March 18, 1930. L. CAMPBELL, JR 1,751,447

ADAPTER FOR BLOWPIPES

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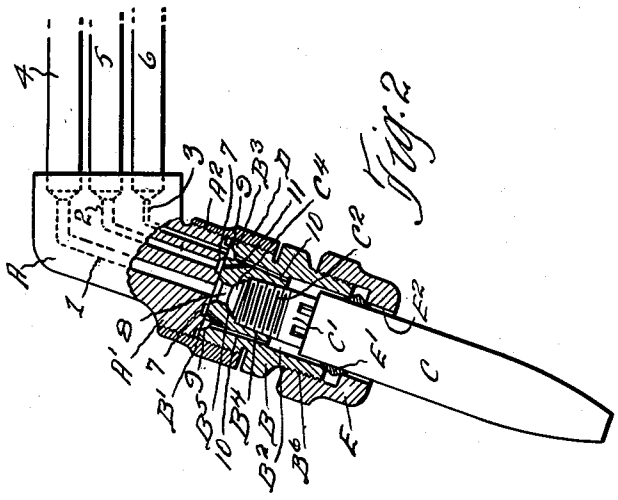

Fig. 2

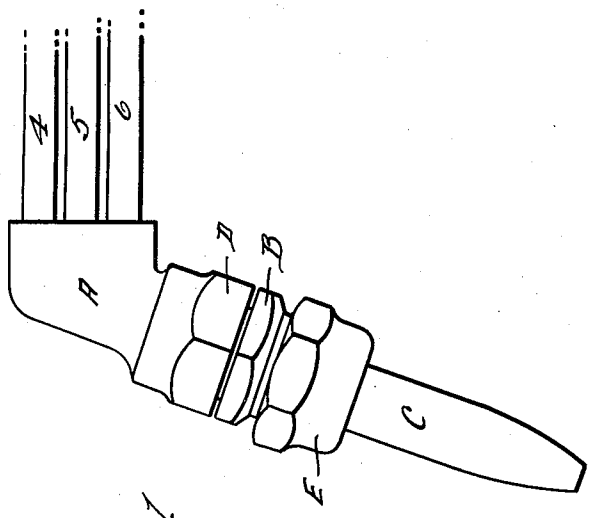

Fig. 1

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UNITED STATES PATENT OFFICE

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ADAPTER FOR BLOWPIPES

Application filed December 30, 1926. Serial No. 158,016.

This invention relates to blowpipes and more particularly to connectors or adapters which enable tips of certain construction and possessing certain advantages to be connected to various types of blowpipe heads. It has been found in practice that tips which are markedly efficient in certain kinds of work and which will thoroughly mix the gases and project the same in such manner as to provide a concentrated flame and produce economic and efficient cutting, are usually sold for use only with a special kind of head—generally the product of the manufacturer who produces the tips. It is the general purpose and object of this invention to provide an adapter which will enable tips having advantages such as are referred to, to be applied to various types of blowpipe heads, thereby enabling the owners of such blowpipe heads to obtain the advantages incidental to the use of such special tips.

I secure the foregoing objects in and through the construction and arrangement of parts shown in the drawings hereof, wherein Fig. 1 represents a side elevation of a blowpipe having my invention applied thereto; and Fig. 2 a view, partly in central longitudinal section and partly in elevation, of the blowpipe shown in Fig. 1.

Describing the various parts by reference characters, A denotes the head of a blowpipe, which may be of any standard construction, the head shown herein having a central passageway 1 therein for cutting oxygen, a passageway 2 for pre-heating oxygen, and a passageway 3 for combustible gas, the gases referred to being supplied to the head by means of tubular connections 4, 5 and 6. The lower end of the head has a seat, indicated generally at A′ and is shown as provided with an external thread A^2. The lower end of the passage 2 communicates with an annular channel 7, which is formed in the seat A′ and which surrounds the delivery end of the passage 1.

