

K. F. RUSSELL.
BLOWPIPE.
APPLICATION FILED MAR. 18, 1919.

1,310,106.

Patented July 15, 1919.

Fig. 1

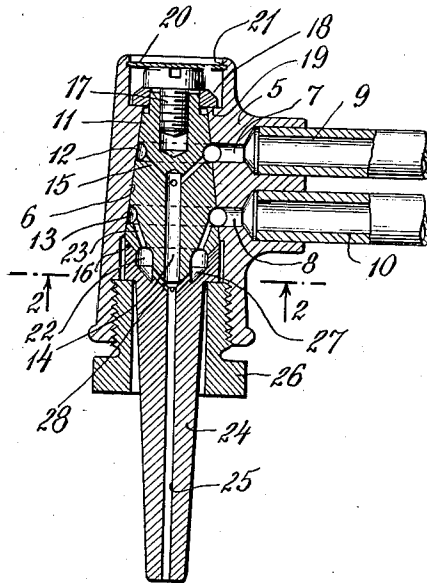


Fig. 2,

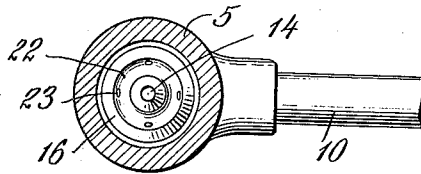


Fig. 3,

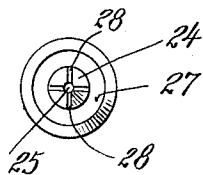
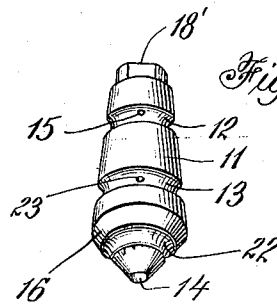


Fig. 4,



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BLOWPIPE.

1,310,106.

Specification of Letters Patent.

Patented July 15, 1919.

Application filed March 18, 1919. Serial No. 283,367.

To all whom it may concern:

Be it known that I, RICHARD F. RUSSELL, a citizen of the United States, residing at Jersey City, in the county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Blowpipes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to blowpipes and particularly to certain improvements in the structure thereof whereby advantageous and desirable results are accomplished.

It is an object of my invention to provide a blowpipe having interchangeable tips, which, when assembled with the head prevent escape of gases therefrom, the tips being constructed to control the proportioning of the mixture of combustible and oxidizing gases.

A further object of my invention is the arrangement and construction of the parts so that necessary manufacturing operations may be carried out with ease and efficiency, whereby such operations are rendered less expensive and the accuracy of the work is assured.

Further objects and advantages of my invention will be apparent as it is better understood by reference to the following specification when read in connection with the accompanying drawing illustrating the preferred embodiment thereof in which,

Figure 1 is a longitudinal section through the head and tip of a blowpipe;

Fig. 2 is a section through the head on the line 2—2 of Fig. 1;

Fig. 3 is a rear-end elevation of the tip; and

Fig. 4 is a view in perspective of the filler in the head.

In blowpipes as heretofore constructed, it has been customary to provide a surface with which a portion of the tip coöperates to prevent escape of gases from the head and to drill or otherwise form passages in the head whereby oxidizing and combustible gases are delivered to the tip. The form and construction of such devices makes it relatively difficult to perform the necessary mechanical operations and to produce the structure with sufficient accuracy to accomplish the desired results. I have found

it to be desirable to form that portion of the blowpipe requiring the more intricate mechanical operations as a separate part which may be machined or otherwise manipulated independently of the head. Drilling and other operations are thus facilitated, and the work being readily accessible, may be accomplished with a degree of accuracy heretofore impossible without more careful attention than could be expected of the average workman employed in constructing blowpipes. My structure, moreover, facilitates the employment of jigs and other mechanical devices permitting the automatic production of the desired parts so that large scale production at relatively slight labor cost becomes possible.

In the practical application of my invention as illustrated in the accompanying drawing which illustrates one form of my invention, 5 indicates a head roughly cylindrical in form and having a chamber extending entirely therethrough. The central portion of the chamber provides a frusto-conical seat 6 and inlet passages 7 and 8 supplied with oxidizing and combustible gas through pipes 9 and 10 open into the frusto-conical seat.

A filler 11 having a surface conforming to the frusto-conical seat in the head 5 is disposed within the head and is provided with channels 12 and 13 adapted to register with the inlet passages 7 and 8. An axial passage 14 in the filler is connected by lateral ducts 15 to the channel 12 and terminates at the apex of a projecting conical seat 16 formed at the end of the filler 11.

The filler 11 is held within the head preferably by a screw 17 threadedly engaging the filler and bearing on a washer 18 which in turn engages a shoulder 19 at the end of the frusto-conical seat 6. The filler 11 is preferably provided with a flattened surface 18' and the washer 18 is punched to conform thereto. The washer is thereby caused to turn with the filler in the event that the latter is rotated and the screw cannot be loosened by such rotation. Preferably a disk 20 is supported in a groove at the rearward end of the head 5 and covers the screw 17 so that the filler 11 may not be readily removed after it has been assembled with the head.

