E. W. EMERTON.

Blow-Pipe.

No. 223,326. Patented Jan. 6, 1880.

Fig. 1.

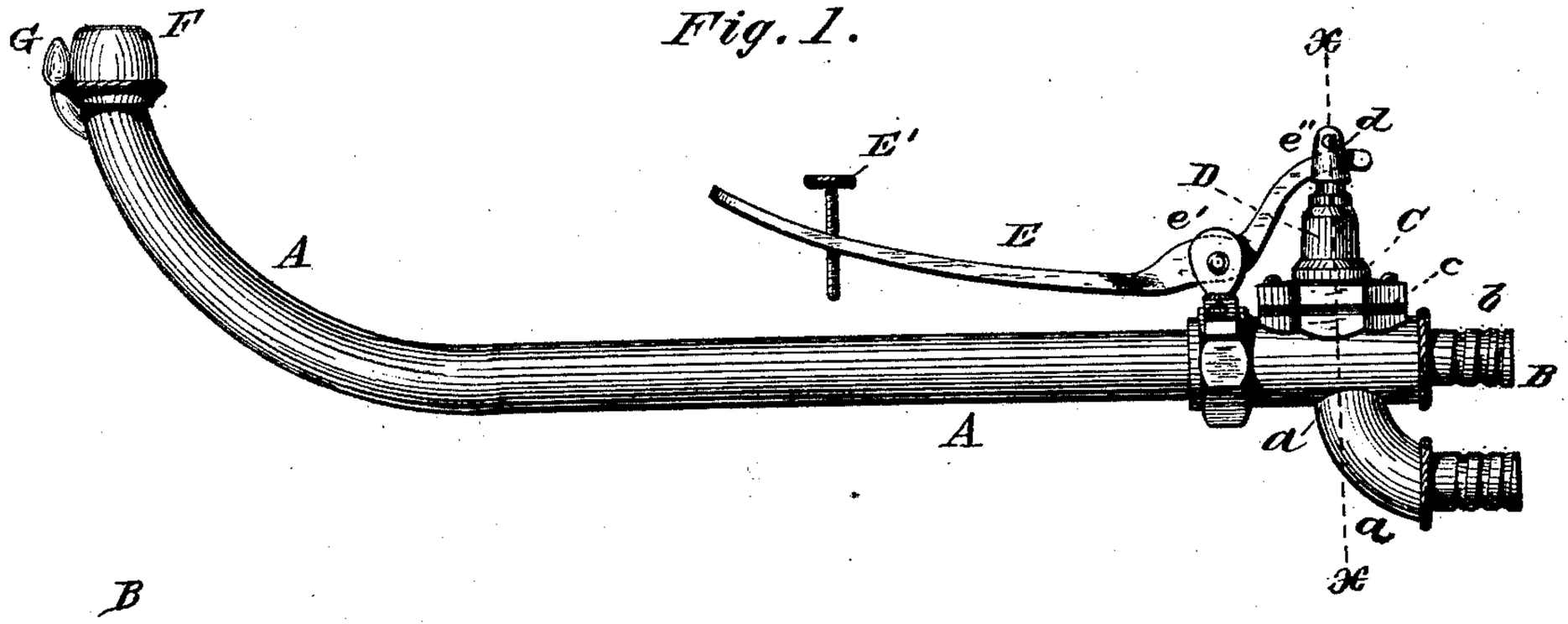


Fig. 2.