B denotes generally the body of the adapter, the same having an upper seating end B′ which is so constructed as to enable the oxygen and the combustible gas to be delivered efficiently to the tip. The tip shown herein comprises an outer member C and an inner member C′, and is preferably of the type shown in Harris Patents Nos. 1,217,119 issued February 20, 1917, and 1,408,194 issued February 28, 1922, wherein the cutting oxygen is delivered through a central bore in the inner tip member C′ and the preheating gases are delivered through passages provided between the inner and outer tip members. The adapter shown herein is so designed as to enable a tip of such character to be readily applied to the head A and in such manner as to insure leak-proof joints and the efficient delivery of the gases to the tip. For this purpose, the adapter is provided with a chamber B^2 in the lower portion thereof, below the head B^3 which is provided with the seating portion B′. The outer tip member C is adapted to telescope within said chamber. The head B^3 of the adapter is provided with an internally threaded bore B^4 into which the upper end C^2 of the inner tip member is threaded, the extreme upper end of the inner tip member being rounded, as shown at C^4, to engage and seat against the tapered portion B^5 of the adapter. The threaded end C^2 of the inner tip member is of smaller diameter than the inner diameter of the bottom of the chamber B^2 which receives the upper end of the outer tip member. Above the seat for the tip, the head is provided with a central port 8 adapted to register with the passage 1.

The head B is provided with an annular channel 9 at the upper end thereof into which the passage 3 discharges the combustible gas and from which channel the gas is distributed to mixing passages 10 extending through said head and delivering the mixture of preheating gases into the chamber B^2. Passages 11 from the annular channel 7 deliver the preheating oxygen into the mixing passages 10. The chamber B^2 receives the mixture from the passages 10 and serves to further mix the gases and to deliver them to the passages for preheating gases which are formed between the inner and outer tip members, as described hereinbefore.

The adapter is connected to the lower end of the head A by means of a sleeve D which is

threaded onto the upper end of the adapter and onto the lower threaded end of said head.

The lower end of the adapter is provided with an external thread, indicated at B^6. A shouldered nut E is threaded onto the lower end of the adapter. Leakage of gas from the chamber B^2 around the outer tip member C is prevented by a triangular packing washer E′ which surrounds the tip member C and has its opposite tapered ends wedged respectively between the said tip member and the bottom of the chamber B^2 and between the said tip member and the aperture E^2 through the shouldered part of said nut.

By the construction shown and described herein, I am enabled to secure tips having certain advantages and capabilities of operation upon blowpipe heads not originally intended therefor and thereby enable the said heads to be operated with such tips. Furthermore, I am enabled to secure this result without any leakage between the parts and without any loss of efficiency in the operation of such tips.

Having thus described my invention, what I claim is:

1. An adapter for securing to a blowpipe head a tip comprising an outer member surrounding an inner member with passages for preheating gases provided between the said members and with the inner member extending upwardly beyond the outer member and having a central bore for cutting oxygen, the said adapter having at its upper end a head and a chamber below the said head and into which the outer member of the tip is adapted to telescope, the said adapter being provided with means for securing the inner member of such tip to the adapter head, the adapter head being provided with a passage adapted to deliver oxygen from the passageway in said head to the passageway therefor in such inner tip member and also being provided with passages for delivering oxygen and combustible gas from such blowpipe head to said chamber and from said chamber to the passages formed between the inner and outer tip members, the said adapter being provided with means for securing the upper end thereof to such blowpipe head and with means for effecting a leak-proof joint between the outer tip member and the lower end of the chamber.

2. An adapter for securing to a blowpipe head a tip comprising an outer member surrounding an inner member with passages for preheating gases provided between the said members and with the inner member extending upwardly beyond the outer member and having a central bore for cutting oxygen, the said adapter comprising a body having a head at the upper end thereof adapted to seat against the lower end of a blowpipe head and provided with a mixing and distributing chamber below such adapter head, the adapter head being provided with an internally threaded bore of less diameter than said chamber into which the upper end of such inner tip member may be screwed with the outer tip member telescoping within the lower portion of said chamber, the said adapter head being provided with a passage for supplying cutting oxygen to the passage therefor in such inner member and with passages located externally of such threaded bore for receiving oxygen and combustible gas from the said head and for delivering the same to the chamber therebelow, the said adapter being provided with means for securing the same to such blowpipe head and with means for forming a leak-proof joint between the lower end of the chamber therein and the portion of the outer tip member therewithin.

