J. A. DOBLE & W. A. DOBLE, Jr.

FUEL BURNER.

APPLICATION FILED SEPT. 4, 1917.

1,273,467. Patented July 23, 1918.

Fig. 2

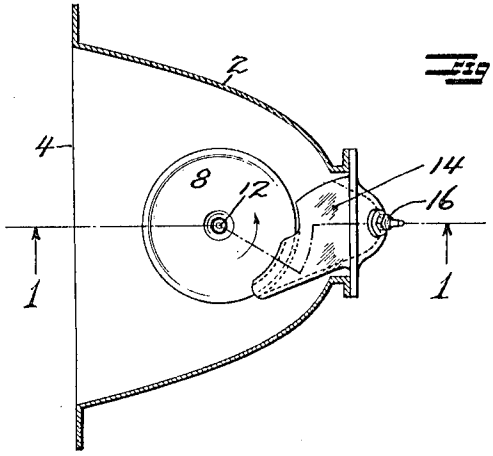


Fig. 3

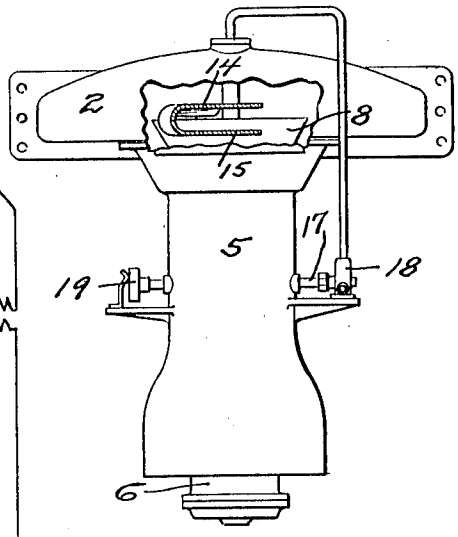
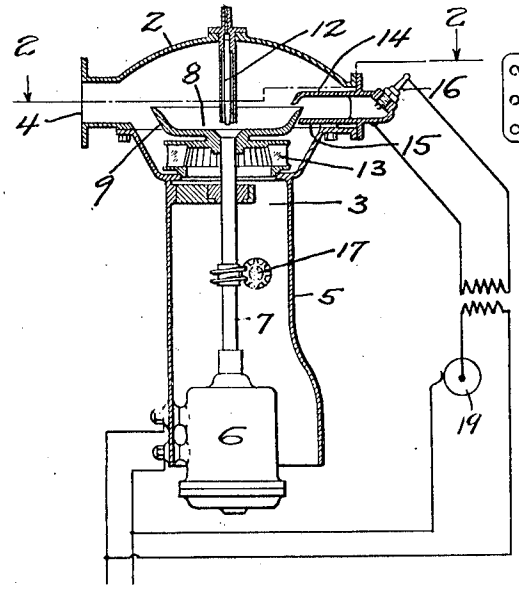


Fig. 1



WITNESS:

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UNITED STATES PATENT OFFICE.

JOHN A. DOBLE AND WILLIAM A. DOBLE, JR., OF SAN FRANCISCO, CALIFORNIA, ASSIGNORS TO DOBLE LABORATORIES, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

FUEL-BURNER.

1,273,467. Specification of Letters Patent. Patented July 23, 1918.

Application filed September 4, 1917. Serial No. 189,452.

To all whom it may concern:

Be it known that we, JOHN A. DOBLE and WILLIAM A. DOBLE, Jr., citizens of the United States, and residents of the city and county of San Francisco and State of California, have invented a certain new and useful Fuel-Burner, of which the following is a specification.

The invention relates to liquid fuel burners and particularly to burners of the rotary type.

An object of the invention is to provide a fuel burner wherein the fuel may be readily ignited.

Another object of the invention is to provide a fuel burner wherein the ignition means is shielded from direct contact with the high velocity fuel mixture passing through the burner.

The invention possesses other advantageous features, some of which, with the foregoing, will be set forth at length in the following description where we shall outline in full that form of the invention which we have selected for illustration in the drawings accompanying and forming part of the present specification. In said drawings we have shown one specific form of our invention, but it is to be understood that we do not limit ourselves to such form, because the invention, as expressed in the claims, may be embodied in a plurality of forms.

Referring to said drawings,

Figure 1 is a vertical section of one form of rotary burner of our invention, taken on the line 1—1, Fig. 2.

Fig. 2 is a horizontal section taken on the line 2—2 Fig. 1.

Fig. 3 is a rear elevation of the burner, part thereof being broken away to disclose the construction.

