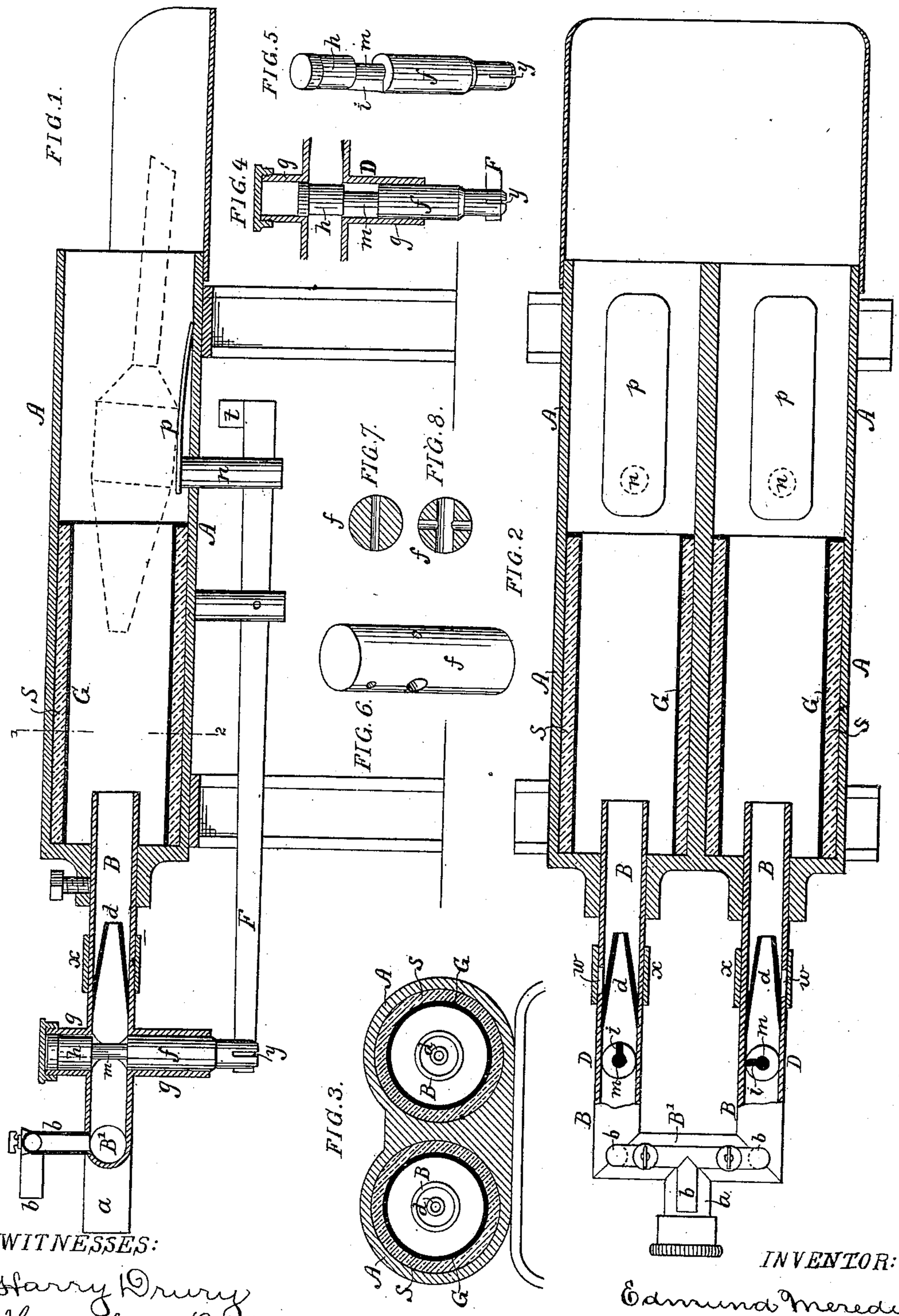
(No Model.)

E. MEREDITH.

HEATER FOR SOLDERING IRONS.

No. 267,560. Patented Nov. 14, 1882.



UNITED STATES PATENT OFFICE.

EDMUND MEREDITH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE ELKINS MANUFACTURING AND GAS COMPANY, OF SAME PLACE.

HEATER FOR SOLDERING-IRONS.

SPECIFICATION forming part of Letters Patent No. 267,560, dated November 14, 1882.

Application filed August 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDMUND MEREDITH, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented an Improvement in Heaters for Soldering-Irons, &c., of which the following is a specification.

My invention relates to certain improvements in that class of heaters in which gas or a mixture of gas and air is used for fuel, and in which the flow of the gas or mixture is regulated by the introduction and withdrawal of the soldering-iron or other tool to be heated, my improvements comprising certain details in the construction of a heater of this class with the view of simplifying the same, and providing for its economical working under all circumstances.

In the accompanying drawings, Figure 1 is a vertical section of my improved soldering-iron heater; Fig. 2, a sectional plan view of the same; Fig. 3, a transverse section; Figs. 4 and 5, views of the valve for governing the flow of gas and air to the heater, and Figs. 6, 7, and 8, views of a modified form of valve.

