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D. M. BOYD ET AL

1,620,754

OIL BURNER

Filed Jan. 11, 1926

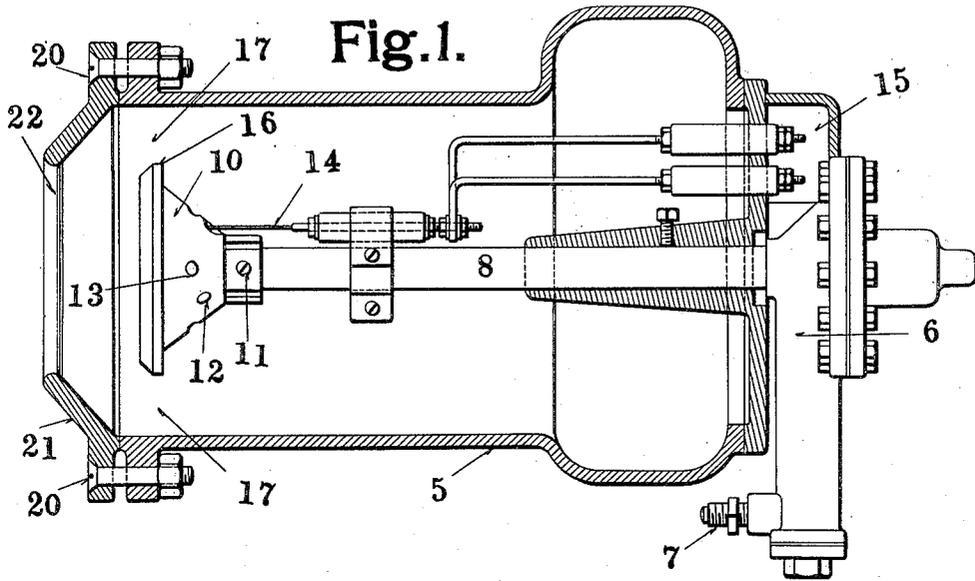


Fig. 2.

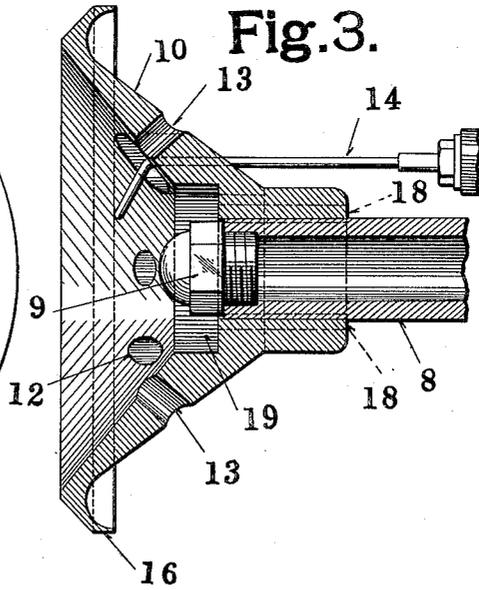
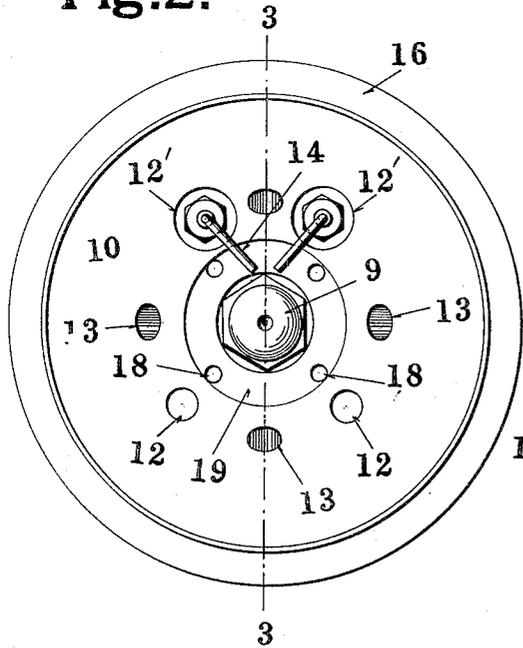


Fig. 3.

