C. E. JOHNSON.

BLOWPIPE.

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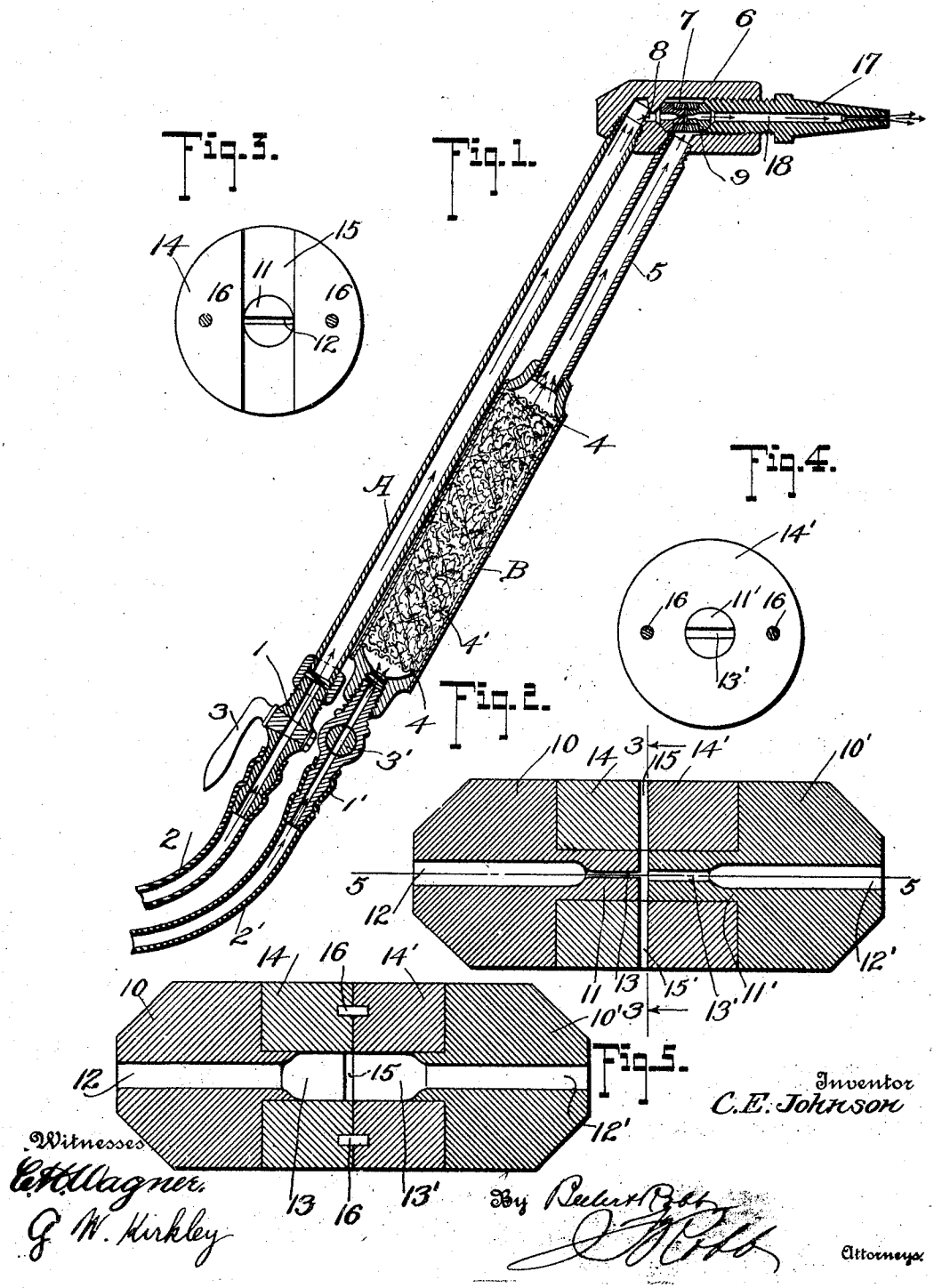
1,038,381. Patented Sept. 10, 1912.



# UNITED STATES PATENT OFFICE.

CHARLES E. JOHNSON, OF HAVELOCK, NEBRASKA.

## BLOWPIPE.

1,038,381. Specification of Letters Patent. Patented Sept. 10, 1912.

Application filed November 16, 1911. Serial No. 660,662.

*To all whom it may concern:*

Be it known that I, CHARLES E. JOHNSON, a citizen of the United States, residing at Havelock, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Blowpipes, of which the following is a specification.

This invention involves improvements in welding tools and pertains particularly to that class of devices ordinarily called blow pipes whereby the welding process is effected by the combustion of oxygen and acetylene gas.

The object of the invention is to provide a simple and efficient device for the above purpose which will readily permit of cleansing and which is easily adapted to be changed for regulating the flame to be produced according to the character of work for which it is desired.

A further object of the invention is to provide a novel mixer whereby the fuel or gases are intermixed in a most efficient manner to produce the character and intensity of flame that may be desired.

