

April 28, 1925.

H. LECONTE ET AL

1,535,166

FLUID FUEL BURNER

Filed June 11, 1923

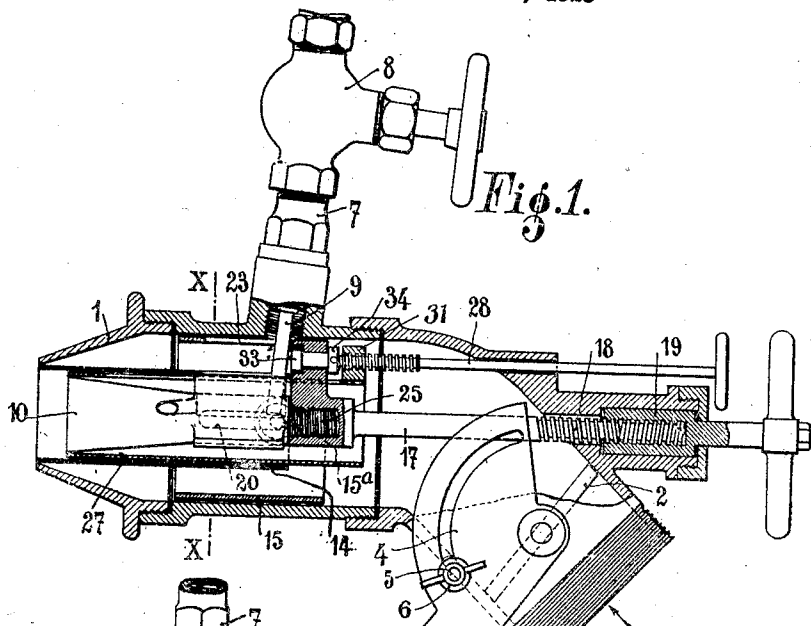


Fig. 2.

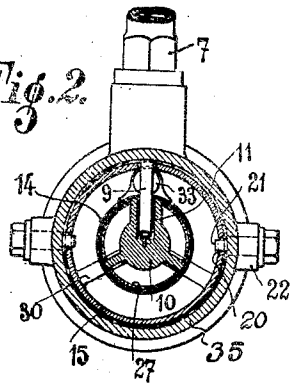


Fig. 3.

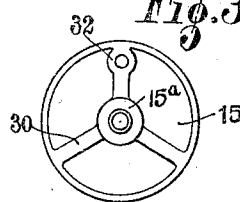


Fig. 4.

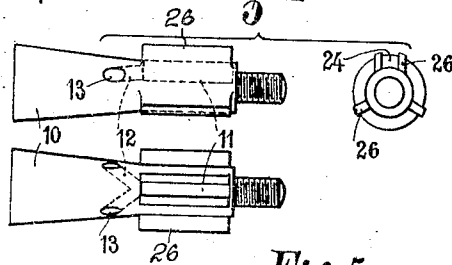
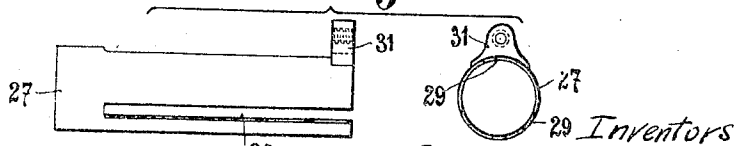


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRI LECONTE AND LOUIS HIRSCH, OF PARIS, FRANCE.

FLUID-FUEL BURNER.

Application filed June 11, 1923. Serial No. 644,718.

To all whom it may concern:

Be it known that we, HENRI LECONTE and LOUIS HIRSCH, both citizens of France, and residents of Paris, France, have invented some new and useful Improvements in Fluid-Fuel Burners, of which the following is a specification.

The invention relates to fluid fuel burners and its object is to provide a burner of the class presenting numerous advantages and among others the employment of powerful ventilators or air compressors to be dispensed with.

The burner according to the invention works with admission of air at a very low pressure, 12 to 25 grams.

In order to attain this object, the fuel is introduced at two opposite and lateral points or upon a frusto-conical member disposed in the axis of the conduit, the fuel introduced in small quantities being taken along on the generatrices of the said member by the air destined for the mixture, in a thin sheet, by sliding, up to the extremity of the said member. The base of the said member is directed against the frontal part of the burner, in a manner that the front end portion of this base constitutes a pulverizer when air escapes along the said member.

In order to render practical the burner and to assure the regulation of the intensity of the flame, the said member is arranged in the body upon a movable piston so arranged to reduce or to increase, at will, the volume of the ejected gas, to enable the employed air which is a very low pressure to be maintained at constant pressure, in all regulating positions of the piston.

For this purpose and in order to realize all intensities of the flame, from maximum to zero, the frusto-conical member acting as pulverizer is still combined with inner sheaths displacing itself, the one with the piston and the other independently, in order to throttle more or less the air passages, at the nozzle of the body and at the projecting part of the pulverizing member. If the speed of the air is completely reduced by the occlusion of the passages, the burner produces a pilot flame without intensity.

In the annexed drawings:

Fig. 1 is a longitudinal section of the jet or burner showing its whole arrangement;

Fig. 2 is a sectional view, the section being effected according to lines X—X;

Fig. 3 is a rear elevation of the piston; Fig. 4 is a view in elevation and the profile of the pulverizing frusto-conical member, and

Fig. 5 is a view in elevation and the profile of the sheath regulating the admission of air to the pulverizing frusto-conical member.

