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F. F. UHL ET AL

OIL BURNER

Original Filed April 23, 1924

Fig. 1.

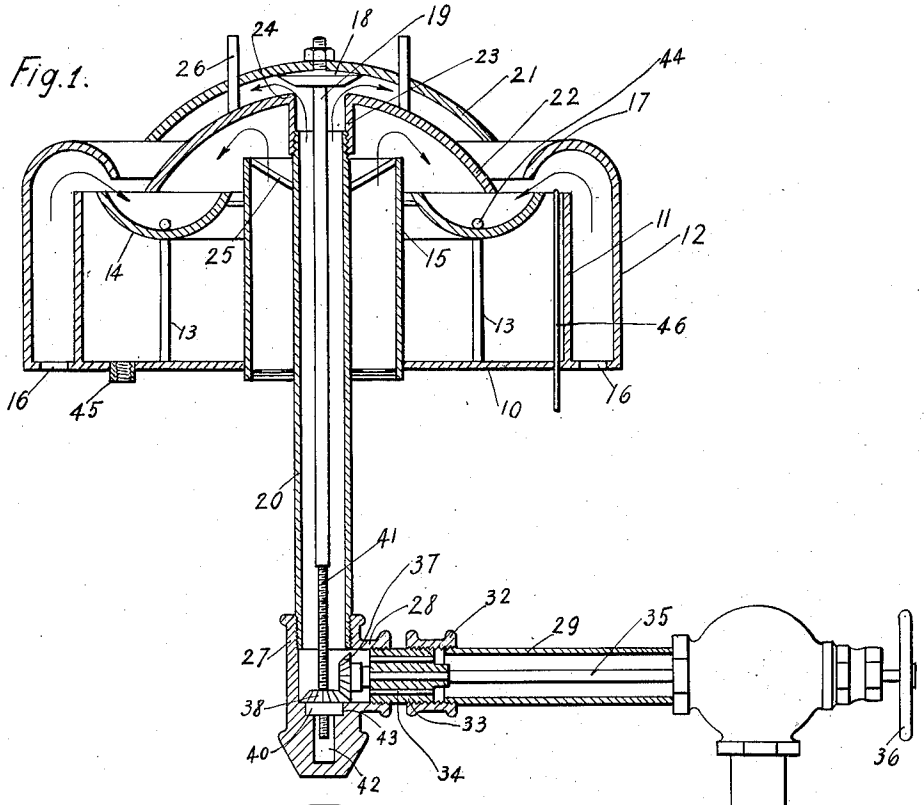
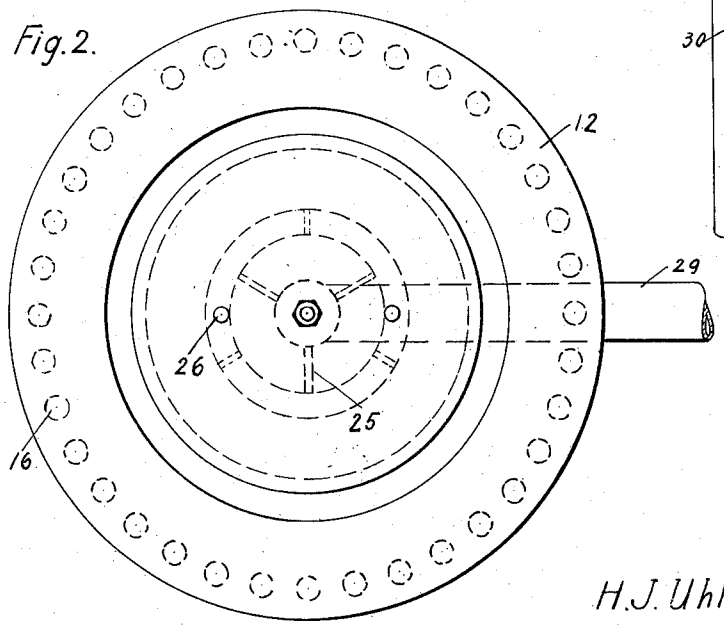


Fig. 2.



H. J. Uhl and F. F. Uhl.
INVENTOR

O. Thalmann

BY Victor J. Evans

WITNESS:

ATTORNEY

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UNITED STATES PATENT OFFICE.

FRED F. UHL AND HEBER J. UHL, OF BARTLESVILLE, OKLAHOMA.

OIL BURNER.

