

D. W. YOUNG, JR.
HYDROCARBON BURNER.
APPLICATION FILED MAY 9, 1908.

Patented Feb. 15, 1910.

949,167.

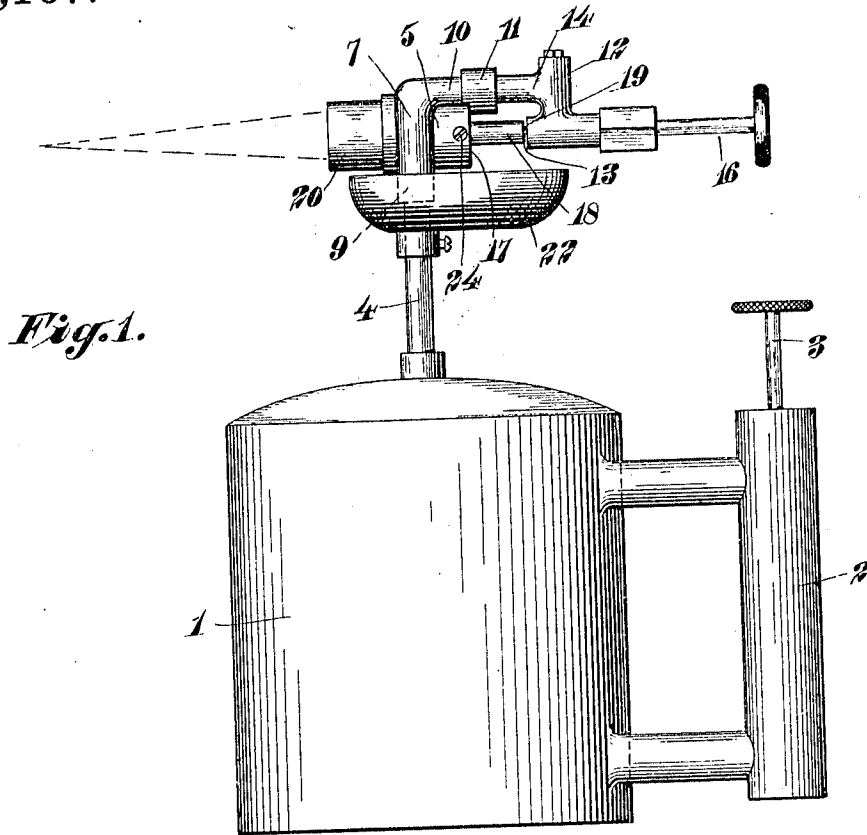


Fig. 1.

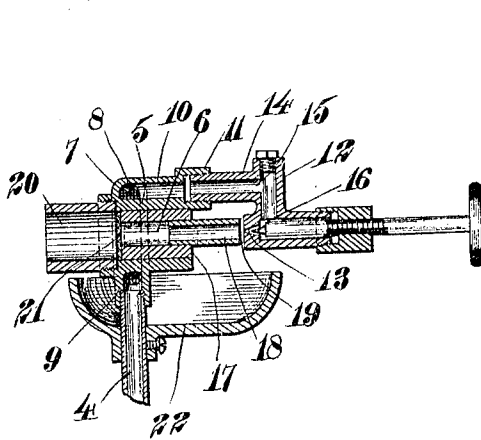


Fig. 2.

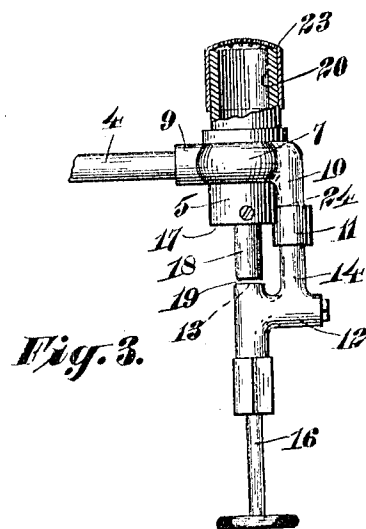


Fig. 3.

Witnesses;
A. A. Olson
W. F. Smith

Inventor;
Daniel W. Young, Jr.
by Joshua R. Potts
Att'y.

UNITED STATES PATENT OFFICE.

DANIEL W. YOUNG, JR., OF SYCAMORE, ILLINOIS.

HYDROCARBON-BURNER.

949,167.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed May 9, 1908. Serial No. 431,997.