The burner consists of a frusto-conical nozzle 1, a throttling valve 2 for air regulation, a handle 3 and a sector 4 sliding upon a pivot 5 having a nut 6 for fastening purposes. Upon the tube 1 is fitted an oil admission nozzle 7 with an adjusting cock 8.

This admission of oil is connected, by a conduit 9 to the pulverizing frusto-conical member 10, said member having a channel 11 to receive said conduit, said channel terminating in two branches 12 obliquely at two points opposite to the wall of said member 10 and directed against the base.

Owing to the air pressure acting in the direction of the arrow oil admitted through the orifices 13 extends in a thin layer upon the exterior of the wall of the frusto-conical member and progresses up to the base where it is pulverized by the air beating against the projection notwithstanding its feeble pressure.

The regulation of the air is effected by the variation of the volume of the gas discharge, which gas is formed by the mixture of the oil and of the air between the point of admission of oil to the member 10 and the nozzle of the burner.

For this purpose the pulverizing member 10, to the surface of which the fuel is admitted, is disposed in a tube 14 forming the chamber where the gas is generated. This tube 14 and the member 10 are fitted conjointly in the interior of a sleeve 15 which has in its rear end an abutment 15^a and movable axially with the aid of a rod 17 and a screw 18 engaging a nut 19 provided with a handle.

The sleeve 15 is guided in its displacements by means of slots 20 which are engaged by studs 21 secured in bosses 22 with which the tubular body 35 of the burner is provided.

A groove 23 is provided in the sleeve for the passage of the oil admission tube 9 to the pulverizing member 10 provided equally with a groove 24 for the to and fro motion of the sleeve.

The admission of air is opened or closed

by the throttle valve 2 which may be acted upon by a lever 3 and fixed in the desired position by the nut 6 threaded upon the screw 5 passing into the groove of the sector 4.

During the employment of the burner the air admission is entirely open and the pressure is kept constant. A part of this air passes into the interior of the tube 14 in a sufficient quantity and at a fixed discharge in order to take along the oil to the surface of the member 10 where the pulverization of the oil is effected. Another part of the air flows against the outer periphery of the tube 14 and escapes through the tube. Hence, if the sleeve is, as indicated in the drawings, in the extreme advanced position, the cone 10 and the tube 14 are in an equivalent position and the flame is feeble owing to the reduction of the section of the tube where the air supplementary is at its minimum delivery and a minimum pressure on the wall of the member 10. On the contrary, if this flame ought to be increased with regard to its intensity, the sleeve and the whole pulverizing system are moved against the back part, in the interior at the back part of the burner, by acting upon the handle of the screw 17, in order to increase the section comprised between the tube 14 and the body of the burner, whereby the volume of the air to be discharged is also increased.

The solidarity of the pulverizing system with the sleeve 15 of regulation is effected by screwing the threaded extremity 25 of the member 10 into the base of the rod 17. The sleeve is simply fixed between the rod and a shoulder of this member 10.

The tube 14 is centered upon the member 10 by wings 26, the thickness of which is sufficient to receive the screw of fixation.

In order to reduce to zero the intensity of the flame or to reduce the same to a pilot flame, interception is effected of the air admission around the member 10 and in the interior of the tube 14 by means of a mixing tube 27. This mixing tube is regulated by means of a rod 28 which is slidable through an opening in the burner body and is screw threaded where it passes through a boss 31 and has its front end swivelly connected as at 33, 34 to an arm 32 of the abutment 15^a. Said rod 28 is provided with a handle.

In order to permit its fitting in the in-

terior of the tube 14 and of the sleeve, the mixing tube has extended notches 29 in which operate the cross pieces 30 of the sleeve.

According to the invention, the pulverizing member may be made in any suitable metal, be of any dimensions corresponding to the work to be effected; also the inclination of said member is subject of variations, according to the quality or kind of work.

What we claim, is:

1. A tubular body having an air intake member and also having a frusto-conical nozzle, a sleeve of slightly less diameter than the interior diameter of said body and arranged concentrically and slidably therein and provided with an abutment and also provided with a slot, a tube concentrically arranged in the body and nozzle, a mixing tube in said tube and provided with longitudinal slots, a pulverizing member arranged in said mixing tube and having lateral ribs extending through the slots in said mixing tube and centered in said first mentioned tube, the said pulverizing member having ducts leading to the exterior thereof, a fuel duct to supply fuel to the ducts of the pulverizing member, means to adjust the pulverizing member and the first mentioned tube longitudinally in the body and nozzle of the burner, and means to adjust said mixing tube longitudinally with respect to said first named tube and said pulverizing member.

2. A burner of the class described comprising a body having an air intake member and also having a nozzle restricted in diameter toward its discharge end, a pulverizing element in said body and nozzle and having a front portion increasing in diameter toward its front end and also having conduits leading to the surface of such portion, means to supply fuel to said conduits, a mixing tube through which said pulverizing element extends, a tube around said mixing tube and extending into the nozzle, said tube being connected to said pulverizing element for movement therewith, and means to longitudinally adjust said pulverizing element and the last named tube.

In witness whereof we affix our signatures.

HENRI LECONTE.
LOUIS HIRSCH.