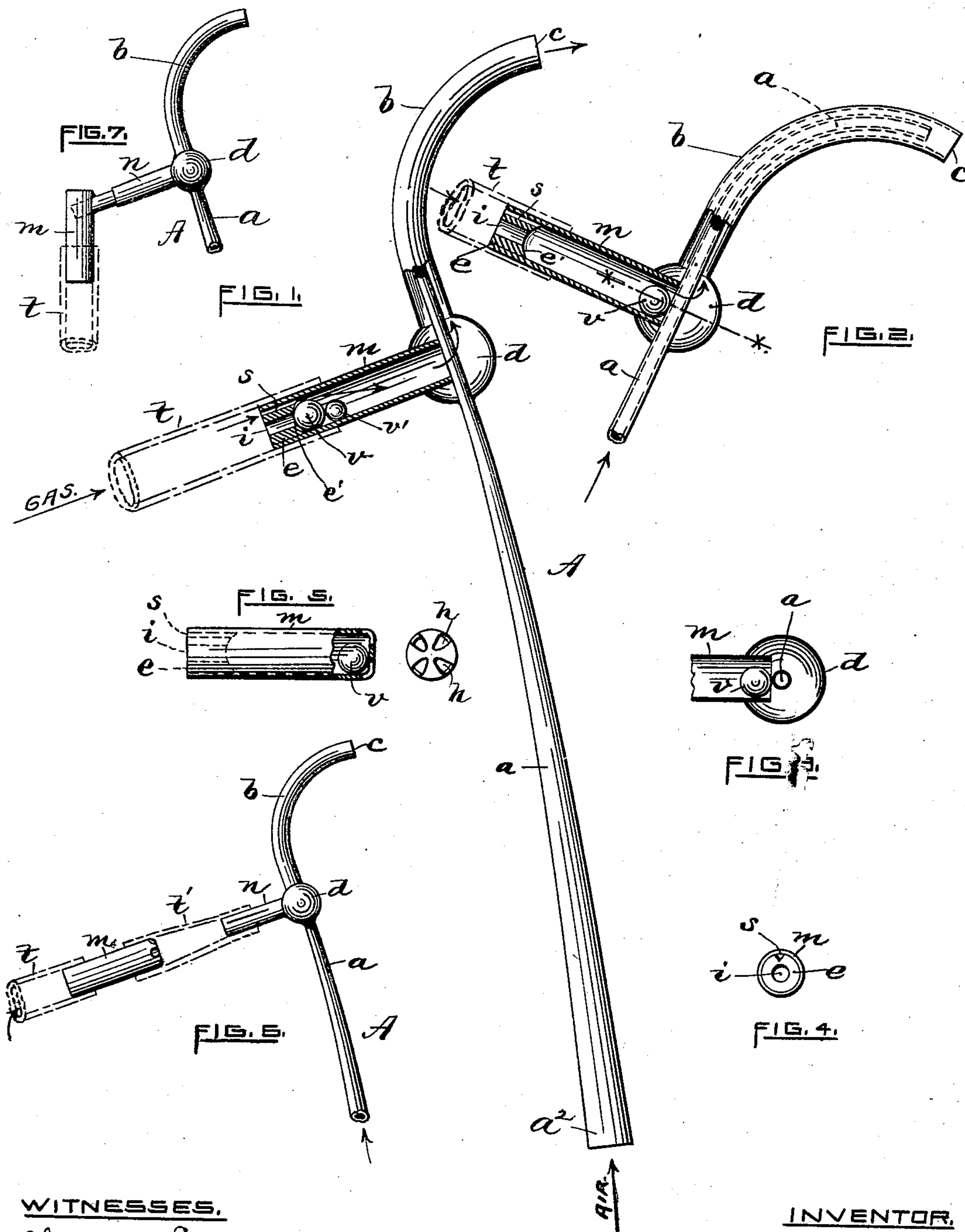


(No Model.)

R. J. TAYLOR.
JEWELER'S BLOW PIPE.

No. 437,317.

Patented Sept. 30, 1890.



WITNESSES.

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JEWELER'S BLOW-PIPE.

SPECIFICATION forming part of Letters Patent No. 437,317, dated September 30, 1890.

Application filed April 29, 1890. Serial No. 349,985. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. TAYLOR, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Jewelers' Blow-Pipes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates more particularly to that class of blow-pipes termed "mouth blow-pipes," which are used by jewelers and other metal-workers in soldering; and it consists, essentially, in the combination, with the ordinary blow-pipe, of a mounted spherical valve adapted to automatically open and close the gas-inlet upon turning or vibrating the blow-pipe and an always-open by-pass through which a small quantity of gas passes, so as to keep a small flame burning when the implement is not in actual use.

Heretofore, so far as I am aware, the ordinary mouth blow-pipe has been unprovided with means for automatically maintaining a continuously-burning small flame when the workman lays aside the implement temporarily, as in changing from one piece of work to another, although I am aware that power blow-pipes combining blast and gas pipes have been provided with means for maintaining a small flame when the blow-pipe is not in actual use. By means of my improvement the workman is greatly facilitated in the execution of his work.

In the appended sheet of drawings, Figure 1 is a side elevation in partial section of an ordinary blow-pipe provided with my improvement, the parts being in a normal position, the valve closing the main inlet communicating with the gas-supply. Fig. 2 is a similar view of the upper portion of the device, the gas-valve being open as in use. Fig. 3 is a transverse sectional view taken on line $x-x$ of Fig. 2. Fig. 4 is an end view of the valve-seat and

casing. Fig. 5 represents side and end views of the valve-casing as adapted to be inserted into a flexible gas-tube communicating both with the blow-pipe and gas-supply. Fig. 6 shows the same in reduced scale when thus arranged and connected; and Fig. 7 shows a modification of the manner of attaching the valve-casing.

