L. L. BOWER.

BLOWPIPE.

APPLICATION FILED APR. 9, 1912.

1,053,968.

Patented Feb. 25, 1913.

Fig. 1.

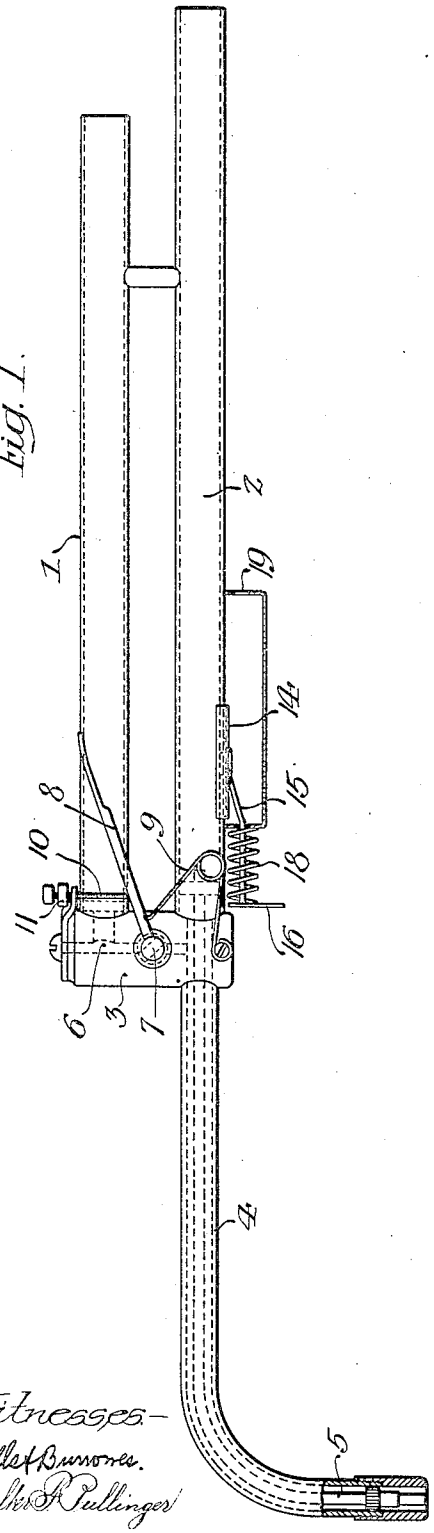


Fig. 3.

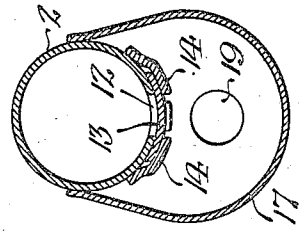
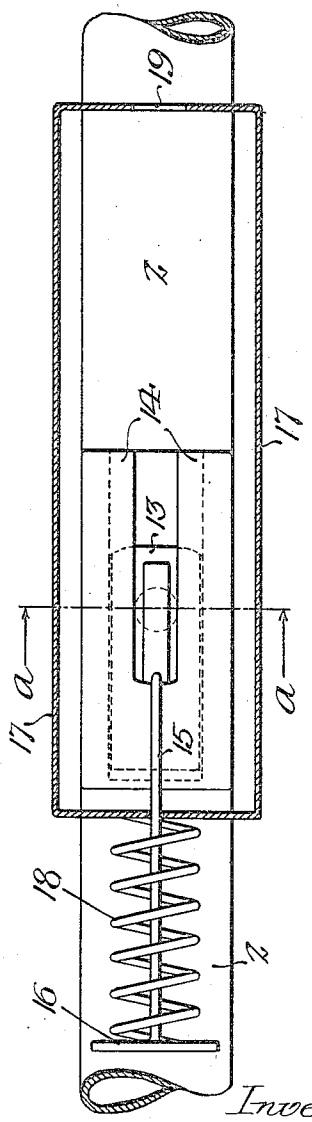


Fig. 2.



Witnesses—

Willet Bunnell.

Walter R. Bullinger.

Inventor—

Leon L. Bower

by his Attorneys.

Howson & Howson

UNITED STATES PATENT OFFICE.

LEON L. BOWER, OF PHILADELPHIA, PENNSYLVANIA.

BLOWPIPE.

1,053,968. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed April 9, 1912. Serial No. 689,473.

To all whom it may concern:

Be it known that I, LEON L. BOWER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Blowpipes, of which the following is a specification:

One object of my invention is to provide a blow pipe particularly adapted for the use of dentists, jewelers or others having to solder metals such as gold and silver, by means of which it shall be possible to conveniently and accurately regulate the flame by the manipulation of an air controlling valve; it being especially desired that the device shall be simple and inexpensive in construction.

Another object of my invention is to provide a blow pipe with novel means for permitting the escape of greater or less quantities of air from the air supply pipe in order to regulate or adjust the flame produced, in preference to maintaining the full air pressure in the air chamber and permitting a small quantity of air to pass to the gas chamber or outlet by means of an intercepting valve.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings; in which,

Figure 1 is a side elevation, partly in section, illustrating a blow pipe constructed according to my invention; Fig. 2 is an inverted horizontal section, on an enlarged scale, illustrating the detail construction of the air regulating valve; and Fig. 3 is a transverse vertical section on the line *a—a* Fig. 2.

