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J. L. LÉ MAN.

AUTOMATIC SLIDE VALVE GAS AND AIR BLOWPIPE FOR SOLDERING, &c.

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NO MODEL.

Fig. 1.

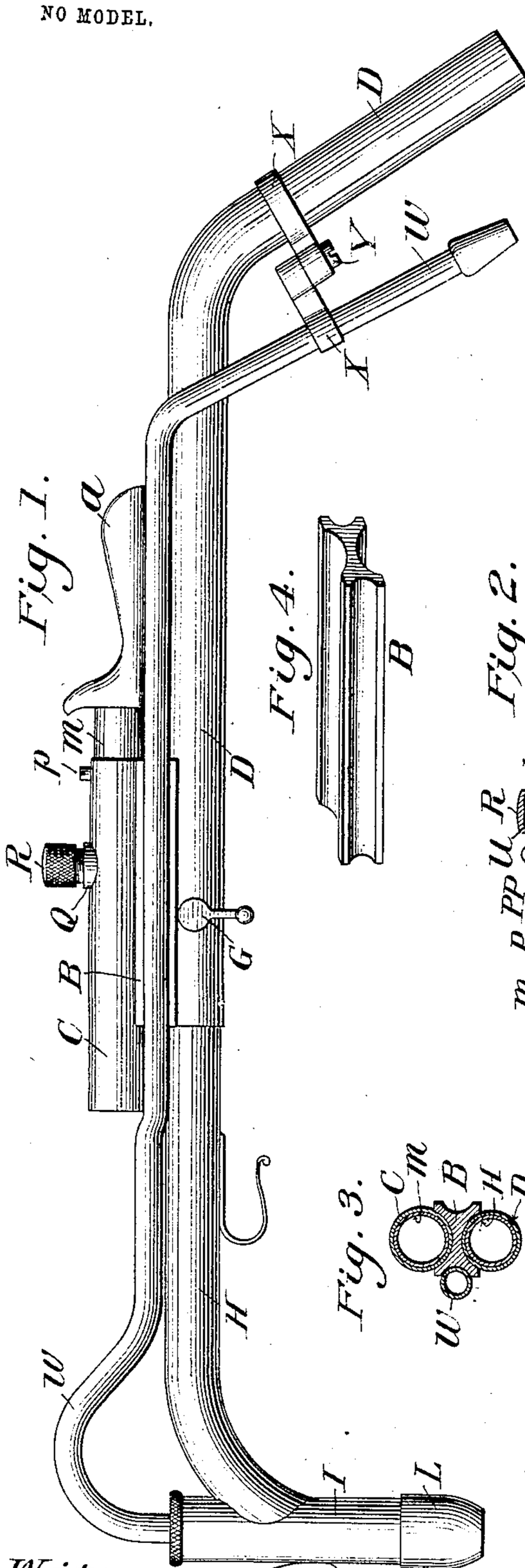

Fig. 4.

Fig. 2.

