Aug. 20, 1940. W. BERTHIAUME ET AL 2,212,004

OIL BURNER

Filed June 19, 1937

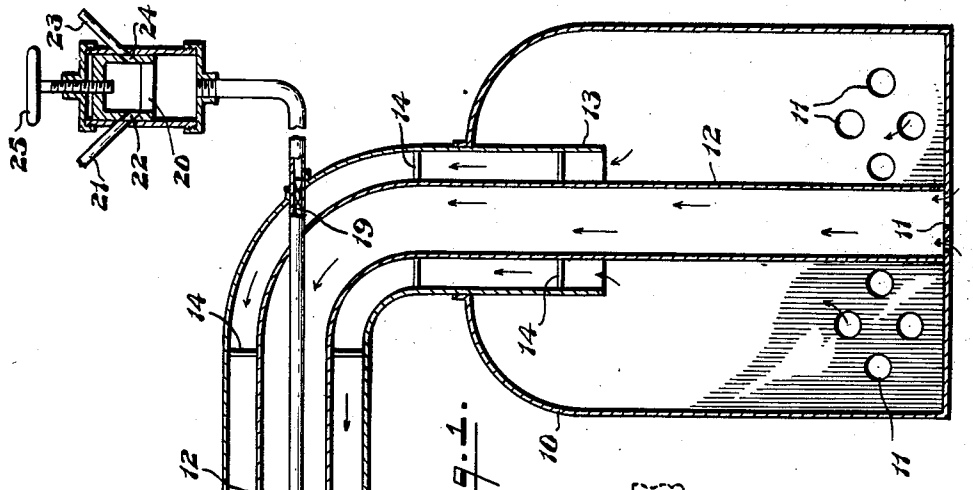


Fig. 1.

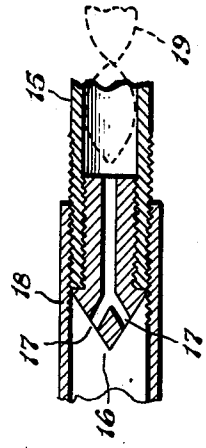


Fig. 3.

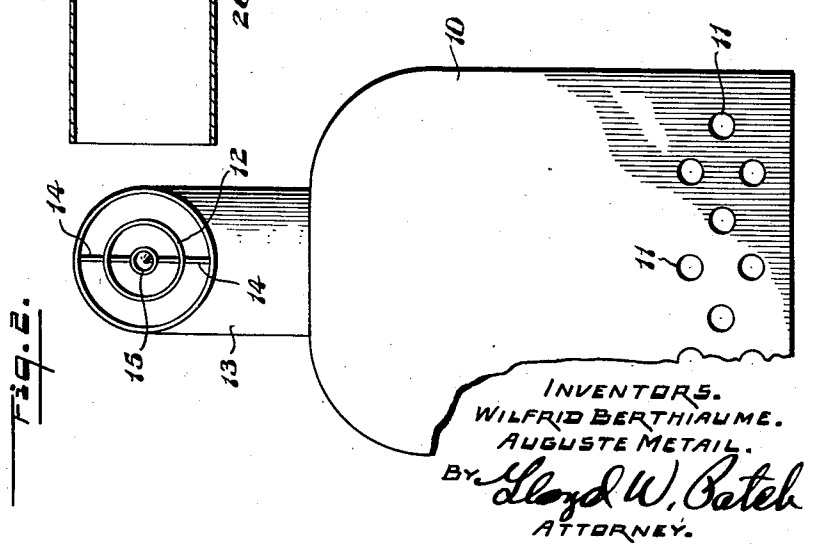


Fig. 2.

INVENTORS.
WILFRID BERTHIAUME.
AUGUSTE METAIL.
BY Lloyd W. Bateh
ATTORNEY.

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OIL BURNER

Wilfrid Berthiaume and Auguste Metail,
Montreal, Quebec, Canada

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In Canada June 22, 1936

1 Claim. (Cl. 158—76)

This invention relates to oil burners and more particularly to that type of apparatus adapted to burn all classes of liquid fuel such for example as are commonly known as crude oil, paraffine, gasoline, drained crank case oil, etc.

One of the several objects contemplated in the present invention is the provision of a device of this character for the practical and economical consumption of all types of combustible liquid fuels for heat generating purposes.

