

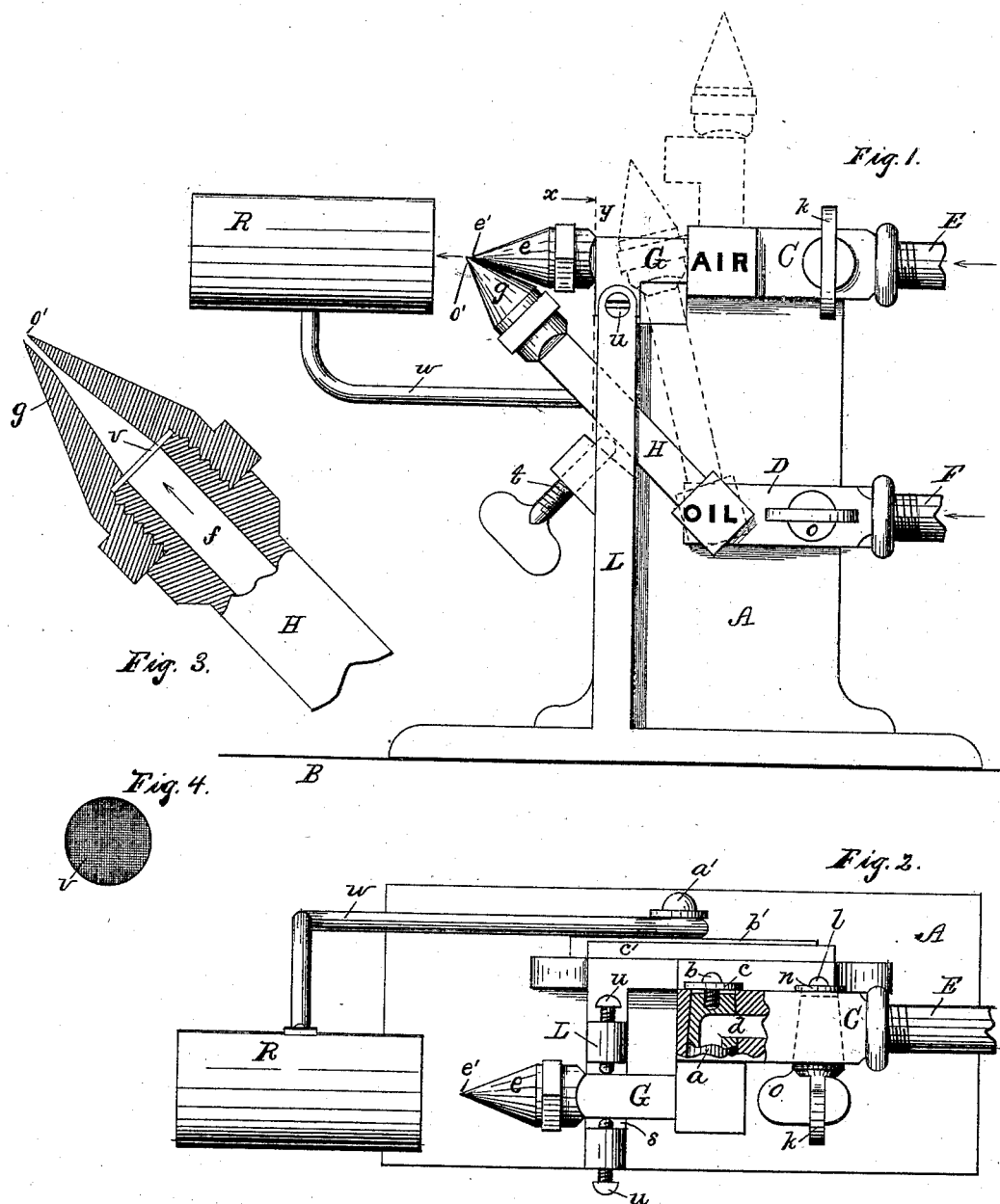
(No Model.)

2 Sheets—Sheet 1.

C. H. CLARK.
INJECTOR OIL BURNER.

No. 417,986..

Patented Dec. 24, 1889.



Attest:
M. L. McDermott
L. B. Whitmore.

Inventor:
Chas H. Clark.
By E. B. Whitmore, Attg.

