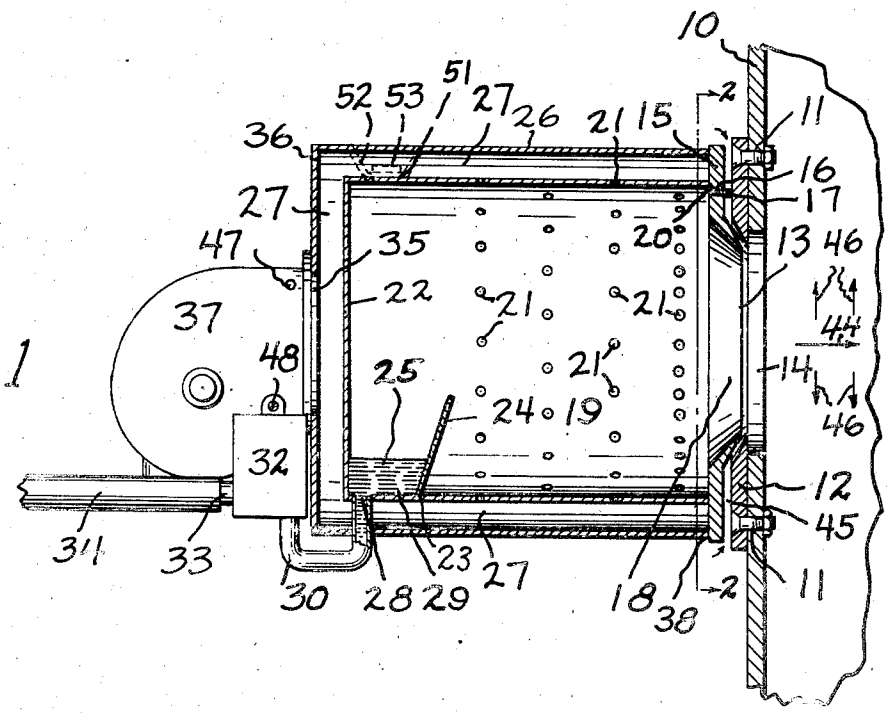


Fig. 1

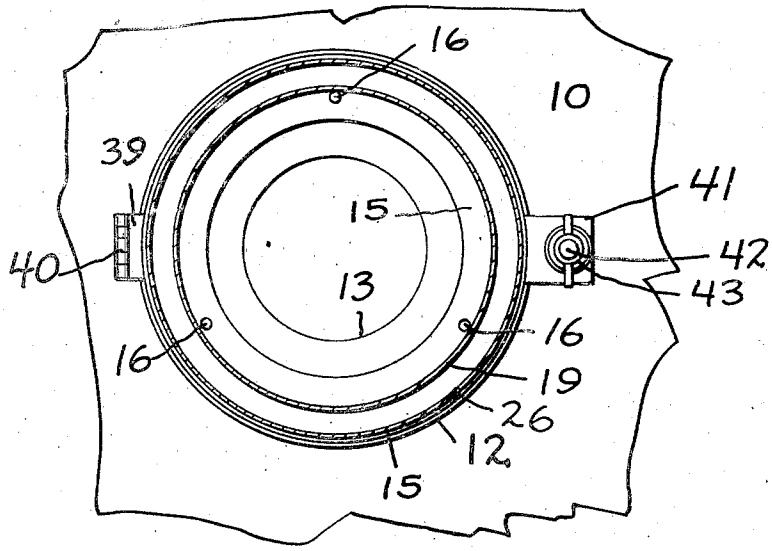


Fig. 2

INVENTOR.
James T. Grotenhouse
BY
Sam J. Slotky
ATTORNEY

Oct. 22, 1946. J. T. GROTENHOUSE 2,409,677

OIL BURNER

Filed Oct. 15, 1942 2 Sheets-Sheet 2

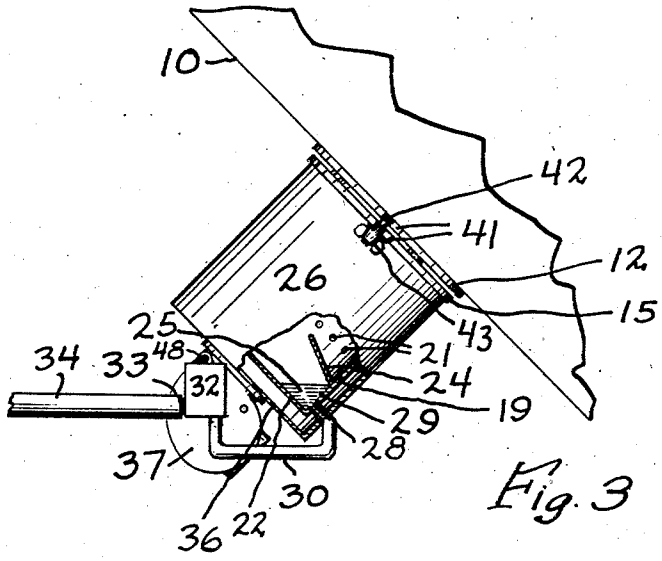


Fig. 3

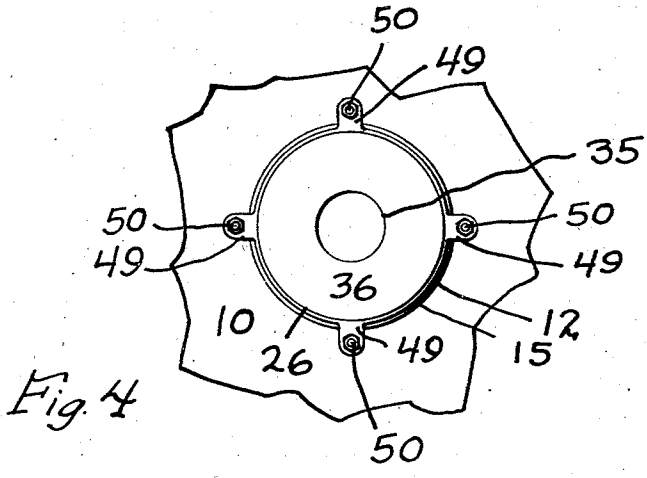


Fig. 4

INVENTOR.
James T. Grotenhouse

BY

Sam J. Slotky
ATTORNEY

Patented Oct. 22, 1946 2,409,677

UNITED STATES PATENT OFFICE

2,409,677

OIL BURNER

James T. Grotenhouse, Orange City, Iowa

Application October 15, 1942, Serial No. 462,080

1 Claim. (Cl. 158—92)

1

My invention pertains to an oil burner.

An object of my invention is to provide an oil burner of the pot-type which is positioned on a substantially horizontal axis, and which position can in many cases be varied to any position between a horizontal and vertical axis.

A further object of my invention is to provide an oil burner of the hydroxylation type in which the hydroxylation progresses in a substantially horizontal movement or direction.

A further object of my invention is to provide means for readily attaching such type of burner in a substantially horizontal position to a vertical wall, or at an angle thereto.

A further object of my invention is to provide the above mentioned type of burner with a suitable oil containing sump so that the oil will be always contained in the sump regardless of the positioning of the burner.

A further object of my invention is to provide an adjustable arrangement for providing adjustment of the secondary air intake to the burner.

A further object of my invention is to provide an oil burner which can be adapted to any type of heating structure and which is interchangeable, and which will give the various advantages of a pressure or atomizing type of burner at the reduced cost of the simple pot type.