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To all whom it may concern:

Be it known that we, FRED F. UHL and HEBER J. UHL, citizens of the United States, residing at Bartlesville, in the county of Washington and State of Oklahoma, have invented new and useful Improvements in Oil Burners, of which the following is a specification.

This invention relates to crude oil burners, and contemplates a construction of high efficiency with the consumption of a minimum amount of fuel.

An object of the invention is to provide a connected oil burner that is capable of being easily installed in places where the use of such burners are desirable, as for instance, in heating or cooking stoves, furnaces, heating boilers and the like; the invention contemplating a structure which is extremely simple in its make up as well as cheap to manufacture.

Another important object of the invention resides in the provision of a burner having a plurality of air ducts which conducts the air to the flame in an equal distribution about the fuel receiving trough, together with a novel and efficient method of controlling or regulating the air to cause a quicker generation and consumption than in other types of oil burners.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawing, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawing forming part of this application, like numerals of reference indicate similar parts in the several views, and wherein:

Figure 1 is a vertical sectional view through the burner forming the subject matter of the present invention.

Figure 2 is a top plan view.

Referring to the drawing in detail, 10 represents the bottom of the burner which consists of a double wall casing, the inner and outer walls 11 and 12 respectively being arranged in spaced concentric relation as clearly illustrated. Rising from the bottom 10 of this casing is a plurality of uprights 13 which supports a trough 14 into which the oil and air is conveyed and subsequently burned. It will be noted that this trough 14 is wholly disposed within the confines of the inner wall 11, being circular in plan and spaced from the centrally arranged tubular member 15, which defines an air intake chamber. This tubular member is open at the bottom and top thereof, for the amount of air which of course enters the bottom, and passes out of the top of said member into the trough 14. The trough is further supplied with air from the space between the inner and outer walls 11 and 12 respectively, the bottom 10 being provided with a circular series of openings 16 for this purpose. The outer wall 12 is also considerably higher than the inner wall 11, and has its upper edge curved inwardly and downwardly as at 17, terminating at a point directly above but in spaced relation to the trough 14. Consequently, the air entering the openings 16 passes upwardly in the space between these walls, striking the curved wall, which serves to deflect the air into the flame and trough 14.

The amount of oil conveyed to the trough 14 is regulated by a valve 18 which is supported adjacent one end of a vertically disposed rod 19 which passes through a sleeve 20. Secured to the upper end of this rod 19 and reposing upon the valve 18 is one of a pair of heat plates 21 and 22 respectively, both of which plates are of substantially inverted saucer shape. The plate 21 is adjustable toward and away from its cooperating plate 22 incident to the adjustment of the valve 18 as both of these parts are supported by the rod 19 as clearly illustrated in Figure 1. The other plate 22 is formed with a collar 23 which is threaded upon the upper end of the stem 20, and further provided with a central opening through which the oil passes as it leaves the sleeve 20. The edge of this opening just referred to constitutes a valve seat for the valve 18, and this seat is indicated at 24. The rod 19 may be adjusted in any suitable manner, preferably in the manner to be hereinafter described, but it is manifest, that by adjusting the valve 18 with relation to its seat, the quantity of oil admitted to flow into the trough 14 can be conveniently regulated, and the space between the heating plates 21 and 22 respectively consequently varied. Of course the regulation of the flow of oil in turn regulates the flame, and this adjustment can be controlled to a nicety. It will now be noted that the air which passes upwardly through the central-

ly disposed tubular member 15 also strikes against the lowermost heating plate 22 which serves to deflect the air into the trough 14, and this fact coupled with the fact that the oil conveyed to said trough passes between the heating plates, both the air and oil are heated before reaching the trough. The tubular member 15 is supported upon the sleeve 20 by supporting elements indicated at 25. Rising from the lowermost heating plate 22 is a plurality of pins 26 which pass through openings formed in the adjustable plate 21, these pins serving to guide the last mentioned plate in its movement toward and away from the fixed plate 21, and also center the plates to provide for an equal distribution of oil in all directions, and thereby causing an equal flame all around the trough 14. The pins also prevent any possibility of turning movement of the plate 21 incident to the rotation of the rod 19 which takes place for the purpose of adjusting the valve 18 with relation to its seat.

