

J. WILKINSON.
OIL BURNER.
APPLICATION FILED JUNE 1, 1920.

1,422,907.

Patented July 18, 1922.

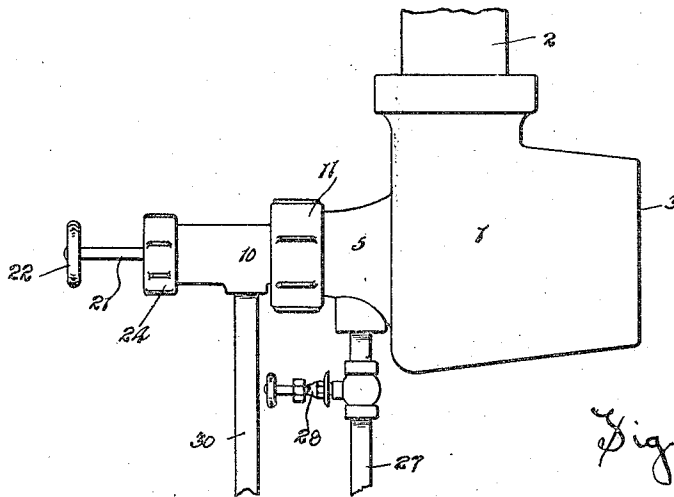


Fig. 1

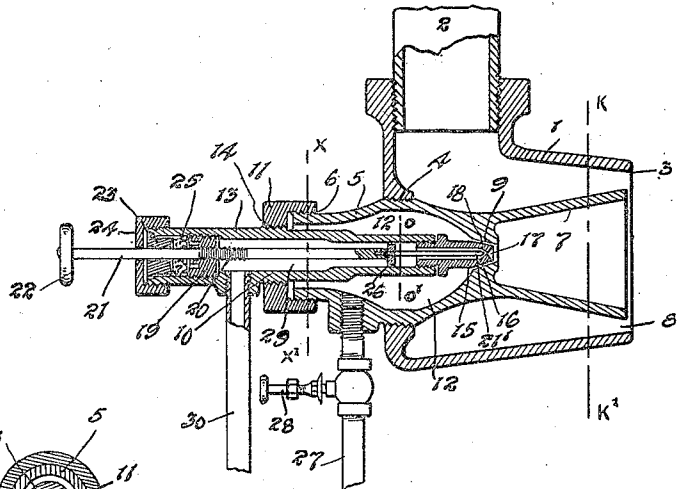


Fig. 2

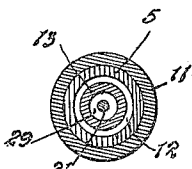


Fig. 3

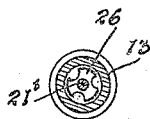


Fig. 4

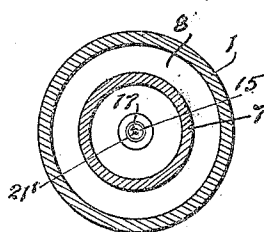


Fig. 5

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JESSE WILKINSON, OF WINNIPEG, MANITOBA, CANADA.

OIL BURNER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JESSE WILKINSON, of the city of Winnipeg, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Oil Burners, of which the following is the specification.

The invention relates to improvements in oil burners and the general object of the invention is to provide a simply constructed, inexpensive, easily assembled, durable and efficient burner for burning oil.

A further object is to construct an oil burner having distinct entrance chambers into which oil and primary air are separately fed under pressure, and from which the oil and air are liberated through adjusting valves to a mixing chamber where they are intimately mixed and afterwards combined with auxiliary air supplied from an outside source.

A further object is to arrange the valve control so that it can be adjusted conveniently and minutely.

With the above objects in view the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described and later pointed out in the appended claim, reference being had to the accompanying drawing in which:—

Fig. 1 represents a side view of the complete oil burner.

Fig. 2 represents an enlarged longitudinal sectional view centrally through the burner.

Fig. 3 represents a sectional view transversely through the burner, the section being taken at X—X' Fig. 2 and looking inwardly.

Fig. 4 represents a sectional view through a portion of the burner, the section being taken at O—O' Fig. 2.

Fig. 5 represents a sectional view transversely through the burner, the section being taken at K—K' Fig. 2.

In the drawing like characters of reference indicate corresponding parts in the several figures.

1 represents the body or head of the burner which is more or less elbow shaped, being fitted with an air inlet pipe 2 at one end and having the other end gradually contracted to the outlet 3. Directly opposite the outlet the back of the burner is bored and screw threaded as shown at 4 to receive a casing 5 which has the outer end gradually contracting and screw threaded at its extremity at

6 and the inner end gradually contracting and then flaring to provide a flaring mouth piece forming a mixing chamber. The external diameter of the larger end of the mouth piece is somewhat less than the interior diameter of the outlet 3 so that an annular air space 8 is provided around the mouth piece to allow of the escape of the auxiliary air admitted through the pipe 2. At the inner end of the mouth piece the casing is provided with a cone shaped valve seat 9 for a purpose later disclosed.