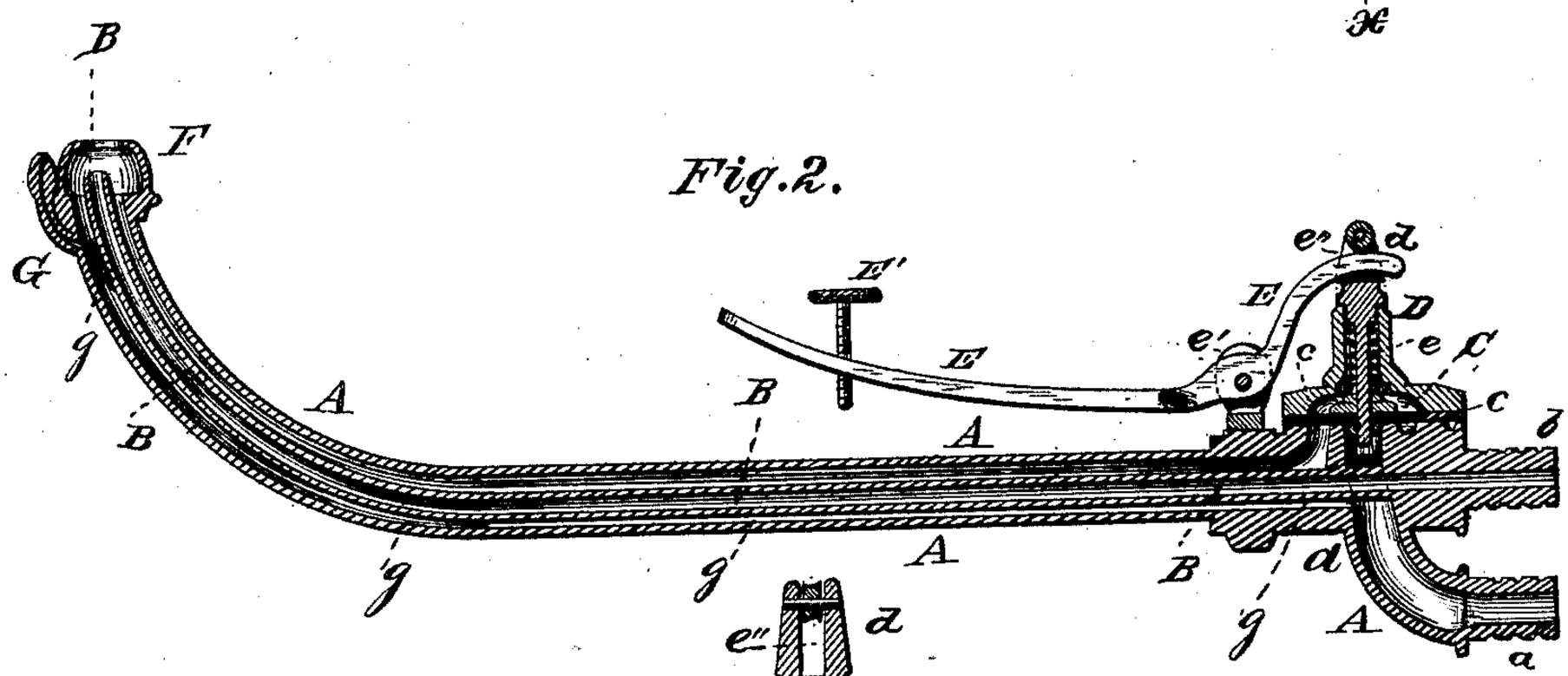
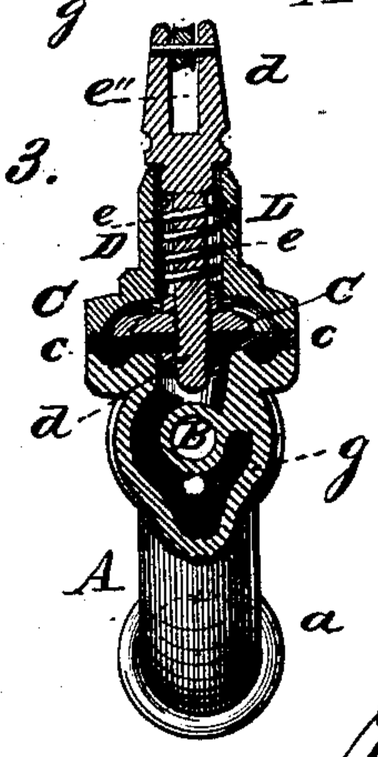


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD W. EMERTON, OF WEST MERIDEN, CONNECTICUT.

BLOW-PIPE.

SPECIFICATION forming part of Letters Patent No. 223,326, dated January 6, 1880.

Application filed October 20, 1879.

To all whom it may concern:

Be it known that I, EDWARD W. EMERTON, of West Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Blow-Pipes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of a blow-pipe embodying my improvement. Fig. 2 is a longitudinal section of the same; and Fig. 3 is a cross-section on line *x x*, Fig. 1, showing the construction and arrangement of the gas-valve with its adjuncts.