To all whom it may concern:

Be it known that I, DANIEL W. YOUNG, Jr., a citizen of the United States, residing at Sycamore, county of Dekalb, and State of Illinois, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to hydro-carbon burners, and the object of my invention, is to provide a hydro-carbon burner which shall be adapted to burn either alcohol or gasoline, and which is applicable for use either as a torch or a lamp.

It is a well known fact that when gasoline is used as a fuel, more air is necessary than when alcohol is used, and consequently, different burners are usually employed for the use of the different fuels.

I am aware that a two-jet or double-jet burner, has been devised which is adapted to burn either gasoline or alcohol, but so far as I am aware, no satisfactory single jet burner has been provided for this purpose.

A further and particular object of my invention, is to provide a single jet burner, adapted for use upon a blow-torch which shall be characterized as above mentioned.

Other objects will appear hereinafter.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is an elevation of a blow-torch equipped with a burner embodying my invention in its preferred form, Fig. 2 is a vertical longitudinal section of the burner, and Fig. 3 is a elevation of the burner arranged as a lamp.

Referring now to the drawings, 1 indicates a reservoir base of a blow-torch, and 2 the handle in which is arranged the usual air or compression pump of which 3 is the thumb operated stem or piston rod. Extending upwardly from the tank or reservoir, is the feed pipe 4 to the upper end of which, is secured the burner.

The burner comprises a cylindrical casting 5 having a longitudinal or axial bore within which is fitted a hollow cylindrical member 17 forming a mixing chamber 6. The forward end or flame end of the member 5, is provided with an annular rib 7 which is cored to form a passageway or duct 8 for the fuel, the rib 7 being formed at one point with a nipple 9 to which the pipe 4 is secured. The rib and duct upon the

opposite side from the nipple 9 are extended longitudinally of the member 5 in the opposite direction from the flame end as at 10, terminating in a nipple 11. Secured to the nipple 11 is a casting 12 comprising a fuel jet piece 13 arranged in axial alinement with the mixing chamber 6, and a supporting stem 14 having the fuel duct 15.

16 indicates a needle valve controlling the fuel jet orifice. The jet piece 13 is arranged a considerable distance behind the rear of the casting 5, and telescoping within the mixing chamber 6 is a tubular member 18. This is substantially co-extensive in length with the member 17 and may telescope entirely within the chamber 6, or may be extended to or almost into engagement with the end of the jet, as shown clearly in Fig. 2. In this manner, a mixing chamber is provided which is adjustable in length and which may be regulated to vary the quantity of air admitted thereto. When it is desired to burn gasoline, the member 18 is telescoped completely within the chamber forming a short chamber and admitting large quantities of air which is necessary for this particular fuel. When alcohol is used, the member 18 is extended almost into engagement with the jet forming a long mixing chamber, and a small air inlet 19, but little air being necessary when alcohol is used as a fuel.

20 indicates the flame nozzle and 21 the wire gauze preventing the flame from entering the mixing chamber.

Arranged beneath the burner, is the cup 22 in which a small quantity of fuel is burned to heat the burner, in order to gasify the fuel as it passes through the fuel duct to the jet.

The device may also be used as a lamp by arranging the burner vertically as shown in Fig. 3, and placing the perforated cap or burner tip 23 upon the member 20. To lock or secure the member 18 in the desired position, a screw 24 is tapped through the rear end of the member 5 as shown in Figs. 1 and 2. This impinges against the member and prevents the same from becoming accidentally displaced.

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

In a device of the class described, a fuel tank and a feed pipe extending upwardly therefrom, in combination with a casting se-

cured to the upper end of said pipe and comprising a horizontally disposed cylindrical portion having an annular rib encircling the same near one end and cored to
5 form a fuel duct said rib and duct being extended longitudinally along the top of said cylindrical portion and terminating in a nipple, a jet member secured to said nipple
10 fuel jet, said jet being in axial alinement with said cylindrical portion and at a considerable distance therefrom, and said duct comprising a horizontal portion extending from said nipple and a depending portion
15 connecting the same with said jet, a hollow cylindrical member arranged within said cylindrical portion, a flame nozzle threaded

in the opposite end of said portion from said jet, a shoulder formed in said cylindrical portion, a wire gauze interposed between said shoulder and the adjacent end of
20 said nozzle, and a tubular member slidably mounted within said hollow cylindrical member and forming therewith an adjustable mixing chamber, substantially as de- 25 scribed.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL W. YOUNG, JR.

Witnesses:

JANET E. HOGAN,
HELEN F. LILLIS.