10 represents an atomizer adjustably connected by means of the adjusting nut 11 to the casing and having the inner end thereof entering the chamber 12 provided within the casing and forming in reality a primary air chamber. The atomizer comprises the parts now described.

13 represents a barrel or inner casing screw threaded as indicated at 14 into the nut 11, it being here understood that the threads 14 are oppositely cut to those 6, that is to say, they are respectively right and left hand threads. The inner end of the barrel is internally screw threaded to receive the nozzle 15, the extending end of which forms a cone valve face 16 designed to seat on the valve seat 9. The nozzle is supplied with a tapering outlet orifice 17 and with a tapering internal valve seat 18. Within the outer end of the barrel I locate a regulating nut 19 which is interiorly screw threaded to receive the screw threaded part 20 of a valve stem 21 passing lengthwise of the barrel and provided at the inner end with a needle valve 21' and at the outer end with a hand wheel 22. The outer end of the barrel is closed by a gland 23 and a packing nut 24, packing being interposed between the gland and the adjusting nut to prevent leakage past the nut 19.

A notched guiding disc 26 carries the inner end of the valve stem slidably within the inner end of the barrel.

From the above construction it will be obvious that one, by turning the hand wheel 22 can adjust the needle valve towards or away from the valve seat 18 as occasion may require.

27 represents an air pipe, for primary air, leading to the chamber 12, which pipe is designed to feed high pressure air to the chamber. A controlling valve 28 of any suitable design is provided to control the air passing through the pipe 27 to the air chamber.

The barrel 13 forms an inner oil chamber 29 and to it I lead the oil utilized in the burner, the oil entering through the pipe 30. In actual practice this pipe 30 will be stationary so that it has a constant tendency to prevent any rotation of the barrel although it will allow of a slight in and out movement of the barrel as required when the adjusting nut 11 is manipulated. From the above disclosure it will be apparent that one can adjust the atomizer by turning the nut 11, the action of which is to withdraw the valve face 16 away from or advance it towards the seat 9, thereby controlling the outlet of the primary air from the air chamber 12 into the mixing chamber or mouth piece 7.

Further, it will be seen that by manipulating the hand wheel 22 the flow of oil from the oil chamber to the mixing chamber will be controlled at the seat 18.

In actual practice both the primary air and the oil are fed into their respective chambers under pressure, whilst the auxiliary or secondary air admitted through the pipe 2 is low pressure air.

When one wishes to use the oil burner he initially adjusts the nut 11 to open the valve 16 and allow the high pressure or primary air to escape from the chamber 12 past the valve seat 9 into the mixing chamber. He then opens the needle valve by manipulating the hand wheel 22 and allows the oil to feed from the chamber 29 past the valve seat 18 into the mixing chamber. This oil in passing to the mixing chamber is broken up by the guide disc and becomes vaporized at the nozzle where it enters the mixing chamber and is mixed with the air. The resultant mixture escaping from the mixing chamber is intimately mixed with the low pressure air passed through the opening 8 and this mixture

is ignited to form the flame utilized for heating purposes.

It is here remarked that the low pressure air is supplied to support combustion and to make the mixture a more lean one.

What I claim as my invention is:—

A burner comprising a hollow body, having right angularly related inlet and outlet openings and provided with a threaded aperture in line with the outlet, a hollow casing having the intermediate portion thereof threadedly engaged in said aperture and the forward portion thereof projecting into the body, said casing being formed with a flaring mouthpiece, the tip of which terminates at or near the outlet end of the casing and provides, in conjunction with said end, an annular discharge passage leading from the body, a partition wall at the juncture of the casing and mouthpiece formed with an aperture providing a valve seat, a hollow barrel projecting into the casing from the rear end thereof, an adjustable connection between the barrel and casing closing the rear end of the latter and permitting the barrel to be adjusted toward or away from said valve seat, a detachable nozzle carried by the inner end of the barrel and adapted to said seat to control communication between the casing and the mouthpiece, a hollow rod extending through the barrel and having a needle valve at its inner end adapted to a valve seat formed in the tip of the nozzle, and means for supplying oil to the barrel and means for supplying air to the casing.

Signed at Winnipeg, this 6 day of May 1920.

JESSE WILKINSON.

In the presence of:—

G. S. ROXBURGH,
W. C. BOGGISS.