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H. R. WALKER

OIL BURNER

Filed May 23, 1924

Fig. 1

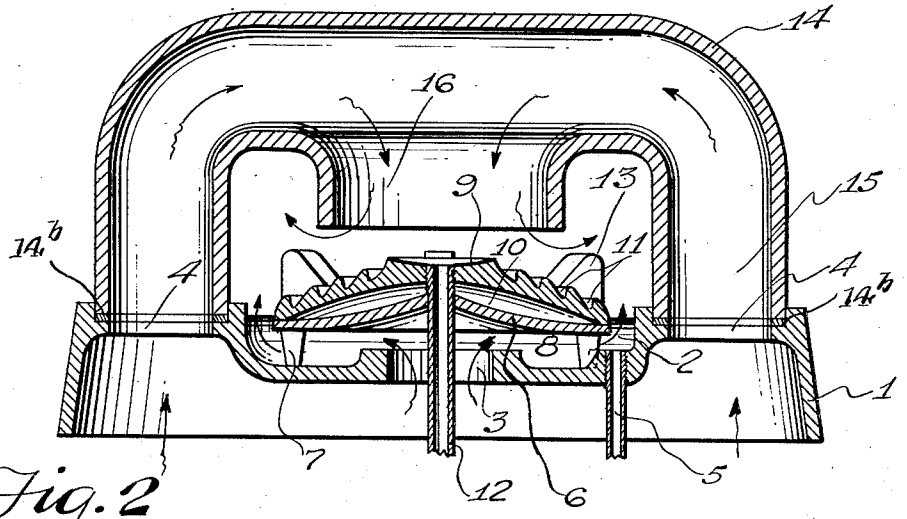
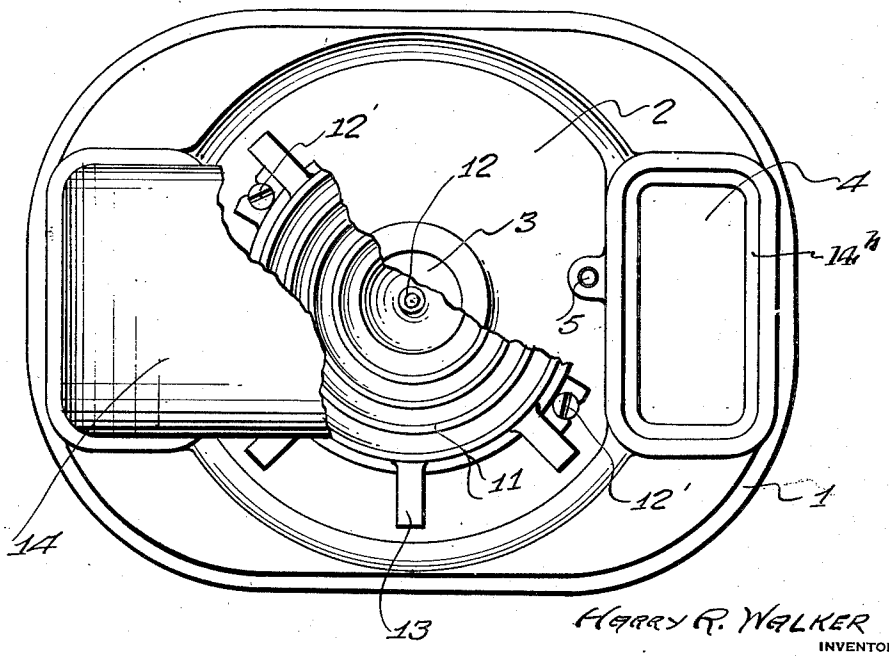



Fig. 2

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# UNITED STATES PATENT OFFICE.

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## OIL BURNER.

Application filed May 23, 1924. Serial No. 715,434.

*To all whom it may concern:*

Be it known that I, HARRY R. WALKER, a citizen of the United States, residing at St. Louis and State of Missouri, have invented new and useful Improvements in Oil Burners, of which the following is a specification.

This invention relates to an oil burner and has for its primary object the construction of an oil burner which will more efficiently burn the various grades of oils in such a manner that complete combustion is assured.

An object of the invention is to accomplish complete combustion with the maximum amount of heat.

Another object of my invention is the novel manner of distributing the air supply so as to accomplish the mixing of the air with the oil vapors to assure intense heat and prevent accumulation of carbon.

A feature of my invention is the novel manner of constructing the burner cone so that air drafts will be prevented from coming into direct contact with the burner cone which would tend to cool same and lower the efficiency of the burner.

Another feature of my invention is the novel manner in which the cold air passes around to immediately enter into the burning fuel to give proper proportion of oxygen and fuel to assure complete combustion.