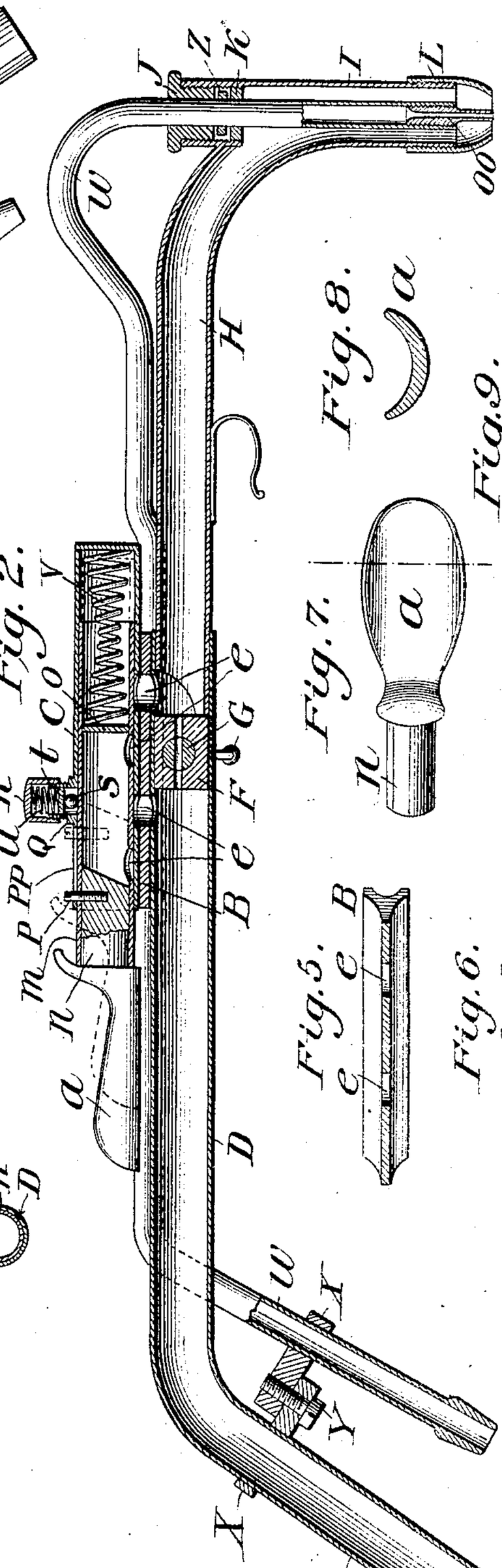

Fig. 3.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 5.

Fig. 6.

Witnesses:

Alfred Nutting

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UNITED STATES PATENT OFFICE.

JOHN LOUIS LÉ MAN, OF SUNBURY, ENGLAND.

AUTOMATIC SLIDE-VALVE GAS AND AIR BLOWPIPE FOR SOLDERING, &c.

SPECIFICATION forming part of Letters Patent No. 774,089, dated November 1, 1904.

Application filed October 12, 1903. Serial No. 176,789. (No model.)

To all whom it may concern:

Be it known that I, JOHN LOUIS LÉ MAN, a subject of the King of Great Britain and Ireland, and a resident of Sunbury-on-Thames, in the county of Middlesex, England, have invented a certain new and useful Automatic Slide-Valve Gas and Air Blowpipe, of which the following is a specification.

My invention consists of a blowpipe comprising a lower or main gas-supply tube bent at one end to form a convenient handle and having two holes made upon the upper surface of its opposite end and the way stopped between these holes, an upper tube stopped at one end fixed upon the lower main tube and having upon its surface two corresponding holes, an inner tube stopped at both ends, so as to form a chamber that telescopes into and moves freely within the upper tube and has two corresponding holes upon its surface, and a smaller tube that is fixed upon the main tube to supply the air-blast. Upon one end of this inner tube is a thumb-rest, and its other end is acted upon by a helical or other suitable spring which tends to move the inner tube or chamber so as to shut off the gas. The supply of gas and the intensity of the blast is regulated by sliding the inner tube against the action of the spring by means of the thumb-rest. A pilot-light is provided for by a small stop-cock fixed in or upon the main or lower tube.

In order that my invention may be clearly understood, a full description of the same is hereinafter made with reference to the example of apparatus in accordance therewith shown in the drawings accompanying this specification.

In the drawings, Figure 1 is an elevation of the complete blowpipe. Figs. 2 and 3 are respectively a longitudinal and a transverse section of the same. Figs. 4, 5, and 6 are respectively a perspective view, a longitudinal sectional view, and a transverse section of a saddle for supporting the tubes. Fig. 7 is a plan of the thumb-rest, shown also in Fig. 2. Fig. 8 is a transverse section of the same on the dotted line in Fig. 7, and Fig. 9 is a plan of the upper tube or valve casing.

The main gas-tube D, Figs. 1 and 2, is bent at one end to form a convenient handle, and through the upper surface of its opposite end two holes are drilled at a distance from each other to correspond with the two holes *e e* in the saddle B. (Shown in section, Fig. 5.)