The casing of the heater comprises in the present instance two tubes, A, secured together side by side, although it should be understood in the outset that my invention is not limited to the use of two tubes, as but one tube or more than two may be used, if desired. Each tube A is closed at the rear by a suitable head, to which is secured and from which projects a pipe, B, these pipes being connected by a pipe, B′, provided with a branch, *a*, communicating through a hose or other connection with a reservoir of air under pressure. With the pipe B′ also communicates a gas-pipe, *b*, having two branches, each suitably valved, so that the flow of gas to either pipe B can be readily regulated.

In each pipe B is a nozzle, *d*, which serves to contract the volume of air and gas flowing through the pipe, so as to cause the same to be projected into the tube A in the form of a jet with force sufficient to carry it through and beyond the tube. The flow of air and gas through each pipe B is regulated by a valve, D, consisting of a plain cylindrical stem, *f*, adapted to slide in a vertical branch, *g*, of the pipe, and having two reduced portions, *h* and *m*, the former being but slightly reduced in diameter, but the portion *m* being reduced to a greater extent. The lower end of the stem *f* of each valve projects beyond the lower end of the branch *g*, and is acted upon by the long arm of a lever, F, hung to a stud on the tube A, the short arm of the lever being acted upon by a pin, *n*, projecting through an opening in the bottom of the tube, and having within the latter a plate, *p*. The lever F is simply adapted to slots in the pin *n* and valve-stem *f*, so as to permit the ready disconnection of the valve and pin when desired.

To the rear portions of the tubes A are adapted internal casings, G, and between the latter and the said tubes A are interposed fillings *s*, of plaster-of-paris, fire-clay, or other non-conducting material.

The operation of the apparatus is as follows: A soldering-iron or other tool is inserted into the front end of the tube A, so as to rest upon the plate *p*, and thereby depress the same and its pin *n*, so as to operate the lever F and elevate the valve D, the reduced portion *m* of the latter being brought in line with the pipe B, as shown in Fig. 1. This permits a free flow of gas and air around the valve, through the nozzle *d*, and into the tube A, in which it is ignited, so as to produce a flame which plays around the point of the iron, the latter being inserted into the casing G. When the iron, after being sufficiently heated, is removed from the tube A, the weight of the valve D causes the same to drop, so as to bring the reduced portion *h* into line with the pipe B, as shown in Fig. 4, a stop, *t*, on the lever F preventing the further descent of the valve. The passage through the pipe B is now contracted to such an extent that only a small volume of air and gas can pass through the pipe, this volume being sufficient to maintain a slight flame at the end of the pipe until the iron or other tool is again inserted and the valve D opened, as in Fig. 1.

In some cases it is not convenient to provide a supply of air under pressure for admixture with the gas, and in such cases I propose to work the apparatus on the principle of the Bunsen burner, the jet of gas from the nozzle *d* inducing air to enter the pipe B for admixture with

the gas. For this purpose I form in each pipe B adjacent to the nozzle *d* an opening, *w*, which can be opened or closed by a sliding valve, *x*, so as to permit air in any required quantity to enter the tube, or to cut off the supply of air, as may be desired.

In the working of the apparatus it occasionally becomes desirable to lessen the flow of air and gas through the pipes B, without cutting off the same to such an extent as would follow the closing of the valve D, as shown in Fig. 4. Hence I provide the reduced portion *m* of the valve with a laterally-projecting wing, *i*, as shown in Figs. 2 and 5. When this wing is adjusted to a position in line with the pipe B, as shown in the upper part of Fig. 2, it does not offer any obstruction to the free flow of air and gas through the pipe and past the valve; but when the valve is turned quarter-way around, as shown in the lower portion of Fig. 2, the wing closes one-half of the passage, and restricts the volume of air and gas passing through the pipe.

In order to permit the adjustment of the valve to either of the positions shown in Fig. 2, the lower end of the valve-stem has two slots, *y*, at right angles to each other, for the reception of the long arm of the lever F.

Instead of reducing the diameter of the valve-stem *f* at *h* and *m*, as described, passages may be formed through the valve at these points, the portion *m* having two passages at right angles to each other, and of different area, as set forth. (See Figs. 6, 7, and 8.)

I claim as my invention—

1. The combination, in a heater for soldering-irons or other tools, of a tube, A, a pipe, B, a valve, D, controlling the flow through said pipe, a tool-supporting plate in the tube A, and a lever, F, forming a connection between said tool-supporting plate and the valve D, as set forth.

2. The combination of the pipe B with a valve, D, having portions *h* and *m*, presenting passages of different area, said valve being adjustable in respect to the pipe, whereby either passage may be caused to provide communication through the pipe, as set forth.

3. The combination of the pipe B with a valve, D, having a portion, *m*, constructed as described, so as to present passages at right angles to each other, but of different area, as set forth.

4. The combination of the pipe B with a sliding valve, D, having portions *h* and *m*, reduced in diameter, the portion *m* being reduced to a greater extent than the portion *h*, as set forth.

5. The combination of the pipe B, the lever F, and the valve D, having unequal passages at right angles to each other, and right-angled slots *y*, adapted for the reception of the lever, as set forth.

6. The combination of the tube A and lever F with the slotted pin *n* and its plate *p*, as set forth.

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

EDMUND MEREDITH.

Witnesses:
HARRY DRURY,
HARRY SMITH.