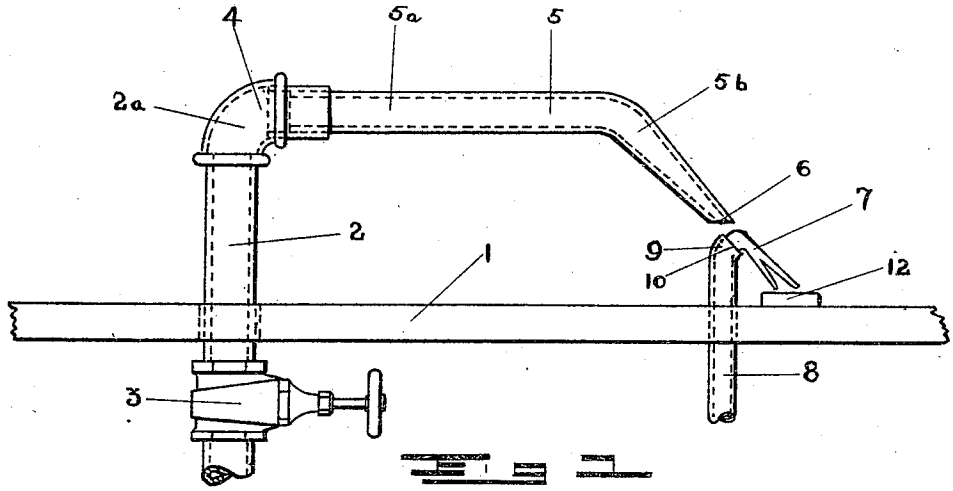
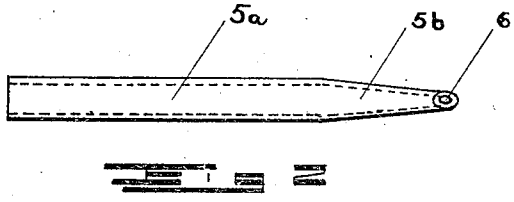
J. F. MASON.

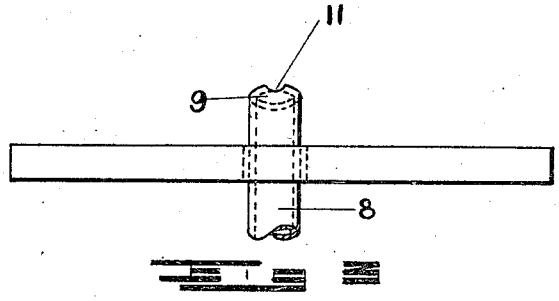
BLOWPIPE.

APPLICATION FILED JUNE 26, 1909.

950,235. **Patented Feb. 22, 1910.**







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BLOWPIPE.

950,235. Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed June 26, 1909. Serial No. 504,621.

To all whom it may concern:

Be it known that I, JOHN F. MASON, a citizen of Great Britain, residing at Taunton, in the county of Bristol and Commonwealth of Massachusetts, have invented a new and useful Improvement in Blowpipes, of which the following is a specification; and I do hereby declare the following to be a full, clear, and exact description of my invention.

My invention relates to that class of blowpipes which is used in the manufacture of artificial eyes, fancy buttons, and other similar articles which require a very intense, continuous, and well localized jet of flame, and the purpose of my invention is to furnish a blowpipe which can throw a very hot, sharply-defined, two-forked pencil of flame upon any object. While a very hot jet has been obtained with some of the blowpipes hitherto in use, it has been impossible to obtain a smooth, clear pencil of flame, free from smudge and eddies, and double-pointed. This result, however, I have accomplished by means of my invention, hereinafter described.

Referring to the annexed drawings,—Figure 1 is a side elevation of my invention; Fig. 2 is a bottom view of tube 5^a—5^b of Fig. 1; and Fig 3 is an elevation of pipe 8 from the direction of pipe 2 in Fig. 1.

