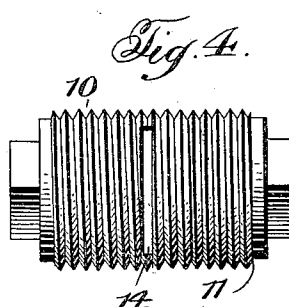
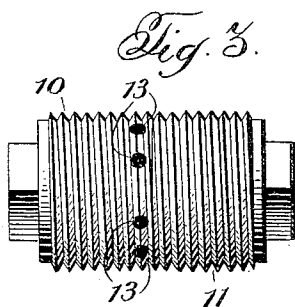
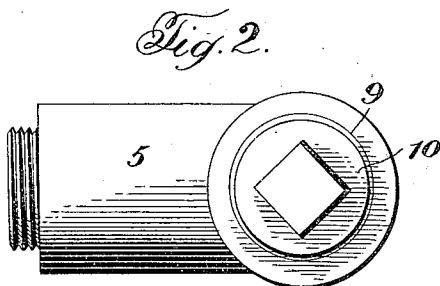
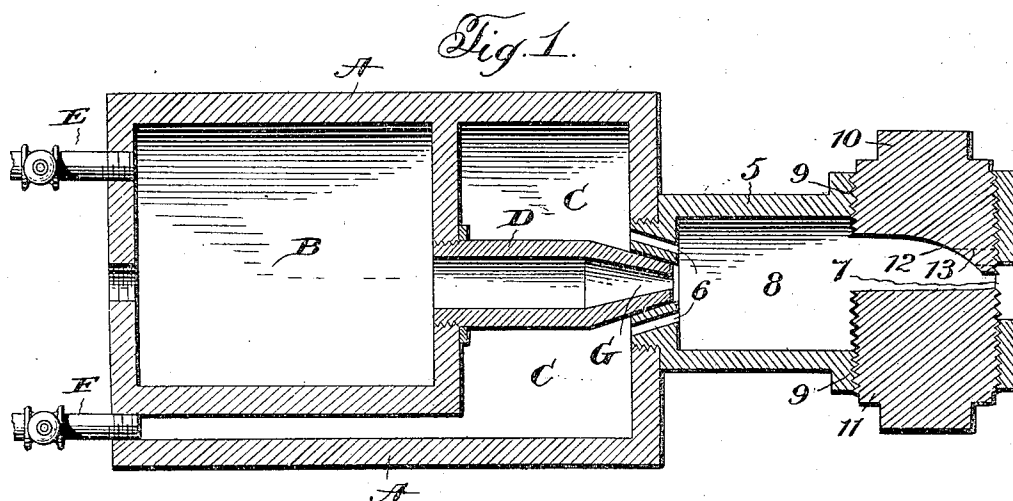


No. 816,470.

PATENTED MAR. 27, 1906.

J. F. HIGGINS.
HYDROCARBON BURNER.
APPLICATION FILED JUNE 21, 1905.



Witnesses:

James Hutchinson.
Cahin T. Milant.

Inventor:

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UNITED STATES PATENT OFFICE.

JAMES FRANKLIN HIGGINS, OF NEW ORLEANS, LOUISIANA.

HYDROCARBON-BURNER.

No. 816,470.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed June 21, 1905. Serial No. 266,246.

To all whom it may concern:

Be it known that I, JAMES FRANKLIN HIGGINS, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to burners for the combustion of fluid fuel. It provides a nozzle for use with hydrocarbon-burners of the character shown and described in my United States Letters Patent No. 705,530, issued July 22, 1902, and No. 724,008, issued March 31, 1903; but it is obvious that the nozzle is also susceptible of use with other forms of burners.

The present invention provides adjustable means whereby the size and character of discharge of fuel can be readily altered and changed to suit the varying demands of service. This and other objects and novel features will be apparent from the detailed description hereinafter when read in connection with the accompanying drawings, forming part hereof.

In the drawings, wherein a preferable embodiment of the invention is disclosed for purposes of illustration, and in which like reference characters refer to corresponding parts in the several views, Figure 1 is a longitudinal sectional view of a burner, including the nozzle hereinafter described in detail. Fig. 2 is a top view of the nozzle. Fig. 3 is a view of the plugs, showing apertures provided for discharge purposes; and Fig. 4 is a similar view showing an elongated aperture provided for discharge purposes.

