

A. C. McGEE.
BLOWPIPE OR TORCH.
APPLICATION FILED FEB. 28, 1911.

1,007,588.

Patented Oct. 31, 1911.

Fig. 1.

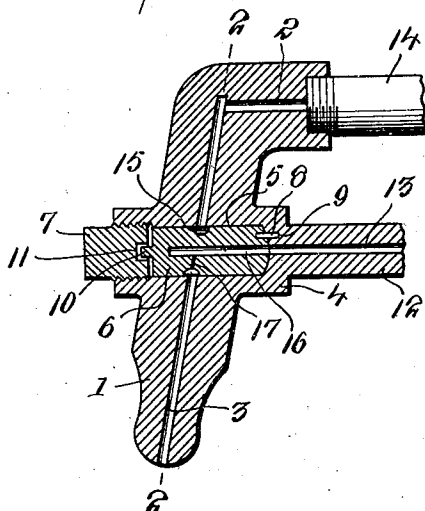


Fig. 2.

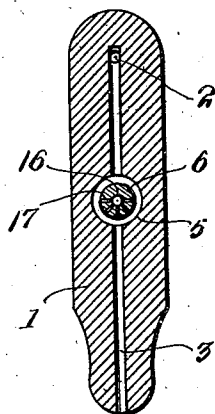


Fig. 3.

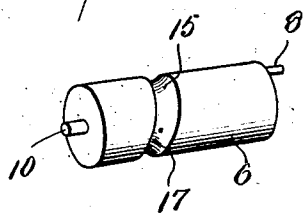
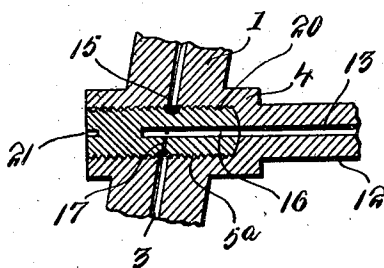


Fig. 4.



Inventor

Arthur C. McGee

Witnesses
E. R. Ruppert
Wm. Bagger

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

ARTHUR C. MCGEE, OF OLATHE, KANSAS, ASSIGNOR TO GRAHAM E. SHAND AND
ROBERT E. PARSONS, BOTH OF KANSAS CITY, MISSOURI.

BLOWPIPE OR TORCH.

1,007,588.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR C. MCGEE, a citizen of the United States of America, residing at Olathe, in the county of Johnson and State of Kansas, have invented new and useful Improvements in Blowpipes or Torches, of which the following is a specification.

This invention relates to a blow pipe or torch of that class which are adapted to use any one of a variety of hydro-carbon gases in combination with pure oxygen, and it has for its object to produce a device of simple and improved construction wherein the stream of oxygen shall be divided into two separate jets which are intercepted by a plurality of small jets of hydro-carbon gas in such a manner that a thorough admixture shall take place before the mixture is permitted to escape at the point of ignition.

A further object of the invention is to construct a device of the character described with a nozzle having a chamber in which a mixing plug is detachably mounted to enable a plug having apertures of different gage or dimensions to be substituted when desired.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the drawing.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawing,—Figure 1 is a vertical sectional view of a device constructed in accordance with the invention. Fig. 2 is a sectional view taken on the line 2—2 in Fig. 1. Fig. 3 is a perspective view showing the mixing plug detached. Fig. 4 is a vertical sectional view illustrating a modified form of the invention.

Corresponding parts in the several figures are denoted by like characters of reference.

The torch or blow pipe consists essentially of a nozzle or body 1 having intersecting bores forming an inlet passage 2 and an out-

let passage 3. The nozzle body is formed with a transverse enlargement 4 having a cylindrical bore 5 intersecting the outlet passage 3, said bore forming a chamber for the reception of the mixing plug 6 and the retaining plug 7, the latter being threaded into the outer end of the bore 5 to keep the mixing plug in position when seated. The mixing plug is provided with a pin or dowel 8 engaging a recess 9 at the inner end of the seat or chamber to enable said plug to be unfailingly seated in the proper position. The outer end of the mixing plug has been shown as being provided with a lug 10 affording a handle to enable it to be conveniently removed by the fingers of the operator or by a simple tool, such as a pair of pliers. A recess 11 for the accommodation of the lug 10 is formed in the inner end of the retaining plug 7. The transverse enlargement 4 of the nozzle has an extension 12 which is provided with a bore 13 which is to be connected in any convenient manner with a source of supply of such combustible gas as it may be desired to use. Pure oxygen is supplied through a pipe or duct 14 which is threaded into the upper portion of the nozzle in communication with the inlet passage 2.

The mixing plug 6 is provided with an annular groove 15 which communicates at diametrically opposite sides with the passage 3. This groove has been shown as being obliquely disposed, this being rendered necessary owing to the fact that the bores 5 and 3 are not formed at right angles. The mixing plug is provided with a longitudinal recess 16 communicating with the bore or passage 13 which constitutes the gas inlet, and a plurality of bores 17 of small diameter connect the lower half of the annular groove 15 with the recess 16, the word "lower" being employed to indicate that portion of the groove 15 which faces in the direction of the exit or ignition point of the bore 3. The bores or apertures 17 may be made of various sizes, from one-sixty-fourth of an inch in diameter, or less, to one-sixteenth of an inch, or more, and the several apertures 17 may be of equal or of various diameters. It is the intention to furnish in connection with each nozzle a complete outfit of mixing plugs with apertures of various sizes to govern the relative

proportions of gas and oxygen to be consumed, the quantity of gas admitted through the passages 17 varying according to the number of said passages as well
5 as the cross sectional area of the passages.

In the operation of the invention the stream of oxygen admitted through the passage 2 and the upper end of the bore 3 will be divided when it encounters the annular groove 15 of the mixing plug, and the hydro-carbon gas entering through the passage 13 and recess 16 will be ejected through the apertures 17, intersecting the streams of oxygen and commingling thoroughly therewith before the mixture can
15 escape through the lower part of the bore 3, said mixture being ignited at the outlet of said bore. The heat and intensity of the flame will be governed by the relative proportions of pure oxygen and hydro-carbon
20 gas that may be employed, said proportions being regulated by substituting a different mixing plug when desired. No matter how high or how low the pressure of gas and
25 oxygen happens to be a thorough admixture of the two will be accomplished before reaching the point of ignition.

In the modified construction illustrated in Fig. 4 of the drawing, the mixing plug is threaded for its entire length, as shown at
30 20, to engage the correspondingly threaded bore which is here designated 5^a. The dowel 8 is here omitted and the outer end of the mixing plug is provided with a notch 21 for
35 the reception of the point of a tool such as

a screw driver whereby the desired adjustment may be effected.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the class described, a nozzle having a longitudinal bore communicating at one end with an oxygen inlet and a transverse bore communicating at one end with a gas inlet, and a mixing plug seated in the transverse bore and having an annular groove communicating with said longitudinal bore, a recess communicating with the gas inlet and a plurality of apertures connecting the recess with the annular groove.
40 45 50

2. In a device of the character described, a nozzle having a longitudinal bore communicating at one end with an oxygen inlet and a transverse bore intersecting the longitudinal bore and communicating at one end with a gas inlet, a mixing plug seated in the transverse bore and having an annular groove communicating with the longitudinal bore, said plug being also provided with a recess communicating with the gas inlet and with apertures connecting the recess with the annular groove, and means for retaining the mixing plug in adjusted position.
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In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR C. McGEE.

Witnesses:

W. D. MORRISON,
JENNIE ROSE.