Another object of the present invention is to provide a device of this character which may be readily and conveniently installed in a heating unit such as a furnace.

A further object of the present invention is to provide apparatus of this character which is easily regulated and controlled and where a maximum amount of heat is developed in the most economical manner.

Still a further object of the present invention is to provide apparatus of this character with means wherein the component combustible elements are thoroughly mixed and blended prior to combustion.

Yet a further object of the invention is to provide apparatus of this character which is simple in structure, economical in operation and one that may be manufactured at a low cost.

With the foregoing and other objects and advantages in view and which will become apparent as the description proceeds, the invention consists essentially in the novel structural combination and arrangement of parts hereinafter described in particular detail and illustrated in the accompanying drawing in which;

Fig. 1 is a longitudinal sectional elevation of an embodiment of our invention.

Fig. 2 is an end view of Fig. 1 in elevation, and

Fig. 3 is an enlarged sectional detail of the burner or jet member.

Referring now to the drawing wherein like numerals of reference designate corresponding parts in the accompanying illustrations, the numeral 10 indicates a chamber of any suitable style, type or shape which is provided with a series of air inlet openings 11.

Communicating with the upper portion of the chamber 10 and extending upwardly therefrom and then at right angles thereto are air conducting conduits 12 and 13 which provide a cooling flow of air and a supply of oxygen for the burner as will be later described. The conduit 12 is encompassed by the conduit 13 and is supported therewithin by suitable means such as stays or braces 14 which retain the conduits in spaced relation.

Extending longitudinally of the horizontally arranged section of the conduit 12 and supported axially thereof is a fuel conducting conduit 15 through which the combustible materials are adapted to be conducted to the burner nozzle or jet 16 which is provided with jet openings 17. It will be observed by particular reference to Figs. 1 and 3 that the burner 16 is provided with a threaded sleeve 18 which may be adjusted or varied as to relative position to enable the burner nozzle to the more efficiently perform its function where various types of fuel are employed.

Mounted within the conduit 15 and axially rotatable therein is a mixing and conducting worm or screw 19. The worm is designed to thoroughly unite and mix the combustible materials fed to the burner nozzle by the helicoidal motion given.

The conduit 15 extends outwardly from the conduits 12 and 13 and is provided with a control or regulating valve 20. Communicating with the control valve is a fuel supply pipe 21 which is adapted to supply fuel either by gravity or pressure to the valve through inlet 22.

The feed pipe 23 opposed diametrically to the pipe 21, is adapted to supply either steam or air, preferably under pressure, to the valve chamber by way of inlet 24. A control or operating handle 25 enables the flow of fuel and steam or air admitted to the apparatus to be efficiently and conveniently regulated and controlled.

In operation, the end 26 of the conduit 13 is mounted in the furnace or heat distributing unit with the chamber 10 preferably elevated from the floor a suitable height. With the control valve 20 properly adjusted the combined fuel and steam or air flow into the valve chamber, where, due to the opposing relation and disposition of the respective feed pipe inlets, the combustible elements introduced become mixed and blended and travel to the worm 19 where they are further comingled and then in a thoroughly united state are conducted in helicoidal motion to the burner or jet 16. With the combustion of the fuel elements a vacuum is created and air is drawn through the openings or orifices 11 from whence it is carried by means of the conduits 12 and 13 to the burner area, the former conduit providing a cooling arrangement and the latter an added supply of oxygen for the burner nozzle.

Many changes may be made in the above embodiment as to structure, size, arrangement, position, etc., and many apparently widely different

embodiments constructed without departing from the spirit or scope thereof. It is intended therefore that all matter herein contained shall be interpreted as illustrative and not in a limitative sense.

What we claim as our invention is:

In a device of the character described, a chamber provided with a series of air inlet openings, an air conducting conduit extending upwardly from the top of said chamber and thence angularly to terminate and open substantially horizontally, a smaller second air conduit extending from the bottom of said chamber coaxially in said first air conduit and terminating short of the open end of the first mentioned conduit, a fuel conducting conduit mounted within the inner air conducting conduit, a burner nozzle mounted on the end of said fuel conduit, a worm within said fuel conduit, an adjustable tubular sleeve extending from said nozzle and terminating short of the open end of the inner air conduit, and the bottom of said chamber being provided with openings for supplying air to said second air conduit.

WILFRID BERTHIAUME.
AUGUSTE METAIL.