Referring more particularly to the drawings, A designates a burner of the type shown in my Letters Patent No. 724,008 and constituting a suitable casing having therein oil-chamber B, steam-chamber C, and oil-nipple D and being provided with oil and steam supply pipes E and F, respectively, and a discharge-opening G, all being of the usual construction. To the discharge end of the casing and into discharge-opening G is screwed or otherwise attached a nozzle 5, which includes converging receiving-apertures 6, a discharge-passage 7, and a mixing-chamber 8 therebetween, the oil and steam passing from the casing into the nozzle through said aper-

tures and a mixing of the fuel constituents being effected in the mixing-chamber.

Near the discharge end of nozzle 5 and through opposite sides thereof are formed two screw-threaded apertures 9, which constitute a continuous opening transversely through the nozzle and into which are screwed oppositely-disposed screw-threaded plugs 10 and 11, said plugs being arranged to project transversely across passage 7 and the path of the fuel. The size of the nozzle at its discharge end is increased to accommodate said apertures 9 and said plugs and insure structural strength. Upon rotation in an obvious manner of either or both of said plugs the size of the discharge of fuel through passage 7 is altered, and the position of the actual discharge-opening with respect to receiving-apertures 6 is changed, as desired. One of the plugs—plug 10 in the present instance—is formed on its inner end with an inclined surface 12, which deflects and converges against the other plug, the fuel passing therebetween. One of the plugs—also plug 10 in the present instance—is formed with discharge-passages 13, as shown in Fig. 3, or with an elongated discharge-passage 14, as shown in Fig. 4, for exit of fuel, the former emitting a divided spray when the plugs are brought into contact with each other or brought nearly together and the latter causing the discharge from the nozzle to be flattened under similar circumstances.

Oil and steam enters the burner through the supply-pipes E and F and passes therefrom through the nozzle-apertures 6 into the mixing-chamber 8 of the nozzle, whence the mixture passes between plugs 10 and 11, where it is atomized through passage 7 and out of the burner.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A nozzle of the character described having suitable means of entrance and exit of fuel and a screw-threaded aperture disposed transversely with respect to the exit, and comprising a screw-threaded plug within said aperture and arranged to project across the exit, said plug being formed with a discharge-passage.

2. A nozzle of the character described having suitable means of entrance and exit of fuel and a screw-threaded aperture disposed

transversely with respect to the exit, and comprising a screw-threaded plug within said aperture and arranged to project across the exit, said plug being formed with an elongated discharge-passage.

3. A nozzle of the character described having suitable means of entrance of fuel, and a mixing-chamber, in combination with rotatable means transversely movable across the path of fuel in the nozzle, whereby the discharge therefrom is regulated, said rotatable means having a fuel-passage therethrough.

4. A nozzle of the character described having suitable means of entrance of fuel, a mixing-chamber, and a screw-threaded aperture disposed transversely in the nozzle, in combination with a screw-threaded plug within said aperture, whereby the discharge from said nozzle is regulated, said plug being formed with an elongated discharge-passage.

5. A nozzle of the character described having suitable means of entrance and exit of fuel and two screw-threaded apertures disposed transversely with respect to the exit, and comprising oppositely-disposed screw-threaded plugs within said apertures and arranged to project across the exit, whereby the discharge therefrom is regulated, and one

of said plugs being formed with a discharge-passage.

6. A nozzle of the character described having suitable means of entrance and exit of fuel and two screw-threaded apertures disposed transversely with respect to the exit, and comprising oppositely-disposed screw-threaded plugs within said apertures and arranged to project across the exit, whereby the discharge therefrom is regulated, and one of said plugs being formed with an elongated discharge-passage.

7. The combination with a nozzle of the character described having means of entrance and exit of fuel and two screw-threaded apertures disposed transversely with respect to the exit, of oppositely-disposed screw-threaded plugs within said apertures and arranged to project across the exit, whereby the discharge therefrom is regulated, and one of said plugs being formed with an inclined surface and a discharge-passage.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES FRANKLIN HIGGINS.

Witnesses:

JAMES A. STEWART,
JULIUS VILLIO.