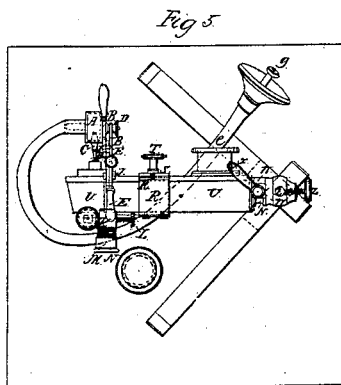
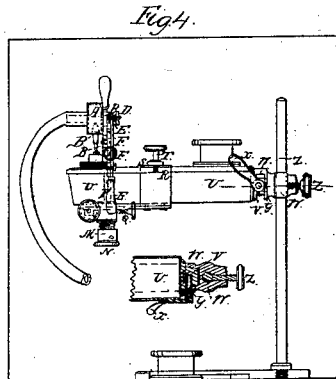
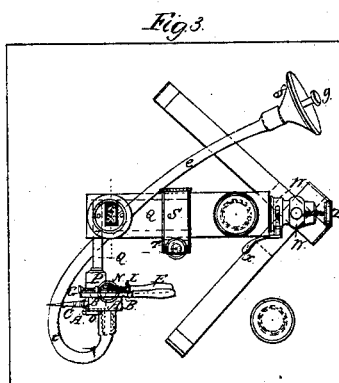
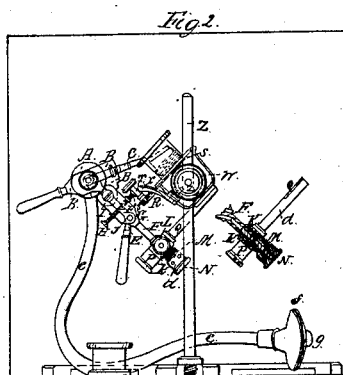
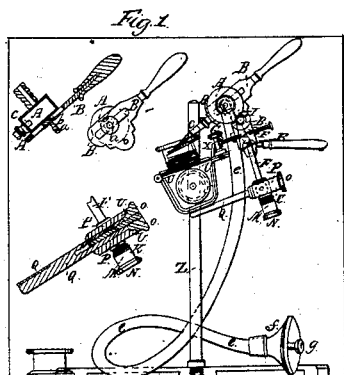


*O. A. MOSES,*

*Blow Pipe,*

*N<sup>o</sup> 57,362.*

*Patented Aug. 21, 1866.*



*Witnesses:*  
*A. Moses*  
*J. L. Smith*

*Inventor:*  
*O. A. Moses*  
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*attorney*

# UNITED STATES PATENT OFFICE.

O. A. MOSES, OF CHARLESTON, SOUTH CAROLINA.

## IMPROVED BLOW-PIPE.

Specification forming part of Letters Patent No. 57,362, dated August 21, 1866.

*To all whom it may concern:*

Be it known that I, OTTOLENGUI A. MOSES, of Charleston, district of Charleston, in the State of South Carolina, have invented a new and Improved Machine for Assaying and Analytical Examination of Minerals and Metals; and I do declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents an end view of the blow-pipe, and in position for use and details. Fig. 2 is an end view from the opposite of Fig. 1, and details with greater inclination. Fig. 3 is a top view, with the point of the blow-pipe removed from the wick or flame. Fig. 4 represents a side view. Fig. 5 is another side elevation.

The nature of my invention consists, first, in being enabled to change instantly an oxidizing-flame into a reducing (deoxidizing) one, and vice versa, by a gentle pressure on a lever, without in the least distracting the attention of the operator; and, second, in fastening the assayer's blow-pipe to his lamp, and then giving to the lamp a movement on an axis, so as to enable him to give any inclination to the above flames between a normal position and a vertical one, up or down.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The air-chamber A, (with which either an india-rubber blowing-machine or any variety of bellows can be brought in connection) is seen with a rubber tube, *e*, attached, to which tube is fastened a mouth-piece, *f*, in which is a second piece, *g*, that is held between the teeth of the operator while blowing, thus allowing both of his hands to be free. The air-chamber is movable along the length of the slot B forward and backward on the slider *d*, which thus keeps the blow-pipe point from which the air issues (which is situated on the end of the nozzle C, which is fastened to and in the air-chamber A) always parallel to the slot B. Movement is communicated to it by the forked lever E, regulated by the set-screws G and H.

