



N<sup>o</sup> 10,245



A.D. 1895

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*Complete Specification Left, 14th Feb., 1896—Accepted, 11th Apr., 1896*

PROVISIONAL SPECIFICATION.

Improvements in Blow-lamps.

I, JOSEPH WILLIAMS, of 135 Hyde Road, West Gorton, Manchester, in the County of Lancaster, Plumber, do hereby declare the nature of this invention to be as follows:—

5 My invention relates to improvements in blow-lamps employed in burning off paint, soldering, or for other purposes, and the chief object of my invention is to vapourize the oil and to regulate the size of flame more effectually than can be done in the blow-lamps now known, and I effect this by the use of a valve to the outlet of the burner.

10 In making my improved blow-lamp I employ a reservoir for a mineral oil or other suitable heating agent and of suitable size and shape, with a handle which may form part of the pump; to the top of the reservoir is a pipe connected to the outlet for the oil which is pumped to the outlet, in the first instance, and passes say along one tube then through a cross tube opposite the outlet of the burner to a return tube parallel with the first which conducts the oil to the outlet preferably  
15 placed at the rear of the burner and midway between the two tubes; a special feature of my invention is the use of a screwed spindle with a pointed end arranged to enter the rear end of the outlet and regulate the size of outlet for the passage of the vapour and so determine the size of flame produced, or any other form of valve may be employed for this purpose.

20 The outlet and the tubes which convey the vapour to it are wholly or partially surrounded by a chimney.

To start the blow-lamp a small quantity of spirit is placed in a chamber below the burner and ignited to heat it and the pump is worked either before or after igniting the spirit, to force the oil upward and as it reaches the heated burner it is  
25 vapourized in its passage through the tubes to the outlet where it burns.

Dated this 22nd day of May 1895.

H. B. BARLOW & GILLETT,  
Agents for Applicant.

COMPLETE SPECIFICATION.

30 Improvements in Blow-lamps.

I, JOSEPH WILLIAMS, of 135 Hyde Road, West Gorton, Manchester, in the County of Lancaster, Plumber, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

35 My invention relates to improvements in blow-lamps employed in burning off paint, soldering, or for other purposes, and the chief object of my invention is to vapourize the oil and to regulate the size of flame more effectually than can be done in the blow-lamps now known and I effect this by the improved construction of

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burner and by the use and application of a valve to the outlet of the burner substantially as hereinafter described with reference to the accompanying two sheets of drawings in which—

Fig. 1 is a side sectional elevation of a blow-lamp to which my improvements are applied, and

Fig. 1<sup>A</sup> is a section of the burner on the line A B, Fig. 1.

Fig. 2 is an alternative form of my improved blow-lamp, and

Fig. 3 is a modified construction of blow-lamp also made according to my invention.

In the drawings,—*a* is the reservoir or body of the lamp to which is shown connected, in Figs. 1 and 2, a pump barrel *b* and a boss *c* to which is secured by a screwed coupling a burner *d* through which various passages are made to admit liquid or vapour from the reservoir *a* to the outlet *e*. The outlet *e* is conical in form and is fitted with a conical valve *f* formed on the end of a screwed spindle *f*<sup>1</sup> fitted in a stuffing box *g* on the burner *d*. A small dish *h* is connected to the burner *d* between the top of the reservoir and the outlet *e* which is connected by the passages in the burner *d* and a fixed pipe *i* to the front lower portion of the reservoir so that all the mineral oil or other suitable heating agent, say, for example, benzoline, may be utilized. A handle *j* is secured to the pump barrel *b* and the reservoir *a* which has an opening *k* through which it is filled. The pump barrel has a cap *l* into which is fitted a hollow piston rod *m* with a button *m*<sup>1</sup> and a hole (or holes) *n* in the hollow piston rod *m* serves to admit air into the piston rod and pump barrel when the button *m*<sup>1</sup> is drawn outwards; on the inner end of the hollow piston rod *m* is a cup leather or piston *o* mounted upon a hollow boss *p* secured to the piston rod *m* and forming a passage into which is fitted a back pressure valve *q*. To the end of the barrel *b* is secured a boss *r* to which is also secured the end of another tube *s* which contains a valve spindle *t* and plug *t*<sup>1</sup> which is held by a spring *t*<sup>2</sup> over a hole *r*<sup>1</sup> in the boss *r*. The spindle *t* is supported by a boss *u* fitted in a screwed cover *v* screwed over the opening to the tube *s* and a small tube *w* opens into the tube *s* and projects about to the top of the reservoir *a*. A chimney or cylindrical casing *x* surrounds the burner *d*.

In Fig. 2 a tubular reservoir *a* is shown with the pump *b* set parallel with and near to it; this construction is more convenient for certain work than the lamp shown in Fig. 1.