With the above and other objects in view, this invention consists of the construction, combination, and arrangement of parts, all as hereinafter more fully described, claimed and illustrated in the accompanying drawings, wherein:—

Figure 1 is a longitudinal sectional view of the tool constructed in accordance with the preferred form of my invention; Fig. 2 is a vertical sectional view of the mixer; Fig. 3 is a view on the line 3—3 of Fig. 2 looking in the direction of the arrow; Fig. 4 is a view on the line 3—3 of Fig. 2 looking in the opposite direction to that of Fig. 3; Fig. 5 is a view on the line 5—5 of Fig. 2.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Referring now to the drawings, A designates a supply pipe or conduit for the passage of gas, in this instance oxygen, therethrough, into one end of which is screwed a nipple 1. The oxygen is fed from a suitable source into the pipe A by means of the flexible tubing 2 and the flow thereof may be properly regulated or discontinued by means of the stop cock 3 in the nipple 1. Acetylene gas in conveyed through the flexible tubing 2′ into the nipple 1′ which is also provided with the usual stop cock 3′, said nipple 1′ being screwed into the lower end of the enlarged casing B, the casing being provided therein at its opposite ends with the screens or filters 4 between which is located the packing of asbestos or mineral wool indicated at 4′. The upper end of the casing B is internally threaded to receive an extension pipe 5, and the upper ends of the pipes 5 and A are screwed into the mixing chamber 6 extending horizontally at an angle to said pipes. The chamber 6 is cylindrical in form and comprises the hollow portion 7 which narrows or tapers at one end to the short longitudinal bore or passage 8, communicating with the pipe A.

Into the hollow portion 7 is adapted to be received a mixer 9 of somewhat smaller diameter than the hollow portion 7 above noted. The mixer 9 is composed of cylindrical sections 10 and 10′, each being reduced at their contiguous ends as indicated at 11 and 11′. The section 10 has extending through the greater portion of its length a longitudinal bore or passage 12, said passage being reduced at the end 11 to form a flat slot or passage 13. The section 10′ has, corresponding to the passage 12 and in alinement therewith, a bore or passage 12′ which is reduced in the end portion 11′ to form a flat outlet slot or passage 13′, the latter being somewhat larger than the passage 13 in the end portion 11. Over the end portions 11 and 11′ are inserted collars 14 and 14′ which may be suitably secured to said end portions by soldering or otherwise. this construction of mixer being devised to permit the ready cleansing of openings or passages therethrough. Across the face of the section 10, or in other words, the collar and end portions 14 and 11 is a vertical groove 15, as most clearly shown in Fig. 3 of the drawings, and the sections 10 and 11 are connected by means of the dowel pins 16. When thus connected, the groove 15 forms transversely arranged passages between said sections 10 and 10′ leading from the hollow portion 7 in the chamber 6, said passages being intersected at their inner ends by the longitudinal passages 12 and 13 leading from the supply pipe A. As above premised, the mixer 9 thus described is adapted to be inserted into the hollow portion 7 of the chamber 6, the latter being internally threaded at one end thereof to receive the detachable burner tip 17 which has extending therethrough the axial lon-

gitudinal bore or passage 18. The inner end of the tip 17 seats against the outer reduced end of the section 10′, thus holding the same in position in the hollow portion 7 and when the parts are thus secured in position, the passages 12, 13, 13′ and 12′ are in alinement with the passage 8 and form a continuous passage leading from the supply pipe A.

As will be clearly noted from Fig. 1 of the drawing, the acetylene gas passes from the pipe 5 into the hollow portion 7 of the chamber 6 and through the passages 15 in diametrically opposite directions where it is intersected and mixed with the oxygen passing from the pipe A through the passages 8 and 12. The mixture thus takes place at right angles insuring a most thorough commingling of the gases which then pass through the passages 13′ and 12 into the passage 18 in the tip 17 from which they are emitted to produce the welding flame desired.

As will be readily understood by those skilled in the art to which this invention appertains, the flame may be suitably regulated by means of the stop cocks 3 and 3′ and the length and intensity of the flame will be further governed by the use of different size mixers and burner tips, according to the character of work with which it may be used.

It will be apparent that the supply pipe A and the acetylene gas pipe comprising the casing B and the extension 5 will constitute a handle by which the device may be manipulated in the use of the same.

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

1. In a blow pipe, the combination of oxygen and acetylene supply pipes, a mixing chamber secured to said pipes having a hollow portion in the body thereof tapering at one end and terminating in a passage communicating with the oxygen supply pipe, the other end being internally threaded, a mixer adapted to be received into the hollow portion aforesaid, said mixer having oppositely tapering end portions and a longitudinal passage therethrough communicating with the first mentioned passage and having also transversely arranged passages connecting at their inner ends with the longitudinal passage aforesaid, and a detachable burner tip having a passage therethrough adapted to be screwed into the chamber and having its inner end recessed to conform to the outer tapered end of the mixer, whereby the latter is positioned in the chamber aforesaid and a continuous passage is formed from the oxygen supply pipe.

2. In a blow pipe, the combination of oxygen and acetylene supply pipes, a mixing chamber secured to said pipes having a hollow portion in the body thereof tapering at one end and terminating in a passage communicating with the oxygen supply pipe, the other end being internally threaded, a removable mixer adapted to be received into the hollow portion aforesaid, said mixer comprising sections having their opposite ends tapered and having passages therethrough, the inner contiguous ends of the sections being reduced, collars mounted on said reduced ends, and means connecting said collars to thereby join said sections together, the inner face of one of said sections having a groove extending thereacross forming a transverse passage intersecting the passages through the sections aforesaid, a detachable burner tip screwed into the threaded end of said chamber and having a passage therethrough communicating with the passages in said sections, the inner end of said burner tip being recessed to receive the outer reduced end of the mixer and thereby position the latter centrally in the chamber aforesaid.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. JOHNSON.

Witnesses:
FRANK W. TITLER,
GILL F. PRENTISS.