A further object of my invention is to provide an arrangement having a better heat distribution than the strictly vertical type.

A further object of my invention is to accomplish all of the above mentioned objects in a very simple construction.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, and illustrated in the accompanying drawings, in which:

Figure 1 is a sectional side elevation of the burner as attached to a vertical wall,

Figure 2 is a sectional view of Figure 1 taken along the lines 2—2 thereof,

Figure 3 is a side elevation of the burner at an angular position with a fragmentary section, and,

Figure 4 is a front elevation of a slightly modified form of burner.

I have used the character 10 to designate a vertical wall of a grate stove or any other type of heating structure. Attached to the wall 10 by means of the screws 11 is a plate 12 which includes an opening 13 registering with the opening

2

14 of the wall 10. Spaced from the plate 12 is a flat burner end plate 15 in which is threadably secured the adjusting screws 16, the heads 17 of which screws bear against the supporting plate 12. Extending from the plate 15 is the centrally arranged opening 18 which aligns with the opening 14 and also communicates with the inner shell 19 of the burner which is attached at 20 to the plate 15. The inner shell 19 has a series of spaced openings 21, and also includes the end-wall 22. Attached at 23 to the shell 19 is a wall 24 which extends upwardly and angularly a substantial distance, and across the shell 19 to provide a reservoir for the oil 25 contained between the wall 24 and the wall 22.