In the main gas-tube D, between the two holes therein, there is inserted a plug F, that stops the gasway and has a small hole drilled through it longitudinally to form a gasway for a pilot-light that is controlled by a small cock G, Figs. 1 and 2.

An extension H of the main gas-tube D has brazed to one of its ends that is downwardly bent a vertical nozzle I. The other end of the extension H, which is straight, is inserted in the tube D, so as to rest against the stop F.

The vertical nozzle I is at its upper end screw-threaded to receive a screw-plug J and also a thinner screw-plug K. The lower end of the vertical nozzle I is screw-threaded to receive a screw-threaded nozzle-cap L.

The saddle B is fixed between the main gas-tube D and the upper tube C, as shown in Fig. 3, and has two holes *e e* drilled through it, as shown in section in Fig. 5. The distance between these two holes, as already stated, corresponds with that between the two holes in the main gas-tube D, Fig. 2.

The upper tube C is stopped at one end and is fixed upon the saddle B, as shown in Figs. 1, 2, and 3. It has two holes drilled through its lower surface at a distance from each other equal to that between the two holes *e e* in the saddle B, which they are arranged to overlap.

An inner tube or valve *m* slides freely within the tube C and has two holes drilled through its lower surface at a distance from each other corresponding with the distance between the two holes in the tube C. This tube *m* is stopped at one end by the plug end *n*, Fig. 7, of the thumb-rest *a* and at the other end beyond the second hole from the thumb-rest by the insertion of a disk O, Fig. 2. Between the end of the plug *n* and the disk O there is thus formed a chamber into which gas can pass.

A helical spring V, contained between the disk O and the stopped end of the tube C, presses against the sliding tube *m*, and thus tends to shut off the gas.

The range of movement of the sliding tube

m is regulated by a screw-pin P, moving from end to end in a slot PP, cut in the upper surface of the tube C, Fig. 9. The pin P passes through the slot PP and is screwed through the tube *m* into the plug *n* of the thumb-rest *a*. Upon the tube C there is fixed a hollow boss Q, that is screw-threaded for the reception of a screw-threaded cap R and has in its interior an antifriction-ball *s*, which makes contact with the slide-tube *m* through a small hole drilled in the tube C. The ball *s* is covered by a disk *t*, and between this disk and the top of the screw-cap R is a helical spring *u*, which presses the disk against the ball *s*, the ball *s* against the slide-tube *m*, and the slide-tube *m* against the tube C, so as to maintain the adjoining surfaces of *m* and C in gas-tight contact.

The air-tube *w*, Figs. 1, 2, and 3, is held in position by lugs X upon it and upon the tube D. These lugs are held together by a screw Y, that passes through them.

The vertical end of the air-tube *w* passes through holes drilled in the two screw-plugs J and K and has fixed upon it a washer or ring of metal Z, which is adapted to be contained in the space between J and K. This space is packed with asbestos or other suitable material wound round the tube *w*, so as to prevent any escape of gas between this tube and the screw-plug J.

The vertical end of the air-tube *w* is screw-threaded for the reception of a screw-threaded nozzle O O.

By releasing the screw Y from the lugs X X on the tubes D *w* and the screw-plug J from the nozzle I the whole of the air-tube *w* may readily be detached. By removing the screw-pin P the slide-tube *m* and the helical spring V are readily removed from the tube C. By removing the screw-cap R from the boss Q the helical spring *u*, the disk *t*, and the anti-friction-ball *s* may be removed. All the parts of the apparatus can thus be taken apart for cleansing, lubricating, or repair.

The supply of gas corresponding to the size of flame required is regulated by pushing the slide-tube *m* into the tube C by means of the thumb-rest *a*, the holes in the tube D, the saddle B, the tube C, and the sliding tube *m* acting as inlet and outlet ports for the gas.