3. An adapter for securing to a blowpipe head a tip comprising an outer member surrounding an inner member with passages for preheating gases provided between the said members and with the inner member extending upwardly beyond the outer member and having a central bore for cutting oxygen, the said adapter having a head provided with an upwardly projecting seat for the upper end of the inner member and also being provided with a bore extending through said seat and registering with the bore in said inner tip member and with a passage for cutting oxygen in said head, the said adapter also having one or more passages adapted to receive preheating gases from said head and to deliver them into an annular mixing and distributing chamber in said adapter below the seat for the inner member from which chamber the said mixture is distributed to the preheating passages between said tip members, and means for securing the body of the adapter directly to the blowpipe head.

4. A blowpipe comprising a head having therein passages for cutting oxygen and for a combustible gas and preheating oxygen, a tip having a central passage therein for cutting oxygen and one or more passages for preheating gases surrounding such central passage, an adapter for securing the said tip to the said head, the said adapter having a central bore adapted to receive cutting oxygen from the head and deliver the same into the passage for cutting oxygen in the tip and the said adapted also having one or more passages therein adapted to receive the combustible gas and the preheating oxygen from the passage or passages therefor in the head and to deliver the same to the preheating passages in the said tip, means for securing the tip to the adapter, and additional means for securing the body of the adapter to the said head.

5. A blowpipe comprising a head having therein passages for cutting oxygen and for a combustible gas and preheating oxygen, a tip having a passage therein for cutting oxygen and passages for preheating gases, and an adapter for securing the said tip to the

said head, the said adapter having a bore adapted to receive cutting oxygen from the head and deliver the same into the passage for cutting oxygen in the tip and the said adapter also having one or more passages adapted to receive the combustible gas and the preheating oxygen from the passages therefor in the head and to deliver the same into a distributing and mixing chamber provided therefor in the adapter, whence the mixture is delivered to the preheating passages in the said tip, means for securing the tip to the adapter, and additional means for securing the body of the adapter to the said head.

6. A blowpipe comprising a head having a centrally arranged passage for cutting oxygen and passages for a combustible gas and for preheating oxygen, the said head being provided with an annular distributing channel in the bottom thereof with which the passage for one of such preheating gases communicates, an adapter having a central bore adapted to register with the central passage in the head and having an annular channel in the top arranged to register with the other passage for preheating gas and having passages therethrough adapted to receive preheating gases from both of said channels, the said adapter being provided with a chamber below the said adapter passages and communicating therewith, a blowpipe tip comprising an inner member and an outer member having passages for preheating gases formed therebetween, the inner member projecting above the outer member and being provided with a central passage for cutting oxygen adapted to register with said bore, means for securing the tip to the said adapter with the upper end of the outer member below the top of said chamber, and means for securing the adapter to said blowpipe head.

7. A blowpipe comprising a head having therein passages for cutting oxygen and for a combustible gas and for preheating oxygen, a tip comprising an inner member having a passage for cutting oxygen and an outer member surrounding the inner member with passages for preheating gases formed between said members, the inner member extending upwardly beyond the outer member, an adapter for securing the said tip to the said head, the said adapter having a bore adapted to deliver cutting oxygen from the head into the passage for cutting oxygen in the inner tip member and the said adapter also having passages therein adapted to receive the combustible gas and the preheating oxygen from the passages therefor in the head and to deliver such mixture into a chamber formed in the adapter, whence the mixture is delivered to the preheating passages in the said tip, the said adapter having a centrally disposed upwardly projecting seat for the upper end of the inner tip member, means for securing the tip to the adapter, and a sleeve on the exterior of the adapter threaded onto the lower portion of the said blowpipe head.

In testimony whereof, I hereunto affix my signature.

LORN CAMPBELL, JR.