

P. G. HUBERT.
OIL BURNER.
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976,367.

Patented Nov. 22, 1910.

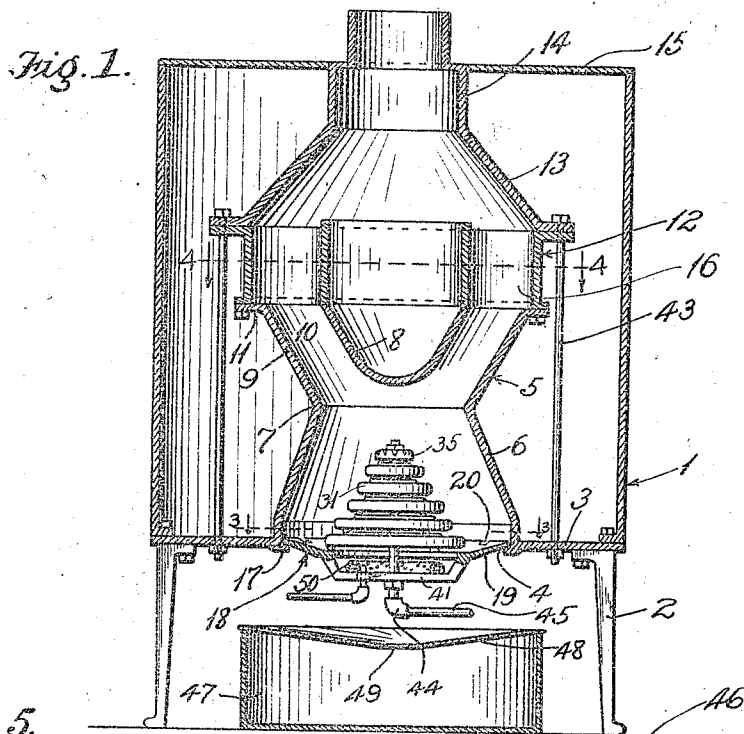


Fig. 5.

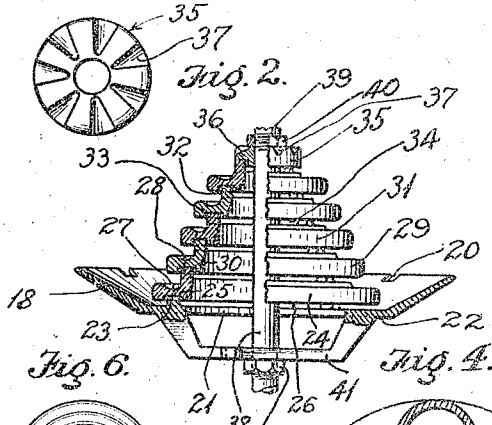


Fig. 3.

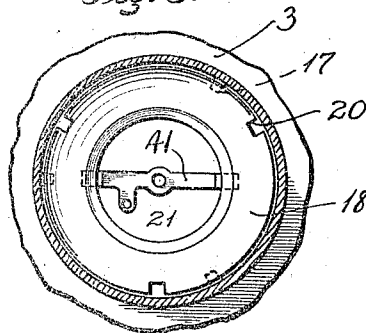


Fig. 6.

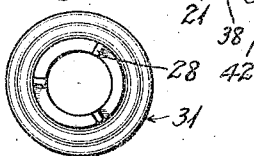
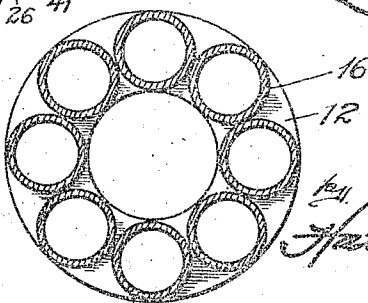


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

PHILIP G. HUBERT, OF LOS ANGELES, CALIFORNIA.

OIL-BURNER.

976,367.

Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed February 3, 1910. Serial No. 541,736.

To all whom it may concern:

Be it known that I, PHILIP G. HUBERT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Oil-Burners, of which the following is a specification.

This invention relates to a novel oil burning furnace construction, and the object thereof is to provide a burner of improved configuration which will have a high heating efficiency and which can be quickly removed from its operative position for cleansing purposes when desired.

In the annexed drawing which fully illustrates my invention, Figure 1 is a vertical central section taken through the furnace constructed according to my invention and provided with one of my burners, in this view the burner is shown partly in elevation. Fig. 2 is a vertical section and partial elevation of the burner. Fig. 3 is a section taken on the line 3-3 of Fig. 1, but simply representing the base plate or pan of the burner, the upper portion of the burner being removed. Fig. 4 is a cross section on the line 4-4 of Fig. 1, upon a reduced scale. Fig. 5 is a plan of the upper end or crown of the burner. Fig. 6 is a plan of one of the intermediate rings, which compose the body of the burner.

In the drawing annexed hereto I have illustrated a form of furnace which may be advantageously employed with my improved burner, but my improved burner may be adapted to furnaces of different constructions without minimizing the efficiency of the burner and producing the results equally as good as in the construction illustrated.