To keep A parallel to B, and to give a bearing for the fork of the lever E, the nut D and washer *b* are attached.

The slot B (and with it the air-chamber and blow-pipe point) turns in a vertical plane on the axis I, (which, being a screw, can be tightened or loosened at pleasure,) thus allowing the air to issue from the blow-pipe point at a greater or less angle to the wick.

The whole blowing apparatus is firmly fastened to the lamp by means of the clamp R S and connecting-rods Q Q', and can be slowly moved to and from the lamp on the rod Q by means of the screw O, which plays against the pin C in P, and has its female in said rod; and it can also be moved up and down on the standard F by means of the screw N, which plays against the pin *d* in M, and which has its female in said standard; and it can, besides, be turned to any angle right or left of the wick in the socket K, for the purpose of perfecting the flames, adjusting the wick-point, &c., and then be held stationary by the screw L, which plays against a smooth band turned in the screw of M.

The lever X, which is in connection with a screw that has its female in the axis V of the lamp, plays against the curved washer Y, and serves as a nut to retain the lamp in a given position. When loosened the lamp (and with it the whole blowing apparatus) can be made to occupy any desired angle in a vertical plane.

Before use the blow-pipe must be placed in position, which is done in the following way: The screw L is loosened and the standard F is turned in K until the point of the blow-pipe lies over the middle of the wick. These are made parallel by giving B the proper inclination, and L is again tightened. If this can only be done by disturbing the wick, the whole blowing apparatus must be raised by the screw N until this can be accomplished, and even a space less than an eighth of an inch intervene between wick and points. If the contrary be the case—that is, if a greater distance separate the parallel wick and blow-pipe point—the apparatus must be lowered by the screw N until it occupies the position as above.

The play to be allowed the lever E (or, in other words, the air-chamber A and nozzle C) for the production of the best oxidizing and reducing flames is determined and retained by the use of the set-screws G and H.

Fig. 1 shows the apparatus (ready for action)

in position to blow an oxidizing-flame. By a gentle pressure on the lever E the air-chamber A, and with it the nozzle C and blow-pipe point, can be made to recede and occupy the position seen in Fig. 2, suitable for a reducing flame, and vice versa.

In quantitative analysis with the blow-pipe it is often desirable, for special operations, to incline the flame at different angles. By loosening the levered screw X and turning the lamp (and with it the whole blowing apparatus) on its axis, any desired angle, either upward or downward, can be given to the flames. This is particularly advantageous in the gold and silver assays, when acute angles downward must be used. The upward ones can be employed for the blowing of all glass vessels necessary, and the different preparatory operations generally performed by means of an alcohol-lamp, heating of substances in little flasks, open, closed, or test tubes, &c.

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

1. The slot B and slider *a*, and the move-

ments imparted to the same, operating in the manner and for the purpose hereinbefore stated.

2. The forked lever E and set-screws G and H, or their mechanical equivalents, and the standard F, and the movements imparted to the same, in the manner and for the purpose specified.

3. The clamp R S, and connecting-rods Q Q', and the application of the screw-arrangements O P Q *c*, N M F *d*, and K L, or their mechanical equivalents, operating substantially in the manner and for the purpose hereinbefore specified.

4. The axle of the lamp V, the levered screw X, and curved washer Y, and the slot in which they play, or their mechanical equivalents, operating in the manner and for the purpose herein described, or any other substantially the same.

OTTOLENGUI A. MOSES.

Witnesses:

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J. SILVERSMITH.