In fuel burners, the velocity of the mixture of air and fuel passing through the burner is high and difficulty has been experienced in igniting the mixture by an electric spark. In accordance with our invention, therefore, we provide a zone of low velocity in which a proper fuel mixture is produced and arrange the ignition means in this zone, with the result that ignition is effective and instantaneous. The zone is produced by forming a partly closed chamber into which the mixture is introduced, the walls of the chamber acting to prevent the passage of the mixture through it at a high velocity.

In the accompanying drawings we have shown our invention embodied in a rotary burner, since this type of burner operates with high efficiency.

The burner comprises a casing 2 having an air inlet 3 and a flame discharge outlet 4. The air inlet is preferably formed as a neck 5 depending from the casing, the neck serving as the container for the high speed motor 6 and its shaft 7. Secured to the motor shaft and disposed within the casing, is a rotatable disk or cup 8, the side wall 9 of which is inclined upwardly so that the fuel is dicharged from the periphery of the disk in a fine spray. The fuel is fed through the nozzle 12 into a depression at the center of the cup. Secured to the shaft 7 below the cup is a blower 13 which operates to draw air through the inlet passage and force it up past the periphery of the cup, where it mixes with the discharging spray.

Arranged on one side of the casing 2 is an ignition chamber having a top wall 14 which partly overlies a portion of the periphery of the cup and a bottom wall 15 which lies adjacent the same portion of the periphery. The periphery of the cup enters the slot formed by the two spaced walls so that a portion of the spray is projected directly into the chamber. The chamber is closed on that side toward which the cup rotates and is open on the other side, thus preventing the rapidly moving air from entering the chamber, but allowing the flame produced therein to discharge into the casing, thereby igniting the mixture in the casing. A spark plug 16 in the chamber serves to ignite the rich mixture therein. The chamber is preferably formed as a separate unit which is bolted or otherwise attached to the casing.

Operatively associated with the shaft 7 is a cross shaft 17 to which is connected a fuel meter or pump 18, so that the amount of fuel fed varies with the speed of the cup or disk. A commutator 19, arranged in the ignition circuit, is also preferably secured to the cross shaft 17.

We claim:

1. In a liquid fuel burner, rotatable means for producing a fuel spray, means for supplying air to said spray to form a combustible mixture, a wall arranged to protect a portion of the spray from the incoming air and ignition means arranged on the lee side of said wall.

2. In a liquid fuel burner, means for producing a properly proportioned rapidly moving combustible mixture of air and fuel spray, means arranged in the path of said mixture for retarding the movement of a portion of it and ignition means arranged on the lee side of said means.

3. In a liquid fuel burner, rotatable means for producing a fuel spray, means for supplying air to said spray to form a combustible mixture, a chamber closed on the side of the approaching air and open to receive said spray and ignition means in said chamber.

4. In a liquid fuel burner, rotatable means for producing a fuel spray, means for supplying air to said spray to form a combustible mixture, a chamber closed on the side adjacent the incoming air and arranged to receive said spray, and ignition means in said chamber.

5. In a liquid fuel burner, a rotatable element from which the fuel is discharged in a spray, means for blowing air past the periphery of said element, a wall arranged adjacent the periphery and shielding a portion of the periphery from said moving air and ignition means arranged on the lee side of said wall.

6. In a liquid fuel burner, a rotatable element from which the fuel is discharged in a spray, means for blowing air past the periphery of said element, a chamber having a slot into which said periphery extends and ignition means in said chamber.

7. In a liquid fuel burner, a rotatable element from which fuel is discharged in a spray, a casing surrounding and spaced from said element, an air blower arranged below said element adapted to blow air upwardly past the periphery of said element, a closed bottom chamber having a slot therein adapted to receive the spray directly from said element and ignition means in said chamber.

8. In a liquid fuel burner, a rotatable element from which fuel is discharged in a spray, a casing surrounding and spaced from said element, an air blower arranged below said element adapted to blow air upwardly past the periphery of said element, a partly closed chamber having a slot therein into which said periphery extends and having an opening into the casing on that side from which the element rotates, and ignition means in said chamber.

9. In a liquid fuel burner, means for producing a properly proportioned rapidly moving combustible mixture of air and fuel spray, means for preventing the mixing of a portion of the rapidly moving air with the fuel spray, whereby a zone of comparatively quiescent fuel mixture is produced and ignition means arranged in said zone.

In testimony whereof we have hereunto set our hands at San Francisco, California, this 24th day of August, 1917.

JOHN A. DOBLE.
WILLIAM A. DOBLE, JR.

In presence of—
H. G. PROST.