In the above drawings, 1 and 2 represent the gas and air pipes respectively, which under operating conditions are connected to suitable sources of supply, and both of these enter a valve casing 3 to which there is also connected the burner 4. The outer chamber or pipe of this burner has mounted within it a second pipe 5, one of whose ends communicates with the air supply pipe 2 and whose other end extends to or immediately adjacent the outlet of the pipe 4. This latter communicates at its inner end with a passage 6 in the valve casing 3, which is also in communication with the gas supply pipe 1; the arrangement of the two pipes 4 and 5 being such that the former discharges gas in an annular current or stream around the central core of air discharged by the pipe 5.

In the passage 6 of the valve casing 3, I mount a gas controlling valve 7 which has an operating handle 8 projecting in a convenient position at one side of the gas pipe and I provide a spring 9 acting on this handle so as to normally maintain it in its upper position, which in the present instance, corresponds to the closed position of the valve 7.

A stop 10 in the form of a screw is mounted on the valve casing 3 in position to limit the upward movement of the valve handle and may be held in any adjusted position by means of a jam nut 11.

In the air supply pipe 2, preferably adjacent the end of the pipe 5 of the burner, I form an opening 12 normally closed by a valve 13 in the form of an elongated plate, slidably mounted between the pipe 2 and a pair of guides 14. This valve has attached to it a stem 15 which extends substantially parallel to the general line of the pipe 2, and terminates in a head 16. A casing 17 forming a muffler, is mounted on the pipe 2 in position to inclose the space immediately adjacent the opening 12 thereof and a spring 18 is mounted between the head 16 and said casing in position to normally hold the valve in its closed position, the rear end of the muffler casing having a relatively large outlet 19.

Under operating conditions, if the pipes 1 and 2 be respectively connected to sources of supply of gas and air, there will ordinarily be a flow of air from the outlet of the pipe 5, and the gas will be cut off, since the spring 9 through the handle 8, holds the valve 7 in its closed position. If now the two pipes 1 and 2 be grasped by the hand of the operator and the handle 8 be depressed by his thumb, gas is permitted to flow from the pipe 1 through the passage 6, and valve 7 of the valve casing 3, around the pipe 5, through the pipe 4 to the discharge end of the latter, at which point it may be ignited and the device used in the customary manner. It will be noted that so far in the use of this device, the air escaping from the pipe 5 has been at substantially the same pressure as the air in the supply pipe 2. If now it be desired to adjust or regulate the flame produced, the head 16 on the valve stem 15 is pressed inwardly so that the valve 13 is caused to uncover the hole 12 and thus permit the escape of more or less air from the pipe 2 into

the muffler casing. As a consequence, the pressure of air delivered to the pipe 5 is more or less reduced so that various sizes and forms of flames may be obtained, varying from that produced when the air is delivered at full pressure from the pipe 5, to that produced by the gas practically unmixed with air, which is produced when the valve 13 is fully opened.

The muffler casing 17 effectually prevents the objectionable noise which would otherwise be produced by the air escaping from the opening 12. Obviously, when the pressure on the head 16 is released, the spring 18 at once acts to close the slide valve 13, and air under full pressure is again delivered to the burner.

By the above described construction, I am thus enabled to very conveniently regulate the flame of the burner, especially since the gas valve handle 8 can be conveniently manipulated by the thumb of the operator's hand and at the same time the head 16 can with equal ease be pressed upon or released by his first finger, which under conditions of use, would encircle the two pipes 1 and 2.

By releasing or permitting escape of more or less of the air as it passes from the supply pipe to the gas chamber or outlet, a "soft" flame can be secured, as can also one which is either relatively large, or one of needle like form as may be desired by the operator.

I claim—

1. The combination in a blow pipe of a burner; air and gas pipes connected thereto, there being an opening in the air pipe; with a valve operative at will to permit varying quantities of air to escape through said opening while allowing air to flow to the burner; and means tending to close said valve.

2. The combination in a blow pipe of a burner; air and gas supply pipes connected thereto; means for permitting the escape of greater or less quantities of air at will from the air supply pipe independently of the burner while still permitting flow of air to the latter, to vary the pressure of the air at said burner; and a spring mounted to tend to cause closure of said means.

3. The combination in a blow pipe of a burner; a valve casing connected thereto; an air and a gas pipe connected to said casing; a valve controlling the flow of gas to the burner; with a second valve mounted on the pipe adjacent the burner and operative at will to permit the escape of air from the air supply pipe to diminish the air flow through the burner.

4. The combination in a blow pipe of a burner; a valve casing connected thereto; an air pipe connected to the casing; a gas pipe also connected to the casing; a hand controlled valve in the air pipe for permitting the escape of air therefrom independently of the burner while still permitting flow of air to the latter; and a casing mounted to receive the air escaping from the said pipe.

5. The combination in a blow pipe of a burner; air and gas supply pipes connected thereto; the air pipe having an opening; a hand controlled valve slidably mounted on the air pipe adjacent the opening; and means for normally holding the valve over the opening.

6. The combination in a blow pipe of a valve casing; air and gas supply pipes connected thereto; a burner also connected to the casing; a valve for controlling the flow of gas from the gas pipe to the burner; an operating handle for the valve projecting at the side of the supply pipes; a second valve mounted on the air pipe for permitting the escape of air therefrom; and a headed stem connected to said latter valve for operating the same.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

LEON L. BOWER.

Witnesses:
HAROLD B. FENTON,
WM. A. BARR.