W. F. GOODWIN & J. C. LOW.

LIQUID FUEL BURNER TIP.

APPLICATION FILED JAN. 20, 1910.

982,424. Patented Jan. 24, 1911.

Fig. 1.

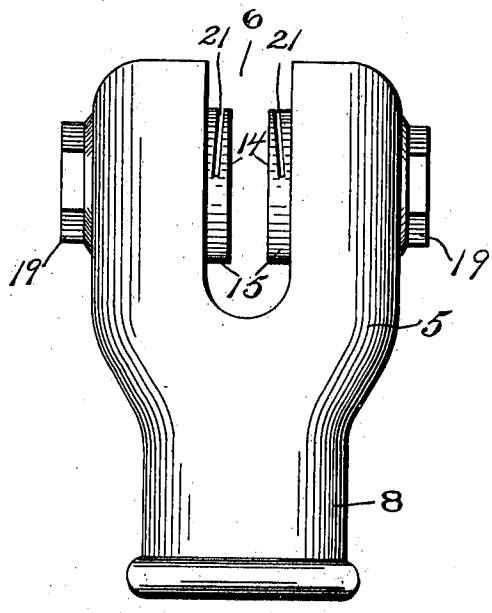
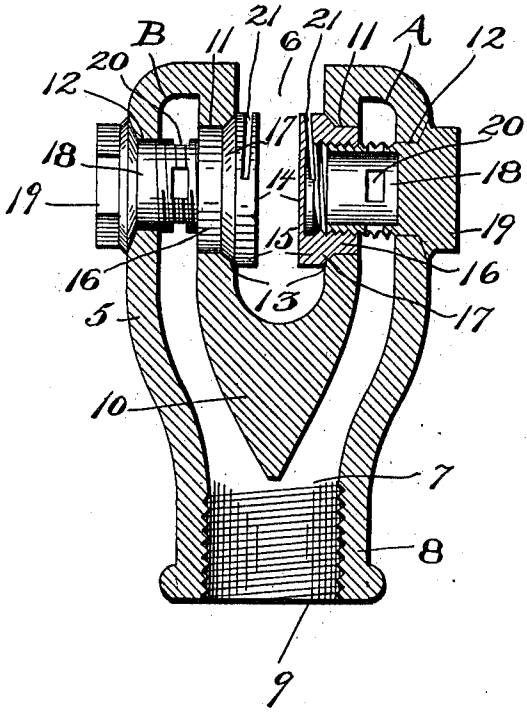


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM F. GOODWIN AND JOSEPH C. LOW, OF SAN FRANCISCO, CALIFORNIA.

LIQUID-FUEL-BURNER TIP.

982,424. Specification of Letters Patent. **Patented Jan. 24, 1911.**

Application filed January 20, 1910. Serial No. 538,995.

To all whom it may concern:

Be it known that we, WILLIAM F. GOODWIN and JOSEPH C. LOW, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Liquid-Fuel-Burner Tips, of which the following is a specification.

This invention relates to liquid fuel burners, and more particularly to tips therefor, and has for its object to provide a burner tip which will be simple in arrangement and consequently cheap, while being efficient to a high degree.

Another object is to provide a structure occupying little space yet assuring a proper spread of the flame through the mutual engagement of two flame elements.

Another object is to provide a structure in which the nozzle members may be quickly removed for renewal.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is an elevational view of the complete tip, Fig. 2 is a longitudinal section through the tip.

Referring now to the drawings, the present tip comprises a head 5 which is bifurcated as shown at 6, and which has a chamber 7 formed therewithin, the chamber extending into the furcations, as illustrated. At the opposite end of the head from the furcations, there is a stem 8, having an opening 9 formed therethrough communicating with the chamber within the head and interiorly threaded for the reception of a fuel supply pipe.

By reason of the fact that the chamber 7 extends into two furcations, it is in effect a U-shaped chamber and at the separation of the legs of the chamber, there is a thickened wedge-shaped portion 10 of the head, directed toward the opening 9, and arranged to deflect the supply of fuel into the two furcations indicated at A and B. These furcations have openings 11 in their mutually adjacent faces, the openings being in registration with each other, and the furcations also have concentric openings 12 through their outer faces, the openings 12 being somewhat smaller than the openings 11. The openings 12 and 11 communicate with the chambers within the furcations as illustrated.

The openings 11 are surrounded at their outer portions by tapered seats 13 and engaged in these seats, there are a pair of similarly formed nozzle members 14, these members including boss portions 15 extending inwardly beyond the mutually adjacent faces of the furcations A and B and including also stem portions 16 lying within the openings 11. The stem portions 16 and boss portions 15 are connected by tapered portions 17, engaging against the seats 13.

The nozzle members are hollow, as shown, and their stem portions 16 are open and are interiorly threaded to receive the inner ends of exteriorly threaded nipples 18 which are engaged through the outer openings 12 of the furcations. These nipples 18 have angular heads 19 at their outer ends by which they may be manipulated, and are provided with circumscribing series of ports 20, which communicate with the chambers of the furcations, for the admission of fuel into the nipples and thence into the nozzle members 14. It will be seen that, when the nipples are screwed home, they draw the nozzle members inwardly and seat them firmly within the openings 11.

The edges of the boss portions 15 which are directed toward the free ends of the furcations A and B are slotted as indicated at 21 to form fuel exits and as will be understood, these slots are cut on a slight angle, so that the two resultant flame elements are deflected toward each other, their mutual impact spreading the fuel and thus producing a wide and extensive flame area.

When the nozzle members have become fused or otherwise damaged, it is only necessary to loosen the nipples 18 through manipulation of their heads 19, when the nozzle members may be easily and quickly removed.

What is claimed is:

1. A burner tip comprising a fluid conveying element including spaced walls, said walls having openings therein, a nozzle member engaged in one of the openings, and a nozzle fastening member engaged through the other opening and connected with the nozzle member, said nozzle fastening mem-

ber being hollow, and having passages communicating with the interior of the nozzle member, and with the interior of the conveying member, for the passage of fluid from the conveying member through the nozzle member.

2. A burner tip comprising hollow spaced portions, means for conveying fuel to the hollows of the spaced portions, said spaced portions having openings in their mutually adjacent faces, nozzle members removably engaged within the openings, and members engaged through the outer faces of the spaced portions and connected with the nozzle members, said second named members being hollow and having passages communicating with the interiors of the spaced portions and with the nozzle members.

3. A burner tip comprising a head bifurcated at one end to produce spaced portions, said head having a chamber therewithin extending into the spaced portions, said spaced portions having registering openings in their mutually adjacent faces and having concentric openings in their opposite faces, nozzle members removably engaged in the openings of the mutually adjacent faces, and nipples engaged in the second named openings and detachably connected with the nozzle members to hold the nozzle members in position.

In testimony whereof we affix our signatures, in presence of two witnesses.

WILLIAM F. GOODWIN.
JOSEPH C. LOW.

Witnesses:
GEO. J. BUSH,
P. W. WALKER.