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DAVID M. BOYD AND WALLACE C. CAPEN, OF ST. LOUIS, MISSOURI, ASSIGNORS, BY
MESNE ASSIGNMENTS, TO ELECTROL, INC. OF MISSOURI, OF ST. LOUIS, MISSOURI,
A CORPORATION OF MISSOURI.

OIL BURNER.

Application filed January 11, 1926. Serial No. 80,420.

Our invention relates to a fluid fuel burner and particularly to one using oil under pressure so as to be delivered in the form of a spray at the point of combustion. The object of our invention is to improve the operation of the burner and especially to so construct the burner as to prevent the formation of a carbon deposit on the fuel nozzle.

In the accompanying drawings, which illustrate one form of burner made in accordance with our invention, Figure 1 is a central longitudinal section; Figure 2 is an enlarged front view of the burner cone; and Figure 3 is a section taken on the line 3—3 of Figure 2.

A casing 5 through which air is adapted to be forced is carried by an oil chamber into which oil is forced under pressure through a nipple 7. Oil from the chamber 6 passes through a pipe 8 projecting into the casing and forming the body of the fuel nozzle. In the end of the pipe 8 is a burner tip 9 which is of a well known type adapted to discharge the oil in the form of a fine spray. Surrounding the tip 9 is a forwardly flaring conical member 10 secured to the pipe 8 by a set screw 11. Formed in the member 10 are two sets of air openings 12 and 13 respectively. The openings 12 are parallel with the axis of the feed nozzle while the openings 13 are perpendicular to the inner face of the cone. Two of the parallel openings, marked 12', are adapted to allow the passage of ignition wires 14 leading to a terminal box 15 where they are connected to a source of electrical supply. The openings 12' are of sufficient size to prevent sparking taking place between the wires and the cone instead of between the ends of the two wires. Formed on the periphery of the cone 10 is a reverse flange 16 which is spaced from the walls of the casing 5 so as to have an unobstructed surrounding air passage 17. This flange forms an air dam to assist in forcing air through the openings 12 and 13. In addition to the parallel openings 12 we provide a second set of parallel openings 18 leading into a recess 19 around the burner tip 9. Secured to the forward end of the casing by bolts 20 is a removable end piece 21 having a restricted opening 22. This opening 22 is preferably of about the same diameter as the cone. As, however, the end piece is removable it may be replaced by one having an

opening of greater or less diameter if found desirable.

The construction of our burner is such that air is supplied to the fuel in sufficient quantity and at proper points to secure complete combustion of the fuel and at the same time the air passing through the openings in the cone operates to separate the flame an appreciable distance from the burner tip thus preventing a deposit of carbon forming on the tip, which deposit would interfere with the proper functioning of the burner.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. In a device of the class described, the combination with a casing through which air is adapted to be forced, of a fuel nozzle in said casing, a forwardly flaring member surrounding said nozzle, said member being provided with a plurality of air passages, some of said air passages being throughout parallel with the axis of the nozzle and some being inclined to said axis, and a flange carried by said member and forming an air dam to force air through said passages, said flange being spaced from the walls of the chamber to form an air passage surrounding said member.

2. In a device of the class described, the combination with a fuel nozzle, of a forwardly flaring conical member surrounding said nozzle, air openings in said member, some of said openings being parallel with the axis of the nozzle and others being perpendicular to the inner face of said member, and a flange carried by said member for retarding the air flow past said member and thus increase the pressure at said openings.

3. In a device of the class described, the combination with a casing through which air is adapted to be forced, of a removable member on the forward end of said casing provided with a restricted opening, a fuel nozzle in said casing, a forwardly flaring conical member on said nozzle, said conical member being provided with air openings, some of said openings being parallel to the axis of the nozzle and others being inclined thereto, and a flange on said conical member forming an air dam to force air through said openings, said flange being spaced from the wall of the casing to form an air passage surrounding said member.

4. In a device of the class described, the combination with a casing through which air is adapted to be forced, of a fuel nozzle in said casing, a forwardly flaring member surrounding said nozzle and projecting forwardly thereof, said member being spaced from the walls of the casing to form an air passage surrounding the member, and a pair of ignition wires passing through said member, said member being provided with an opening between said wires and substantially perpendicular to its face for discharging a jet of air between the terminals of said wires.

In testimony whereof, we hereunto affix our signatures, this 7 day of January, 1926.

DAVID M. BOYD.
WALLACE C. CAPEN.