In Fig. 3 the pump is dispensed with and the benzoline is stored in a reservoir placed above and connected to the burner by a pipe *a*<sup>1</sup>. This form of blow-lamp is particularly suitable for heating the ignition tube of oil and similar motor engines or for any like purpose where change of position is not required.

In operation, where a pump is employed, after filling the reservoir *a* the piston is actuated which forces air through the valve *q* into the tube *s* to the back of the plug *t* from whence it flows to the top of the reservoir and exerts pressure enough to force the benzoline up the pipe *i* through the burner *d* to the outlet *e*. On opening the valve *f* some of the benzoline will escape into the chimney *x* and fall into the dish *h* and when the dish is nearly full the valve *f* must be again closed. The liquid in the dish *h* is then lighted and allowed to burn itself out or nearly so when it will have sufficiently vapourized the benzoline in the passages leading to the outlet *e*. The valve *f* is then opened again to allow the vapour to escape through the outlet *e* where it is ignited. The burning vapour causes an inrush of air through the back of the chimney *x* and a very hot flame passes through the front end of the chimney which flame can be maintained for a long time by occasionally working the pump.

One of the chief advantages obtained by my improved construction of burner is that the full heat of the flame is directed on to that part which contains the cross tube or passage *d*<sup>1</sup> whereby the liquid passing from the reservoir becomes completely vapourized before it reaches the outlet *e*. A special feature of my burner is the use of the valve *f* by which the size of orifice for the escape of vapour and consequently the size of the flame can be regulated, and further any dirt can be

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removed from the orifice by screwing the point of the valve as far as it will go through the outlet *e*.

It is obvious that a greater flame will require more vapour to feed it but the fact of the flame being larger will mean that a greater heat is being imparted to the cross tube or passage *d*<sup>1</sup> and a more rapid vapourization of the liquid is accordingly effected.

The operation of the blow-lamp shown in Fig. 2 is similar to that of Fig. 1, but the burner in this case can be heated by a loose dish or a dish such as *h* can be applied to it.

10 In Fig. 3 the benzoline flows by gravity from the reservoir *a* to the outlet *e*, a dish *h* being shown for heating the burner *d*.

I wish it to be understood that the improved burner may be applied to a lamp without a pump, or with any suitable form of pump other than that shown.

15 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. In a blow-lamp, the combination with the improved construction of burner in which a cross tube or passage within the chimney is exposed to the full heat of the flame from the burner outlet, of a valve for regulating the size of said outlet and consequently the size of the flame and for keeping the burner outlet clean and clear substantially as herein described and as shown.

2. The several combinations and arrangements of parts embodying my improvements in blow-lamps substantially as described and as shown in the accompanying drawings.