The following is a more detailed description of the invention illustrated by the drawings:

A designates the blow-pipe complete provided with my improvement.

a indicates the suitably-bent air-tube. This tube as usually made is enlarged at the inlet or free end a^2 and extends therefrom in a taper form.

b indicates a bent gas-tube somewhat larger in diameter than the corresponding portion of the air-tube, having, say, a spherical-shaped enlargement d secured at one end thereof. The air-tube extends through and is secured to the enlargement d and passes forward centrally along the axis of the gas-tube b , but falling short of the burner end or outlet c , substantially as usual.

At the center of the sphere d and at right angles with the air-tube a passing through it is inserted and secured a casing m of thin metal. (See Figs. 1, 2, and 3.) As drawn, the inner end of the casing is open and is in contact with the air-tube. To the opposite end of the casing is fitted an end e , provided with a central hole i , a concave seat e' for the ball-valve v , and a small longitudinal hole or opening s , through which a small quantity of gas continually passes to the burner.

In lieu of attaching the casing m to the end of the gas-tube b , it can be removable or independent of the tube, as shown in Figs. 5, 6, and 7. In such case the tube should be provided with a semi-closed end h or other equivalent means adapted to hold the valve in check, yet at the same time affording a free passage for the gas. In the arrangement shown in Fig. 6 the blow-pipe is provided with a short lateral tube n , adapted to be inserted into a short piece of flexible tubing t' . The other end of said tube t' is forced over the

rear end of the casing *m*, the latter in turn fitting within the end of a rubber gas-tube *t* communicating with the gas-supply.

The casing *m* is provided internally with a ball-valve *v* of suitable material, as metal. The valve is somewhat smaller than the inner diameter of the casing.

In Fig. 7 the casing *m* is provided near the outlet end with a short inclined tube communicating with the interior of the casing, the free end of the tube being removably secured to or inserted into the short lateral tube *n* of the blow-pipe, the arrangement being substantially as shown by Fig. 6, except that the inclined tube is employed in lieu of the flexible tube *t'*.

In using my improved blow-pipe A (assuming a small flame to be burning at the end *c*) the operator first takes the blow-pipe from a hook or other support therefor and applies the open end *a*² to his mouth, at the same time slightly depressing the opposite end of the blow-pipe, thereby causing the valve to roll from its seat *e'* and permitting a free passage of gas through the opening *i* to the burner, the operator meanwhile blowing air through the pipe *a*. The gas and air thus mingled produce an intense heat, which if directed to solder speedily fuses it.

It will be seen that the pipe *a* keeps the valve in check, although pins passing through the casing would answer equally as well, or even the perforated end *h*, shown in Fig. 5.

When the workman has finished using the blow-pipe, he simply returns it to the hook or support or any other position adapted to return the valve to its seat, thus shutting off the gas and reducing the flame, although still permitting a small quantity of gas to escape through the groove or by-pass *s* formed in the front end of the casing, such gas serving to maintain a little flame at the end of the blow-pipe.

In some instances I have provided the valve-chamber of the casing *m* with an auxiliary or supplemental ball *v'*, Fig. 1, having a smaller diameter than the spherical valve *v*. An advantage resulting from this arrangement is that the small ball when thus used makes less obstruction to the flow of gas through the exit end of the casing. It also serves to accelerate the movement of the valve *v* in passing to its seat, while at the same time it practically adds to the weight of the valve in maintaining the latter in position when seated. It will be seen that a single ball or valve having a weight equal to the combined weight of the two balls *v v'* would nearly or quite fill the valve-chamber, and thus seriously obstruct the flow of gas

past the valve when the device is in use, whereas by the employment of the two balls the objections just referred to are overcome.

I am aware that certain types of blow-pipes have been provided with devices for keeping the gas ignited when the blow-pipe is not in use. Therefore I do not, broadly, claim such improvement.

What I do claim, and desire to secure by United States Letters Patent, is—

1. A blow-pipe of the class hereinbefore described, having a casing *m*, communicating with the interior of the pipe and provided with an apertured valve-seat arranged to admit gas into the casing, a spherical self-closing gravity-acting valve arranged to travel freely in said casing, a stop adapted to prevent the valve from leaving its chamber, and a small aperture formed in the casing through which gas may pass uninterruptedly to the burner, substantially as set forth.

2. The mouth blow-pipe A, hereinbefore described, consisting of an air-tube *a*, a bent gas-tube *b*, inclosing a portion of the air-tube, an apertured casing *m*, secured to and communicating with the tube *b*, and with a gas-supply, an apertured valve-seat *e*, secured to the inlet end of the casing, and further provided with an opening *s*, and a gravity-acting valve *v*, mounted within the casing, whereby a continuous supply of gas is admitted to the burner so as to maintain a small flame when the blow-pipe is not in use.

3. The combination, with a mouth blow-pipe having a gas-inlet tube *n* secured thereto, of a shell or casing having inlet and outlet passages, an apertured valve-seat *e*, secured to the inlet end of the casing, a spherical gravity-acting valve mounted in the casing, a small continuously-open hole, as *s*, formed in the outer end of the casing, and a gas tube or tubes attached to the casing, substantially as hereinbefore described, and for the purposes set forth.

4. The combination, with a mouth blow-pipe provided with a casing *m*, having an apertured valve-seat *e* at its outer or inlet end adapted to communicate with a gas-supply, of a gravity-acting spherical valve mounted to travel freely in said casing and adapted to fit the valve-seat and an auxiliary ball or sphere, also mounted within the casing, substantially as shown and described, and for the purpose hereinbefore set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

ROBERT J. TAYLOR.

Witnesses:

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