June 9, 1931. P. M. FORSTER 1,809,113

BURNER TIP FOR TORCHES

Filed Jan. 4, 1930

Fig. 1.

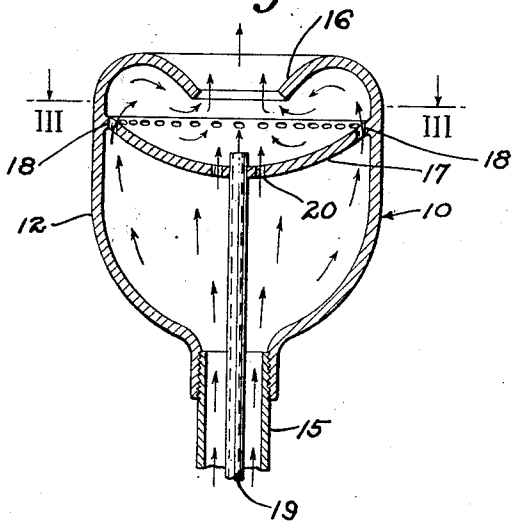


Fig. 2.

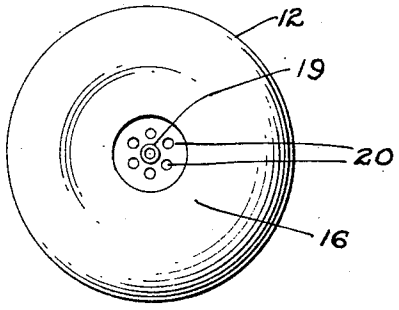
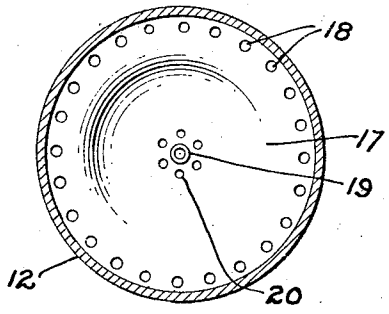


Fig. 3.



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BURNER TIP FOR TORCHES

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This invention relates to gas torches and particularly pertains to burner tips therefor.

It is the principal object of the present invention to provide a generally improved tip or nozzle for gas torches wherein the gas is preheated and so controlled that it will be ejected from the tip so as to create a flame of intense heat.

In carrying the invention into practice I provide a tip formed with a discharge orifice in its end surrounded by a deflector. Spaced inwardly from the orifice is a bowl around the periphery of which is formed a series of jets through which the gas passes to exit from the orifice. The deflector, however, causes the ignited gas to travel inwardly and rearwardly before reaching the orifice which prevents the flame from leaving the tip and also acts to preheat gas entering the tip before it is ignited. In alignment with the center of the orifice is a compressed air tube which passes through the bowl and which is surrounded by gas openings. By causing this compressed air to be discharged at the bowl the intensity of the flame will of course be increased.

One form which the invention may assume is exemplified in the following description and illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a central longitudinal section through the tip.

Fig. 2 is an end view of the same.

Fig. 3 is a transverse section taken on line III—III of Fig. 1.

Referring more particularly to the accompanying drawings, 10 indicates a burner tip or nozzle for torches which may utilize either natural or artificial gas as a fuel.

The tip 10 comprises a cylindrical hollow body 12 the inner end of which is reduced so that it may be connected with a feed pipe 15. The pipe 15 may be connected either directly to an artificial gas connection or to a chamber containing natural gas and air under pressure.

The other end of the body 12 is formed with an orifice 16. The end of the body surrounding the orifice is curled toward the center and then inwardly forming a deflector, the purpose of which will be hereinafter described.

Arranged transversely within the body 12 and spaced from the orifice end thereof is a bowl 17 which in effect is a partition within the body and is connected with the body at its peripheral edge. Closely adjacent to its peripheral edge the bowl or partition 17 is formed with a series of perforations or jets 18 which direct the gas along the inner peripheral surface of the body toward the deflector. As the deflector is curled inwardly the gas will be caused to reverse its travel slightly by the deflector before it reaches the discharge orifice.

Arranged concentrically of the body portion is a compressed air tube 19 which extends just slightly through the bowl 17. Surrounding the compressed air tube the bowl is formed with a plurality of jets 20 through which the gas may pass from the pipe 15.

In operation of the device, the pipe 15 is connected with a suitable source of gas or with a primary mixing chamber which will deliver gas and air thereto in the event that natural gas is utilized. The tube 19 is connected with a suitable source of air under pressure.

When the tip is in use the space between the deflector and the bowl constitutes a flame chamber and when the gas is ignited therein the bowl 17 is heated causing the gas passing into the flame chamber to be preheated. The gas will also pass into the flame chamber through the openings 20 surrounding the tube 17. The gas passing through these openings acts to assist in the ignition of the torch.

As the bowl becomes heated the gas entering the flame chamber will be preheated which creates a flame of more intense heat at the tip. If it is desired to increase the intensity of the flame compressed air or oxygen may be discharged at the center of the flame chamber through the tube 19. This, as is well known, will cause the flame to be more intense.

It is obvious that as the gas passes through the perforations or jets 18 and is ignited it will engage the deflector and the flame will be turned inwardly thereby, that is, the flame will be caused to travel toward the center of the body portion and also inwardly from the end thereof until it reaches the orifice. At

this point the flame will emanate from the orifice.

I have found that by this construction that the flame will not leave the tip which is, of course, desirable as it enables the creation of a flame of intense heat and also minimizes the likelihood of the flame blowing out.

While I have shown the preferred form of my invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claim.

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

A burner tip of the character described including a hollow body having a substantially cylindrical end, a deflector at said end of the body portion, said deflector curling inwardly and being formed with an orifice at its center, a bowl arranged transversely within the body portion and spaced from the deflector, a plurality of jets formed adjacent the peripheral edge of the bowl whereby gas passing through the jets will engage the deflector, a tube extending centrally through the bowl whereby to deliver air under pressure to the orifice, said bowl having a plurality of perforations surrounding the tube for delivering gas into the space intermediate the bowl and the deflector.

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