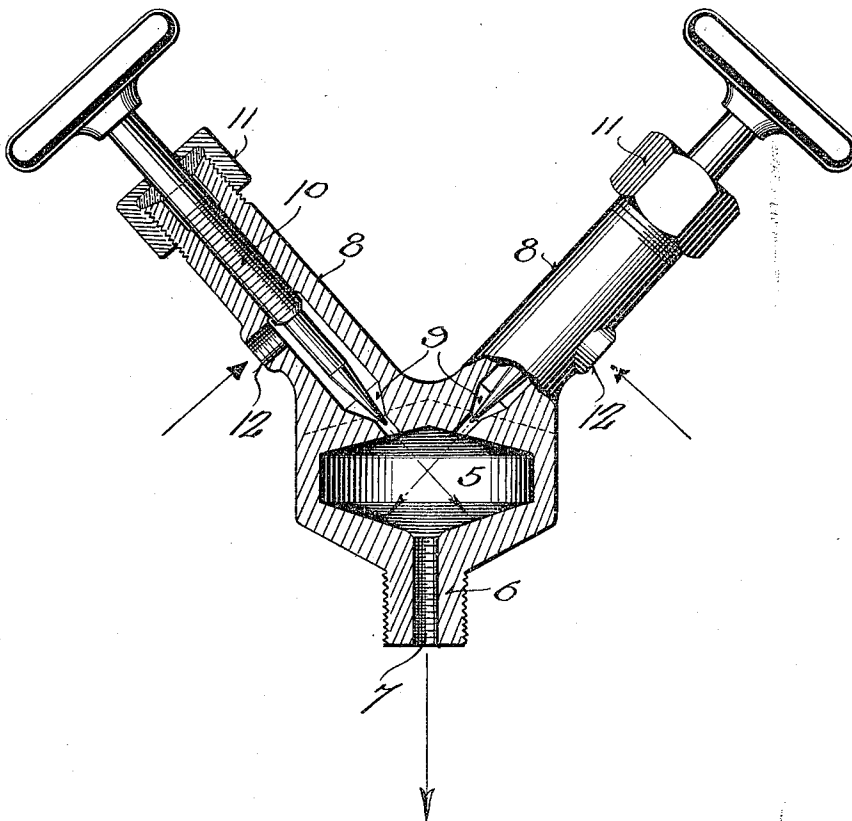


C. PETRAN & C. G. JUNEAU.
OIL BURNER.
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By

Inventors
Charles Petran
Charles G. Juneau
Geo. Young
Attorney

UNITED STATES PATENT OFFICE.

CHARLES PETRAN AND CHARLES G. JUNEAU, OF MILWAUKEE, WISCONSIN.

OIL-BURNER.

1,230,212.

Specification of Letters Patent.

Patented June 19, 1917.

Application filed April 6, 1916. Serial No. 89,284.

To all whom it may concern:

Be it known that we, CHARLES PETRAN and CHARLES G. JUNEAU, both citizens of the United States, and residents of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Oil-Burners; and we do hereby declare that the following is a full, clear, and exact description thereof.

The present invention relates to carbureting devices for procuring a proper mixing of air and fuel particularly with respect to oil burners.

A common type of mixing devices associated with the burners of oil burning furnaces includes a mixing tube into which the air is drawn by the velocity of the oil jet, but the use of this type of device does not in practice procure a sufficiently intimate mixture of the air and fuel and results in accumulations of carbon on the walls of the furnace.

It is therefore an object of the present invention to provide in the present connection a mixing device wherein a proper intimate mixture of air and fuel is procured to effect a complete combustion of the fuel.

Another object resides in the provision of a mixing device which is of exceedingly simple nature to promote economy of manufacture and durability in use, and in this connection it is more specifically an object to provide a mixing device comprising a single casting.

With the above and other objects and advantages in view, the invention resides more particularly in the novel combination, arrangement and formation of parts more particularly hereinafter described and particularly pointed out in the appended claim.

In the drawings:

The figure illustrates a longitudinal sectional view taken through a mixing device constructed in accordance with the present invention.

Referring now more particularly to the accompanying drawings, there is provided a cylindrical mixing chamber 5, having its end walls formed in conical shape. A boss 6 extends from one of these end walls and is threaded to engage in the wall of the fire box of the furnace, and this boss and the adjacent wall portions are bored to provide the outlet port 7 of the mixing chamber, this port being threaded for the reception

of a suitable nozzle pipe adapted to extend into the furnace.

Integrally extending from the other end wall of the mixing chamber is a pair of divergent arms 8 which are longitudinally bored throughout and which have the inner ends of their bores taperingly reduced at 9 to provide seats for needle valve pins 10 which are passed through the bore and have their outer enlarged portions threadedly engaged with the walls of the bores to procure conventional needle valve structures. Packing glands 11 surround the stems at the outer ends of the arms and the intermediate portions of the arms are provided each with a lateral passage 12 threaded to receive air and fuel supply pipes respectively.

In the drawing both of the inlet port structures are shown as similar in nature and thus may be interchangeably used in connection with air and fuel, but it will be of course appreciated that in actual practice the specific details of these ports and the needle valves therefor may be varied to provide a structure of maximum efficiency.

The air and fuel inlet ports thus communicate with the chamber in convergent relation and the axes of the ports intersect at a point adjacent the center of the chamber as shown in the drawing. As the air and fuel enter the chamber, both under considerably high pressure, a churning action is procured and the mixture emerges from the chamber at a considerable velocity, the discharge of the mixture from the chamber being facilitated by the deflection of the conical wall portions of the chamber.

Practice has demonstrated that the present specific form of mixing chamber produces a mixture wherein a practically complete combustion of the fuel is procured.

Attention is directed to the exceedingly simple construction and arrangement of the present device wherein the usual mixing tube is entirely dispensed with, and it is noted that the mixing device may be readily associated with the furnace or removed if desired for replacement or repair, the entire mixing chamber and inlet port arms comprising a single casting and thus conducing to an exceeding economy of manufacture.

Although the present device has been particularly described as for procuring a mixture of air and fuel oil it is obvious that

the structure is equally efficient in procur-
ing an intimate mixture of other fluids as
in some instances, it might be desired to mix
oil and water or oil and steam in the present
5 device.

We claim:

A mixer of the class described comprising
a relatively large mixing chamber having
its opposite end walls conical shaped, the
10 side wall portions being cylindrical and of
a diameter approximately twice the distance
between the apices of the end wall, a boss
extending from the center of one of said end
walls and having a bore extending there-
15 through into the chamber at the apex of one
of the end walls to form an outlet port
having a diameter of less than one-fifth of
the side wall portion, a pair of outwardly
divergent arms fixed to the opposite wall
20 of the chamber, each having a bore extend-
ing longitudinally therethrough and com-

municating with the chamber on each side
of the apex of the end wall opposite the
outlet port to form inlet ports the axes of
the bores of the arms intersecting in the 25
center of the chamber substantially mid-
way between the apices thereof, whereby
fluid from the inlet ports will impinge on
the opposite wall of the chamber on each
side of the outlet port, said arms each hav- 30
ing an inlet extending into the bore thereof,
the inner ends of said bores of the arms
inwardly of the last mentioned inlets being
restricted to form valve seats, and a valve
35 in each of said arms for coaction with the
valve seats.

In testimony that we claim the foregoing
we have hereunto set our hands at Milwau-
kee, in the county of Milwaukee and State
of Wisconsin.

CHARLES PETRAN.
CHARLES G. JUNEAU.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."