The inner shell 19 is positioned in, and spaced from an outer shell 26 leaving the space 27 therebetween, and communicating at 28 with the sump 29 is a tube 30 which communicates at 31 with a level adjusting device 32, the fuel line communicating with the device 32 at 33 by means of a flexible tube 34 which in turn passes to the oil supply. An opening 35 is arranged centrally of the wall 36 of the outer shell 26 and communicates with a blower 37 adapted to force air through the burner or this opening can be left open as shown in Figure 4 for a natural draft. The outer shell 26 is welded or otherwise attached at 38 to the plate 15.

Attached to the plates 12 and 15 are the members 39 which are pivotally attached by means of the hinge structure 40 (see Figure 2) which hinge structure is slightly adjustable to allow for different spacings effected by the screws 16, and attached at the opposite side to the plates 12 and 15 are extending ears 41, with the ears receiving a stud 42 upon which is threadably engaged the wing nut 43.

It will be noted that there is thus provided a burner which is mounted substantially horizontally, thereby providing all of the advantages mentioned hereabove, and especially providing the advantages of the more expensive pressure or atomizing style in a simpler structure. The hinged type of burner as explained above can be opened by loosening the wing nut 43 and swinging the burner open on the hinge 40, for lighting, cleaning, or other purposes.

It will be noted that the flame travels horizontally through the opening 14 in the direction of the arrow 44 with the necessary air being blown through the opening 35 by means of the blower 37 providing complete mixing through the openings 21, with a certain amount of secondary air passing through the space at 45 between the

plates 12 and 15, which space can be adjusted as mentioned hereabove. The hydroxylation thereby progresses in a substantially horizontal direction, and the heat is more uniformly distributed downwardly or upwardly in the direction of the arrows 46 (see Figure 1) thereby providing a complete heating effect over a longer range vertically than would be possible with the strictly vertical type of burner since the flame will pass in all directions radially about the horizontal axis 44.

Although my invention pertains more generally to a substantially horizontal type of burner, it should be understood that it can be also positioned angularly as shown in Figure 3 wherein the wall 10 of the heating structure, such as the grate stove, etc. is positioned at substantially 45 degrees from the vertical. It will be noted that the sump wall 24 still insures that the level of the oil 25 is retained within the sump at this position, or at any position up to the vertical, and that the burner can be positioned at any such angle. The level adjusting device 32 is placed in its necessary position in Figure 3 with the communicating tube 30 being also lengthened, and if desired a further opening at 47 can be provided to receive the screw 48 for attaching the device 32.

Although the blower arrangment is shown in Figures 1 and 3, nevertheless it will be understood that the modification shown in Figure 4 can also be employed without using the blower 37.

Figure 4 also illustrates a modified type wherein the burner unit is mounted solidly on the wall 10 by means of lugs 49 which receive the bolts 50. In such a solid type the oil can be lighted through the opening 51 shown by the dotted structure in Figure 1 with the wall 26 being indented at 52 and attached to the wall of the inner shell 19 to provide a common opening with the plug 53 adapted to provide a closure member which can

be opened as desired for lighting the oil in the sump 29.

It will now be seen that I have provided all of the various advantages mentioned in the objects of my invention with other advantages being readily apparent.

Some charges may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose thereof, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

A pot type burner having a longitudinal axis positioned substantially horizontal, a heater wall having an opening, an end plate having a further opening communicating with said opening, a burner end plate having an opening communicating with said heater wall and said end plate openings, means for adjustably spacing said burner plate opening from said end plate opening, including a plurality of adjustable screws threadably engaged with said burner plate, said burner plate being hinged to said end plate, said screws abutting against said end plate, said burner being substantially cylindrical, a sump wall attached across said burner having an arcuate portion thereof attached to the burner walls, the upper edge of said wall leaving an unrestricted opening in said burner, the space between said sump wall and the burner end providing a sump, an outer enclosing shell having an air inlet opening, and a blower attached to and communicating with said opening, said sump wall being substantially at right angles to the longitudinal axis of the burner and extending upwardly a substantial distance from the lower boundary of the burner.

JAMES T. GROTENHOUSE.