25 Dated this 13th day of February 1896.

H. B. BARLOW & GILLETT,  
17 St. Ann's Square, Manchester, Agents for Applicant.

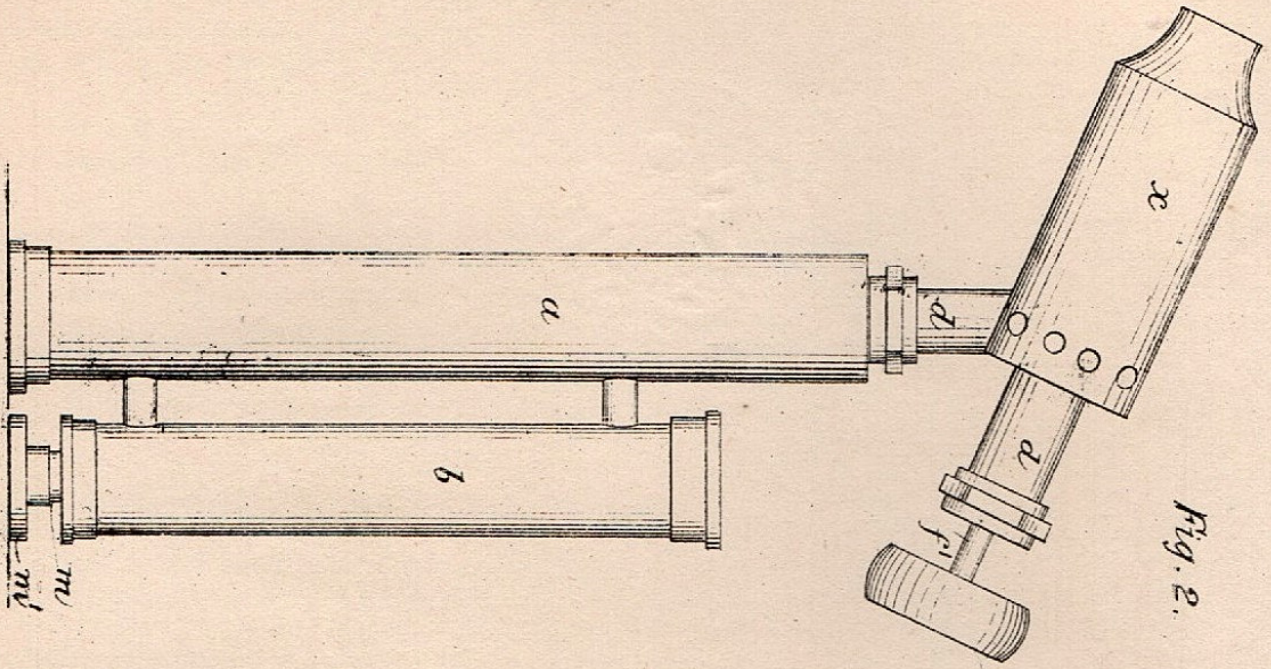


Fig. 2.

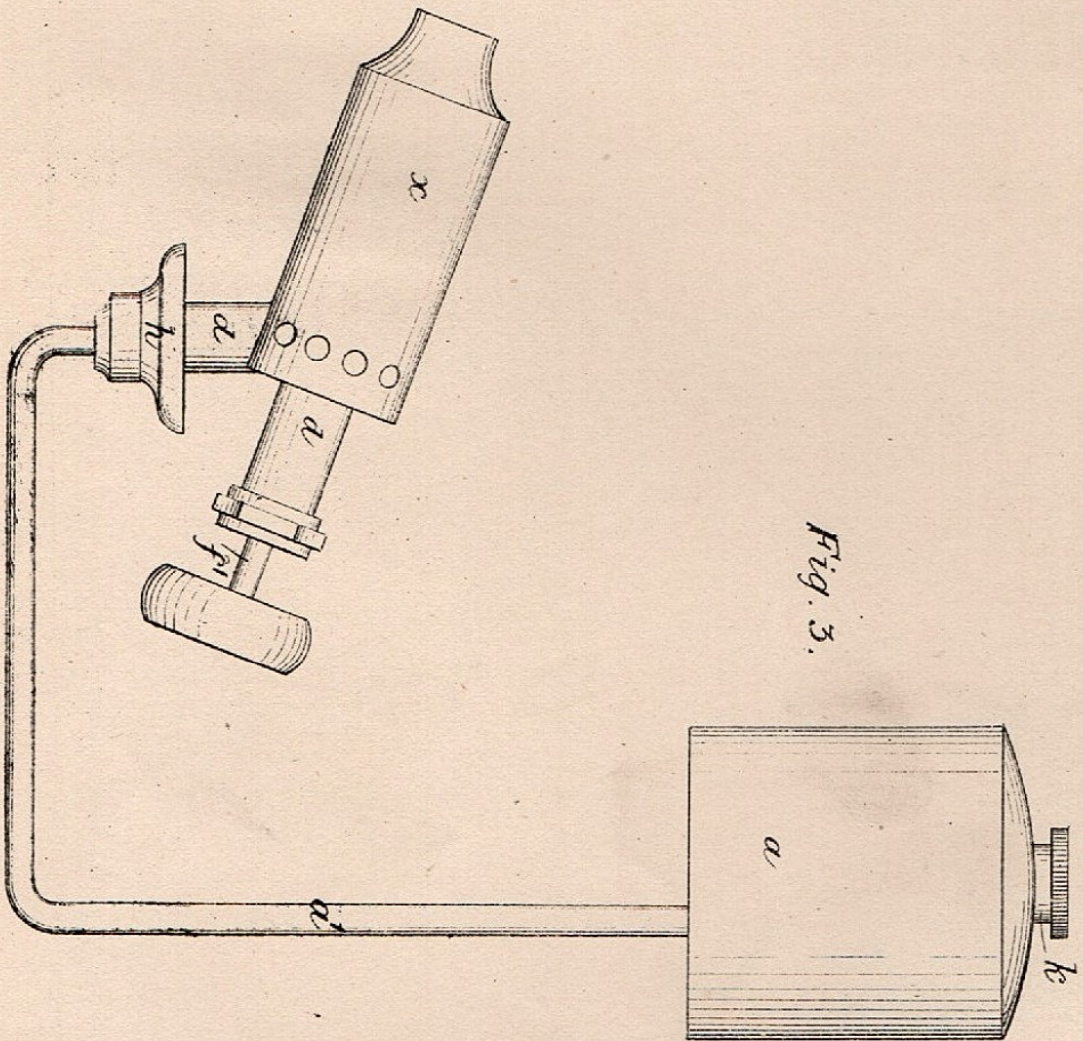


Fig. 3.