It will be noted that the manifold is so positioned as to be heated so that the air passing therethrough will tend to cool to a certain extent the manifold but the air will be heated to a degree as to increase vaporization of the oil that comes in contact with the heated air.

Besides the above my invention is distinguished in the novel manner of constructing and associating parts so that the air supply will be automatically controlled in proportion to the heat generated and the amount of fuel burned.

With these and other objects in view the invention will be better understood from the following detailed description taken in connection with the accompanying drawing wherein:

Fig. 1 is a vertical sectional view of one form of construction of my burner.

Fig. 2 is a top plan view with parts broken away.

Again referring to the drawing illustrating one of the many constructions of my invention the numeral 1 designates a base shown in this particular instance as one piece construction and hollow. The center portion of this base is depressed to form a basin 2. Centrally arranged in the basin is an auxiliary air feed port 3 while main air feed ports 4 are arranged on opposite sides of the basin. An oil overflow pipe 5 communicates with the basin.

My improved oil burner proper or burner cone construction comprises a deflector 6 having legs 7 for spacing the edge of the deflector from the bottom of the basin to form an air passage 8 which is in direct communication with port 3. Mounted upon this deflector 6 is a burner cone 9 of the construction to leave a dead air space 10 between the burner cone and the deflector for the purpose hereinafter described.

The burner cone is formed with a plurality of concentric grooves 11 of different elevations so that the oil passing from the oil feed pipe 12 will pass over the burner cone and gradually feed towards the edge of the burner cone. These grooves assure accumulation of a predetermined amount of oil so that air currents may act thereon to cooperate with the heating effect to cause vaporization of the oil.

The burner cone and the deflector are clamped in place by the screws 12′. Radiating wings 13 are shown projecting from the burner cone in position to be enveloped in the flames generated so that certain amount of heat will be conducted back to the burner cone to keep same at the required temperature to cause efficient vaporization of the oil. The manifold 14 has its ends removably positioned in the grooves 14ᵇ in the base with its inlet ports 15 in communication with the main air feed ports 4 and has an outlet 16 of the required capacity directly arranged over the burner cone so that air currents, which are heated, passing upwardly through the manifold will be deflected down on the entire quantity of oil passing over the burner cone.

From the foregoing description taken in connection with the accompanying drawing it will be apparent that in the operation of my improved burner the oil will be properly distributed to be subjected to warm air currents passing through the manifold which will assure vaporization of the oil. The burning of the oil at the edge portion of the

burner cone will heat the wings which in turn will conduct heat back to the burner cone to increase the vaporization of the oil. Cold air currents passing through the port 3 and upwardly around the edge of the deflector will properly mix with the flame to give the required oxygen to assure complete combustion and intense heat. This cold air will not affect the temperature of the burner cone as same is deflected therefrom by arrangement of the deflector 6 and the dead air space 10.

It is, of course to be understood that the burner cone and deflector may be constructed in various other ways than illustrated and arranged in other relations and the base and conduit may be constructed in various ways and associated in other relations, therefore, I do not desire to be limited in any manner except as set forth in the claims hereunto appended.

Having thus described my invention what I claim is:

1. An oil burner comprising in combination a burner cone, means for discharging air downwardly upon the burner cone, means for passing air under the burner cone and around the edge thereof, means for preventing air coming under the burner cone from striking directly against the burner cone, means for conducting heat back to the burner cone and means for delivering oil to the burner cone.

2. An oil burner comprising in combination a one piece hollow base having a basin formed in the center thereof, a centrally arranged auxiliary air feed port communicating with the basin, main air feed ports to opposite sides of the basin, an oil over-flow pipe communicating with the basin, a deflector having legs projecting therefrom resting upon the bottom of the basin to space the deflector from the basin and form an air passage in communication with said auxiliary air port, a burner cone mounted on the deflector having concentrically arranged grooves therein, there being a dead air space between the deflector and burner cone, wings cast solid with the burner cone and projecting into position to be enveloped in the flames generated, an oil feed pipe for passing oil to the burner cone, and a manifold communicating with the main air feed ports and having an air discharge outlet arranged directly over the burner cone.

3. In a burner structure a burner cone, a deflector having its marginal edge portion engaging the burner cone but its remaining portion spaced therefrom, wings carried by the burner cone at the point of engagement of the burner cone and the deflector and means for delivering oil to the burner cone.

4. In an oil burner, a base, a burner cone supported centrally thereof to space such cone from the bottom and edge of the base, wings radiating from the burner cone into the space between such cone and the base, a deflector underlying the burner cone and spaced therefrom except at the edge to thereby provide a dead air space below the burner cone, means for delivering air between the base and deflector and to the space between the edge of the burner cone and the base, and a manifold for delivering air onto the burner cone, said manifold being subjected to the flame from the burner, and means for delivering oil to the burner cone.

In testimony whereof I affix my signature.

HARRY R. WALKER.