Having now described my invention, what I claim as new, and wish to have protected by Letters Patent, is as follows:

1. A blowpipe comprising an air-tube; a main gas-tube; a tubular valve-chamber closed at one end, mounted on said gas-tube, and having communication through two holes with the interior thereof; in the said main tube a stop or diaphragm located between said holes; within said valve-chamber a tubular valve adapted to be slid therein and having formed in it two holes at a distance apart equal to that between the aforesaid holes in the valve-chamber; within the valve-chamber a spring adapted to eject the valve therefrom; and means for sliding the valve in its chamber against the action of the said spring.

2. A blowpipe comprising a main gas-tube having formed therein two holes; in said tube a stop located between said holes; a saddle mounted on said tube, and having formed therein holes contiguous to aforesaid holes therein; a tubular valve-chamber closed at one end, mounted on said saddle, and having formed therein holes contiguous to the holes aforesaid; within said valve-chamber a spring, and a tubular valve that is adapted to be moved against the action of said spring and is furnished with a pair of holes at a distance apart equal to that between the holes in the valve-chamber; means whereby said valve can be moved by hand; a nozzle on said main tube; an air-tube one end of which is adapted to enter said nozzle; a pair of screw-plugs adapted to be screwed into said nozzle; on that end of the air-tube that is adapted to enter said nozzle a washer or ring adapted to be clamped between said screw-plugs; on the other end of the air-tube a lug; on the main tube a corresponding lug; and means for connecting together and for disconnecting said lugs.

3. In a blowpipe a main gas-tube having a nozzle formed at one end thereof; an air-tube one end whereof is adapted to be inserted into said nozzle; means for adjusting and securing said end within said nozzle comprising a pair of screw-plugs adapted to be screwed into said nozzle; on said end a washer or ring adapted to be clamped between said plugs; and means for controlling the gas-supply comprising a valve-chamber mounted on said main gas-tube and having ports in communication therewith; a slide-valve within said valve-chamber adapted to be slid therein; and a spring adapted to eject said valve from said valve-chamber.

4. In a blowpipe a main gas-tube having therein a stop; a valve-chamber furnished with ports that communicate with the interior of said tube on opposite sides of said stop; and a hollow valve that is adapted to be slid within said chamber and is furnished with ports that communicate with the interior of said valve and are adapted to overlap the ports in the valve-chamber.

5. In a blowpipe a main gas-tube, within said tube a stop or diaphragm that divides it into two portions connected by a by-pass; a cock adapted to close said by-pass; a valve-chamber furnished with ports that communicate with interior of said main tube on opposite sides of said stop; and a hollow valve that is adapted to be slid within said chamber and is provided with ports that communicate with the interior of said valve and are adapted to overlap the ports in said valve-chamber.

6. In a blowpipe a main gas-tube; within said tube a stop or diaphragm wherein is formed a by-pass; in said stop a cock adapted to close said by-pass; a valve-chamber fur-

nished with ports that communicate with interior of said main tube on opposite sides of said stop; and a hollow valve that is adapted to be slid within said chamber and is provided with ports that communicate with the interior of said valve and are adapted to overlap the ports in said valve-chamber.

7. A blowpipe comprising a main gas-tube; an air-tube; a valve-chamber; a valve adapted to be slid within said valve-chamber; and a saddle-piece that is adapted to support said valve-chamber and air-tube, and has its surfaces hollowed or grooved, to conform respectively to the main gas-tube, the valve-chamber, and the air-tube aforesaid.

8. In a blowpipe a main gas-tube; an air-tube, a valve-chamber having ports therein; within said valve-chamber a valve adapted to be slid therein and furnished with ports, and a spring that tends to eject the valve from said chamber; a pin-and-slot device that limits the travel of the valve and prevents its expulsion from the valve-chamber by said spring; and means comprising a threaded cap, a spring, a disk, and a friction-ball, whereby the portions of the surfaces of the valve-chamber and the valve in proximity to the ports are maintained in contact with each other.

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

JOHN LOUIS LÉ MAN.

Witnesses:
H. CLAY EVANS,
ALFRED NUTTING.