Reference being had to the drawings, in which similar characters denote similar parts in all the figures, 1 is the top of a work bench, through which a pipe 2 passes vertically, and which is bent forward into horizontal position at its top 2^a. Through pipe 2 air is forced under pressure and the flow of air is controlled by means of a valve 3 or similar device. In the end of 2^a is an annular recess 4, into which is inserted the end of a cylindrical tube 5, which may be coated with gutta-percha or similar material for the purpose of making an air-tight joint at the point of insertion.

Tube 5 is of special design, so made that a stream of air issuing therefrom under pressure will be smooth, free from eddies, of the requisite volume and force, and bi-partite. It consists of two parts, the first 5^a being cylindrical and the second 5^b approximately conical, having in its end an orifice 6. The proper size and shape of orifice 6 must be found by repeated experiments, as follows,—tube 5 if made of glass is first drawn to a point in the usual manner of drawing glass tubing and then a small section is cut off, being undercut at an angle of about 70 degrees, as shown in Fig. 1 forming a very small orifice at the end, tube 5 is inserted into recess 4 in proper position and a trial made. If too small a stream of air is emitted, a second bit is cut from the end of tube 5^b and a second trial is made, and so on successively until an orifice of the desired size and shape is obtained. If tube 5 is made of metal, a convenient way to make the same is to join a cone of thin metal, serving as 5^b, at an oblique angle to a cylindrical pipe which may serve as 5^a, by soldering; but there are many ways of making tube 5 from metal.

Tube 5 is bent downward at the juncture of 5^a and 5^b, so that the stream of air issuing from orifice 6 is directed obliquely downward. When thus made, tube 5 emits a stream of air which tends to separate into two streams 7, slightly divergent and one above the other. If these two streams 7 are not clearly enough defined, the orifice 6 may be flattened slightly on each side, which will aid in producing the desired effect. The object of having a double stream of air directed upon the work is to keep all portions thereof more continuously heated than could be done with a single stream, because if the article 12 be revolved, every part thereof will pass through the flame twice at each revolution, whereas with a single flame it would be heated but once at each revolution. Orifice 6 may also be made triangular, for throwing a three-forked jet, but this form has been found to work poorly because the separate streams of flame are not clearly defined and the heat is too diffused to do good work.

Tube 5 may be made of any desired material, but I have discovered that it is best made of metal, because it is much more durable, less liable to chip or melt than glass, and also easier to work.

A second pipe 8 passes up through the top 1 of the bench, is slightly bent forward at its top 9 and is cut off obliquely at 10 on a line approximately parallel to the stream of air emitted from tube 5. Through pipe 8 gas passes up in front of orifice 6. In the top of the rear wall of 9, being just below orifice 6, is a curved notch 11, the purpose

of which is to allow the air to pass across the top of pipe 8 without interference, thus avoiding the formation of eddies therein.

Tube 5ª may be pushed in or drawn out of recess 4. The operator is thus enabled to bring orifice 6 into proper position above pipe 8.

Upon 1, beyond pipe 8, is placed the article 12 to be fused, and any convenient means may be used to raise or move it in any desired direction upon 1 and thus bring it into the path of the jet of flame at the desired distance from orifice 6.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a blow-pipe, the combination of an air-supply pipe and a gas-supply pipe having a notch in that portion of its discharging end nearest the end of the air-supply pipe, said pipes being disposed at an angle to each other, so that the streams of gas 3 and air issuing therefrom intersect.

2. In a blow-pipe, a gas-supply pipe having its end slightly bent and cut off on a line approximately parallel to an intersecting stream of air from an air-supply pipe.

3. In a blow-pipe, a tube bent at an obtuse angle and consisting of a cylindrical part and a tapering part, having in its end an orifice approximately elliptical.

4. In a blow-pipe, an air-supply tube tapering to a single hole, said hole being formed by cutting off said tube at an angle other than a right angle to the longitudinal axis of said tube.

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