Similar letters of reference indicate corresponding parts in all the figures.

This invention has relation to that class of blow-pipes which are used with gas or hydrocarbon flames for the purpose of intensifying their heat by a forced supply of oxygen to the flame; and it consists in the construction and arrangement of parts of a blow-pipe, for solderers', braziers', or tinners' use, which is provided with a burner from which the gas is shut off automatically without affecting the air-current when the apparatus is not in actual use, substantially as and for the purpose hereinafter more fully set forth.

In the annexed drawings, A is a tube or pipe, which may be of any suitable size and shape. Inserted centrally through this pipe is a smaller tube, B, which opens out at its rear end at *b*, where it has a corrugated neck to receive a flexible rubber tube. The outer pipe, A, branches off at *a*, and is likewise provided with a corrugated neck to receive flexible tubing. A is the gas-pipe, and B the air-pipe, their flexible connecting-tubes leading to the stationary gas-pipe and blower or air-reservoir, respectively.

The gas-pipe *a*, where it enters the main pipe A, passes to one side of the inner air pipe or duct, B, and opens up into a valve-chamber, C, which is sealed by a flexible diaphragm, *c*, through the center of which is inserted a valve-stem, *d*, which is encircled by a coiled spring, *e*, placed within the valve-box D, through the top of which the valve-stem *d* projects.

E is a lever, having its fulcrum in a bearing, *e'*, affixed upon pipe A, and with its upwardly-curved rear end inserted into a slot, *e''*, in the head of the valve-stem *d*, bearing against a friction-roller pivoted in said head. The other long arm of lever E is flattened so as to form a convenient gripe or handle flaring outwardly from the pipe, and is provided with a set-screw, E', for the purpose hereinafter stated.

F is the head or burner, which consists simply of an enlargement at the top or end of the gas-pipe A, surrounding and projecting up above the mouth of the central air-pipe, B. Outside of the burner, but impinging closely against it, is a small tube, G, which is continued through the gas-tube A, as shown at *g*, down to its branch *a*, below valve-chamber C, so that the valve *c* will not operate to cut off the supply of gas from said branch *a* to pipe G.

From the foregoing description, taken in connection with the drawings, the operation of my invention will be readily understood. Every time the solderer lets go his hold upon the pipe spring *e*, operating against valve *c*, will close the valve-chamber C and shut off the gas, except a small stream, which finds its way through the fine tube G, and forms a tiny jet at its mouth to one side of the burner F. When he takes up the pipe, grasping it with the right hand across the long arm of lever E, that end of the lever is depressed and the valve is opened, allowing the gas to flow through pipe A till it reaches the burner-head F, where it is ignited by the tiny jet at the mouth of the igniting pipe or duct G. Thus all loss of gas is absolutely avoided, amounting to a saving of from thirty to sixty per cent., as, with the blow-pipes of this class as ordinarily constructed, the gas is kept burning with full force during the intervals the workman changes his position or his work, or leaves his bench to get new work, or for other purposes.

The size of the jet may be regulated by adjusting the set-screw E', which limits the play of the lever E and valve-stem *d* with its valve *c*.

Another important advantage of this construction is that there is a constant flow of cold air through the pipe during the intervals when the gas is shut off, which cools the work and hardens the solder the moment the flame is withdrawn by letting go lever E.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with a blow-pipe consisting of an inner air-duct and outer enveloping gas-duct, of a valve and lever arrangement for shutting off automatically the flow of gas through the gas-duct without disturbing the flow of air through its duct, substantially as and for the purpose herein shown and described.

2. The combination, with a blow-pipe consisting of an inner air-duct and outer enveloping gas-duct, and provided with means for shutting off automatically the flow of gas through its duct when the implement is not in actual use, of an auxiliary ignition gas-duct which is not affected by the valve for shutting off the flow of gas through the main duct, substantially as and for the purpose herein shown and set forth.

3. The combination of the outer gas-pipe, A, having burner F and branch pipe *a*, auxiliary independent gas-duct G, inner air-duct, B, valve-chamber C, and valve *c*, provided with the stem *d*, spring *e*, and operating-lever E, having set-screw E′, substantially as and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EDWARD W. EMERTON.

Witnesses:
WILLIAM MARSHALL.
OSWALD WOODWARD.