The sleeve 20 above referred to, has its lower end associated with a coupling 27, which coupling is formed with a branch 28 coupled to the adjacent end of an inlet pipe 29, which in turn communicates with an oil supply pipe 30 through a coupling 31. The inlet pipe 29 is coupled by a sleeve 32 to one end of a solid block coupling 33, the other end of which is threaded into the branch 38 of the coupling 27, but it will be noted that the solid block coupling 33 is provided with a series of longitudinal bores 34 through which the oil flows, from the pipe 29 into the sleeve 20, and subsequently forced through this sleeve under pressure through the course above described until it reaches the trough 14. This solid block coupling 33 also constitutes a bearing for a shaft 35 which is arranged within the inlet pipe 29, and which shaft is equipped at one end with a hand wheel 36 through the instrumentality of which the shaft is rotated to control the valve 18 above referred to. The inner end of the shaft 35 supports a bevelled gear 37 which meshes with a similar gear 38 formed with a nut 40 which is threaded on the lower threaded extremity 41 of the valve operating rod 19. Consequently when the shaft 35 is rotated in one direction, rotary motion is imparted to the bevelled gear 19 in a direction to elevate the valve 18 and when rotated in a reverse direction lowers the valve 18. The coupling 27 is also provided with a pocket or depression 42 in align with the rod 19 to allow the rod to move vertically within the sleeve 20. Furthermore, the coupling 27 is formed with a shoulder 43 upon which the nut 40 forming part of the bevelled gear 39 reposes.

In practice, an asbestos wick 44 is first placed in the trough 14 to start the burner, and as a small amount of heat has been generated the burner works automatically. In other words, the valve 18 can be conveniently adjusted to regulate the quantity of oil admitted to flow to the trough, the oil passing from the supply pipe 30, through the inlet pipe 29 and sleeve 20. The air enters through the lower end of the centrally located tubular member 15, and also through the series of openings 16, and is thus conveyed through the trough on opposite sides thereof giving a circular flame. Depending from the bottom 10 of the casing is a small coupling 45 to which a small pipe (not shown) may be attached, which pipe is utilized to carry off the surplus oil in event that the fire or burner should go out for any reason. Furthermore, a pilot light is arranged within the casing and indicated at 46. Manifestly, the burner can be operated and controlled by anyone, for instance a small child if used for domestic purposes, and as above stated, it possesses maximum efficiency with a minimum consumption of fuel. The trough 14 can also be quickly removed from the casing when it is necessary to clean or repair the trough, and this can be easily accomplished by first removing the heating plates 21 and 22. Again, the solid coupling 33 provides for an adjustment between the gears 37 and 39 to compensate for wear between these parts.

While it is believed that from the foregoing description, the nature and advantages of the invention will be readily apparent, we desire to have it understood that we do not limit ourselves to what is herein shown and described, and that such changes may be resorted to when desired as fall within the scope of what is claimed.

Having thus described the invention, we claim:

1. An oil burner comprising a casing including spaced inner and outer walls, a trough arranged within the confines of the inner wall and substantially flush with the upper edge thereof, means for directing air to the trough from the opposite sides of the latter, an oil supply pipe supporting said burner, spaced heating plates disposed above said pipe and designed to equally distribute the oil from the pipe into the trough, a valve associated with one of said plates, and means for adjusting the valve toward and away from the adjacent end of said pipe to regulate the quantity of oil admitted to the trough.

2. An oil burner comprising a casing including spaced inner and outer walls, a tubular member arranged centrally of the burner, a trough interposed between the inner wall and said tubular member and lying substantially flush with the upper edge of said inner wall, the space between said in-

ner and outer walls defining an air inlet chamber having openings in the bottom thereof, said chamber opening into said trough at one side thereof, said tubular member being open at the bottom whereby air is admitted to the trough from the opposite side thereof, oil supply pipe supporting the burner, spaced heating plates arranged above said pipe and adapted to convey the oil from the pipe to the trough, and a manually operable valve movable toward and away from the adjacent end of said pipe and arranged to regulate the quantity of oil admitted to the trough.

3. An oil burner comprising a casing including spaced inner and outer walls, a trough arranged within the confines of the inner wall, means whereby air is directing to the trough from the opposite sides thereof, a fuel supply pipe arranged centrally of the burner and supporting the latter spaced heating plates arranged above said pipe and substantially dome shape, one of said plates being supported on said pipe a vertically movable rod arranged within the pipe and supporting the other of said plates, a valve carried by the last mentioned plate, means for simultaneously adjusting said valve and plate to regulate the quantity of oil admitted to the trough, the space between said plates constituting a channel through which the oil flows from the pipe to the trough, and means for guiding the second mentioned plate in its movements toward and away from the stationary plate.

In testimony whereof we affix our signatures.

FRED F. UHL.
HEBER J. UHL