Referring more particularly to the parts, 1 represents the case of the furnace, which may be of cylindrical form supported on legs 2 and having a bottom head 3 with a central opening 4. Over this central opening 4 a heater 5 is formed, said heater presenting a conical base 6, the walls of which converge upwardly toward a waist line 7 of reduced diameter and above this waist line the heater is of inverted conical form presenting a centrally disposed inverted conical baffle 8, which is set in the upper cone 9 of the heater so as to form an annular duct 10 for the gases of combustion as they pass upwardly. The upper end of the heater is formed into a flange 11 upon which seats a heater ring 12 and on the upper end of this

heater ring a conical bonnet 13 seats, having a chimney 14 which extends through the upper head 15 of the case, but the heater ring 12 is provided with a plurality of short vertical heating tubes 16, the lower ends of which are in communication with the annular duct 10 and the upper ends of which are in communication with the interior of the bonnet 13. The edge of the opening 4 is formed with a plurality of inwardly projecting lugs 17, and these lugs afford means for supporting the base 18 of the burner. This base is in the form of a shallow dish having a slightly inclined flange 19. The edge of this flange is provided with a plurality of notches 20 which correspond to the lugs 17 and are adapted to permit the base to be passed upwardly through the opening when the notches register with the lugs. Then if the base be rotated slightly so as to throw the notches and lugs out of register, the base will then be supported on the lugs.

As indicated most clearly in Fig. 2 the bottom 22 of the base is formed with a central opening 21 of large diameter and near the edge of this opening the upper side of the bottom 22 is formed with a plurality of upwardly projecting lugs 23, preferably three in number. On these lugs 23 there is supported a base ring 24, which is formed on its under side with recesses 25 corresponding to the lugs 23 and these recesses seat on the lugs, as indicated, so as to support the base ring slightly elevated above the bottom 22, in this way an annular opening or air vent 26 is formed for the admission of air which passes upwardly through the opening 21. On its upper side the base ring 24 is formed with a shallow circumferential groove or cup 27. The upper side of the base ring 24 is formed with a plurality of lugs 28, similar to the lugs 23, and upon these lugs 28 an intermediate ring 29 is supported. This ring 29 is similar to the ring 24, but is of smaller diameter. It is formed with recesses 30, which seat on the lugs as indicated. Upon this intermediate ring 29 three more similar intermediate rings 31 are piled in succession, said rings 31 being of gradually decreasing diameter in an upward direction. These rings 31 are provided on their upper sides with lugs 32 which are received in corresponding notches 33 on the under side of the rings next above. In this way when the complete burner is formed it presents a plurality of annular air vents 34, which are de-

creasing in diameter toward the upper end of the burner. On the uppermost of these rings 31, a crown 35 seats, said crown being in the form of a small thick disk having 5 notches 36 on its under side, which seat on the upwardly projecting lugs of the ring just below. On the upper side of the crown, 35 radial grooves 37 are formed.

10 Passing centrally up through the burner I provide a feed pipe 38, and this feed pipe has a serrated edge 39, which is disposed a short distance beyond the crown 35. The upper end of the pipe 38 is threaded so as to receive a clamping nut 40 which seats on the 15 upper side of the crown as shown. The bottom 22 of the base is provided with a downwardly offset integral cross bar or cross head 41 and the feed tube preferably passes through this cross head as shown. 20 On the tube 38 a nut 42 is provided which seats against the under side of this cross bar. From this arrangement it will be seen that when the nuts 40 and 42 are tightened up the crown 35 will clamp all the rings to the 25 base and form a rigid structure.

In order to brace the bonnet directly from the lower head 3 of the case 1, I provide long bolts 43, which pass downwardly to the flange of the bonnet and through the upper 30 heater-ring 12, the lower ends of the said bolts passing through the head 3, as shown in Fig. 1. The lower end of the feed tube 38 connects by a suitable elbow 44 with a horizontal supply pipe 45. Centrally disposed 35 under the burner on the floor 46 I provide a basin or pan 47 having a slightly dished cover 48 with a central opening 49, and this cover is adapted to catch any of the fuel which drips down unconsumed from the 40 burner. At a suitable point under the base 19 of the burner I provide a gas burner 50, which operates as a pilot burner. This burner should be lighted before the liquid fuel burner and operates to heat the rings so 45 that they will vaporize the liquid fuel, and it will set fire to the vapors passing upwardly.

In the operation of the burner, the liquid fuel overflows at the serrated edge of the feed pipe 38 and flows downwardly through 50 the grooves of the crown, it then descends in succession into the annular cups which are formed in the intermediate rings. In this connection attention is called to the fact that the edge of each intermediate ring is 55 disposed over the cup next below. If any of the oil or liquid fuel should maibe consumed by the time it reaches the cup of the base ring, it will overflow onto the bottom 22 of the base 18 and fall through the central opening 21 onto the cover 48 of the pan 47. Special attention is called to the fact that all of the intermediate rings and the base of the burner have annular air vents 60 supplying them respectively with a sufficient quantity of air. 65

By removing the burner from the furnace and removing the nut 40, the crown and the rings may be removed and cleaned.

Having described my invention what I 70 claim as new and desire to secure by Letters Patent is:

A burner having a dished base with a central opening, a bar transverse said opening, a fuel pipe passing upwardly through 75 said bar and secured thereto, a plurality of burner rings piled one upon another and progressively of smaller diameter in an upward direction, said rings having projecting lugs therebetween forming air spaces be- 80 tween the adjacent faces of said rings, the upper end of said fuel pipe having a thread, a nut received on said thread, and a crown in the form of a disk under said nut and clamping all of said rings to said base, said 85 rings having annular grooves in the upper faces thereof adapted to hold a liquid fuel.

In witness that I claim the foregoing I have hereunto subscribed my name this 28th day of January, 1910.

PHILIP G. HUBERT.

Witnesses:

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