A channel 22 is formed in the seat 16 surrounding the end of the passage 14 and is

connected to the channel 13 by ducts 23. Thus oxidizing gas from the pipe 9 is delivered through the ducts 15 to the passage 14 and combustible gas is delivered from the pipe 10 through the ducts 23 to the channel 22.

A tip 24 having a discharge passage 25 is provided at its rearward end with a surface conforming to and cooperating with the seat 16 to form a gas tight joint when the tip is assembled with the head by means of a nut 26, which threadedly engages the head 5. A channel 27 registering with the channel 22 is preferably formed in the surface at the rearward end of the tip and one or more grooves or depressions 28 connect the channel 27 to the discharge passage 25. The grooves or depressions 28 may be milled, pressed or otherwise formed and are carefully regulated as to cross sectional area in tips intended to produce flames of varying dimensions so that a proper mixture of the combustible and oxidizing gas is assured. By simple removal and replacement of a tip, a flame of the desired dimensions with proper proportioning of the gases may be readily secured.

As will be apparent, the more difficult operations in the manufacture of the blowpipe are concentrated in the filler 11, which, being separate from the head during the manufacturing operations may be handled with ease. There are no seats, ducts or other essentials of the blowpipe which must be necessarily formed in relatively inaccessible portions of the head. The filler 11 may be handled in automatic machine tools to accomplish the desired results with facility and speed. My improved torch is accordingly well adapted to large scale production and may be constructed under conditions insuring comparatively low production costs.

As has been indicated, the form of blow pipe shown in the drawing is illustrative merely of the invention and various changes may be made in the form, arrangement and construction of the parts without departing from the invention or sacrificing any of its material advantages.

I claim:—

1. In a blowpipe, the combination of a head having a chamber, a filler in said chamber having a projecting conical seat, a tip having a discharge passage and a surface cooperating with said seat to form a gas tight joint and means for conveying gases separately to said tip, the gases being mixed at the inlet to said discharge passage.

2. In a blowpipe, the combination of a head having a chamber, a filler in said chamber having a seat, a tip having a discharge passage and a surface cooperating with said seat to form a gas tight joint, means for conveying gases separately to said seat and a groove or depression in said surface where-

by one of the gases is mixed with the other at the inlet to said discharge passage.

3. In a blowpipe, the combination of a head having a chamber, a filler in said chamber having a conical seat, a tip having a discharge passage and a surface cooperating with said seat to form a gas tight joint, said filler having means for conveying gases separately to said tip, the gases being mixed at the inlet to said discharge passage.

4. In a blowpipe, the combination of a head having a chamber, a filler in said chamber having a projecting conical seat, a tip having a discharge passage and a surface cooperating with said seat to form a gas tight joint, said filler having means for conveying gases separately to said tip and means in said head for separately delivering the gases to said conveying means.

5. In a blowpipe, the combination of a head having a chamber, a filler in said chamber having a longitudinal gas passage and a seat, a tip having a discharge passage and a surface cooperating with said seat to form a gas tight joint, a groove or depression in said surface terminating at the outlet from said longitudinal passage said filler having means for separately conveying gases to said longitudinal passage and to said groove or depression.

6. In a blowpipe, the combination of a head having a chamber, a filler in said chamber, having annular channels spaced longitudinally thereof and a projecting conical seat, a tip having a discharge passage and a surface cooperating with said seat to form a gas tight joint, means for separately conveying gases from said channels to said discharge passage and means in said head for delivering gases to said channels.

7. In a blowpipe, the combination of a head having a chamber, a filler in said chamber having a seat, a longitudinal passage, spaced annular channels, a duct connecting one of said channels to said passage, and a duct connecting two other channels, and a tip having a surface cooperating with seat to form a gas tight joint, a discharge passage, and a groove or depression in said surface whereby gas is conveyed from one of the latter channels and mixed with the gas issuing from said longitudinal passage.

8. In a blowpipe, the combination of a head having a chamber provided with a frusto-conical surface, a filler having a cooperating surface and a projecting conical seat, a tip adapted to be secured in said head and having a surface cooperating with said seat to form a gas tight joint and a discharge passage, and means in said filler for separately conveying gases to said tip.

9. In a blowpipe, the combination of a head having a chamber, provided with a frusto-conical surface, a filler having a cooperating surface and a projecting conical

5 seat, and a tip adapted to be secured in said head and having a surface cooperating with said seat to form a gas tight joint and a discharge passage, said filler having a longitudinal passage communicating with said discharge passage, a duct communicating therewith, and means for separately conveying another gas to said discharge passage.

10 10. In a blowpipe, the combination of a head having a chamber provided with a frusto-conical surface, a filler having a cooperating surface and provided with a pro-

jecting conical seat, and a tip having a discharge passage and a surface cooperating with said seat to form a gas tight joint, said filler having means for separately conveying gases to said seat, and a groove or depression in the last mentioned surface whereby one of the gases is conveyed to and mixed with the other at the inlet to said discharge passage. 15 20

In testimony whereof I affix my signature.

RICHARD F. RUSSELL.