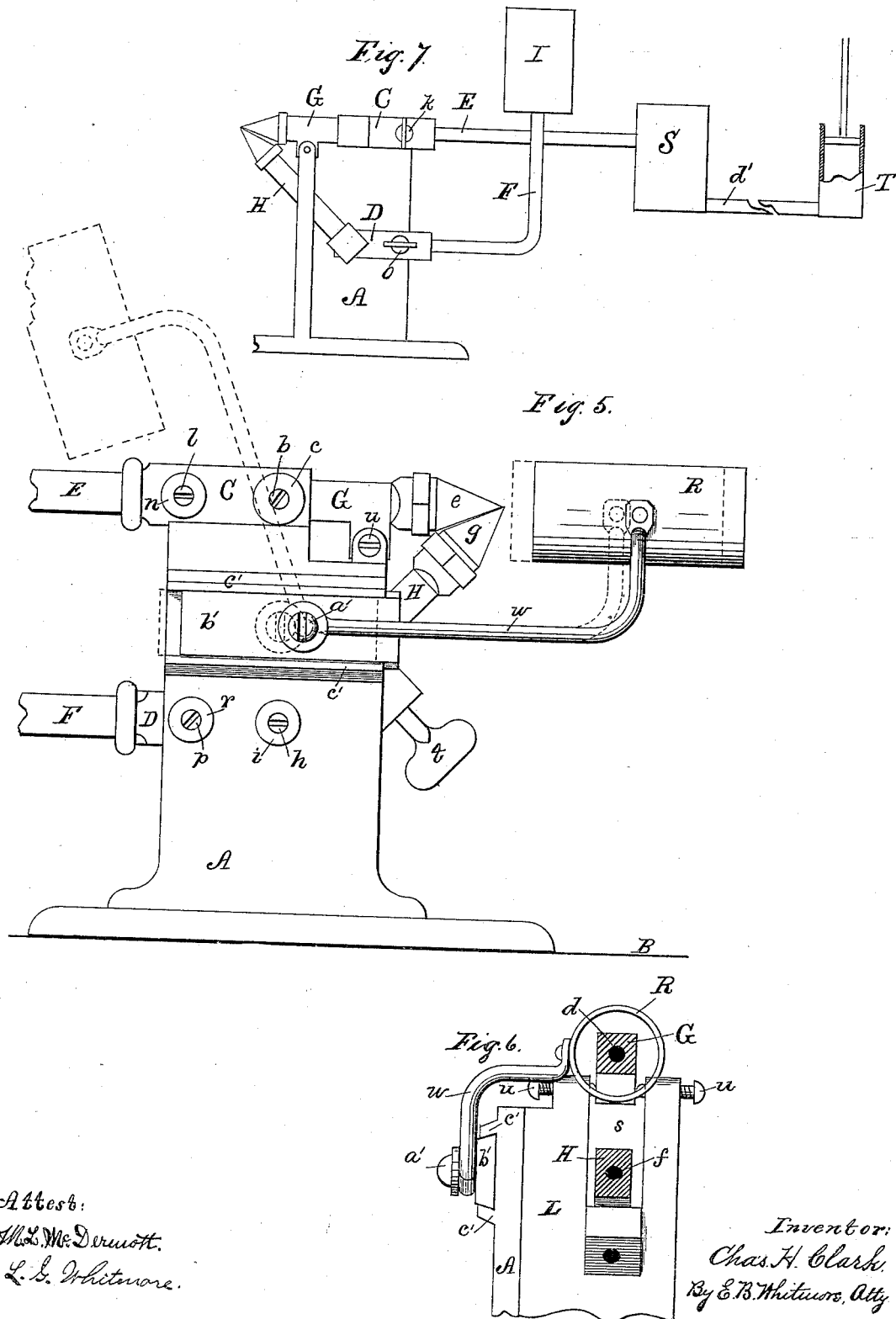
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Attest:
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Inventor:
Chas. H. Clark.
By L. S. Whitmore, Atty

UNITED STATES PATENT OFFICE.

CHARLES H. CLARK, OF ROCHESTER, NEW YORK.

INJECTOR OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 417,986, dated December 24, 1889.

Application filed May 5, 1888. Serial No. 272,949. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. CLARK, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Injector Oil-Burners, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

The object of my invention is to furnish a device for the purpose of producing a hot flame by atomizing oil, and to be used for heating soldering-irons, welding, brazing, and doing various other work necessary in the modern arts. The oil is atomized by means of a current or jet of air produced by means of an air-pump, the air being preferably first forced into a receiver and led thence by a pipe to the atomizing device. The invention is hereinafter more fully described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of the atomizing device, parts being shown in two positions by full and dotted lines; and Fig. 2, a plan of the same, parts being horizontally sectioned. Fig. 3 shows the oil-jet tube, drawn to a large scale, and in part longitudinally sectioned. Fig. 4 shows the screen; Fig. 5, a view of the device seen in a direction opposite to that in which Fig. 1 is seen; Fig. 6, a view of parts seen in the direction indicated by arrow *a* in Fig. 1, the jet-tubes being vertically sectioned, as on the dotted line *y*; and Fig. 7, drawn to a smaller scale, shows in outline the general arrangement of the air-pump, oil-tank, and other parts with reference to the atomizing device.

Referring to the parts shown in the drawings, A is a frame or stand held upon a bench or table B, formed with two receptacles or boxes C and D, rigid with the frame, for the forced air and the oil, respectively.

E is a pipe leading from an air-chamber S, supplied by an air-pump T, said pipe being connected with the box C.

F is a pipe through which oil flows into the box D from a reservoir I.

G is a jet-pipe for the air-current, joined to the box C by some flexible or jointed connection—as, for instance, a rubber tube; but I prefer to provide it with a hollow tapered plug *a*, extending horizontally through the

box C, as shown in Fig. 2, securing it to place by a screw *b* and a washer *c*. When thus put together, the passage *d* for the air is made continuous from the pipe E through the out-flow or jet pipe G and out at a smaller exit-opening *e*.

H is a jet-pipe or outflow-pipe for the oil, similar to the jet-pipe G for the air, and joined to the oil-box D in the same manner in which said pipe G is joined to the air-box C, there being a continuous opening or passage *f* for the oil from the pipe F through to the small exit-opening *o*' of the pipe H. The pipe H is held in place in the oil-box D by a screw *h* and washer *i*. (Shown in Fig. 5.)

The boxes C and D are placed one over the other with their axes horizontal and in the same vertical plane, and the axes of the jet-pipes G and H are likewise over each other and in the same vertical plane, it being different from but parallel with the plane of the axes of said boxes. The connections between the pipe G and box C and the pipe H and the box D are such that said pipes G and H may be turned up or down in the same vertical plane.

The box C is provided with an ordinary tapered faucet *k*, to open or close the passage *d* therethrough, said faucet being held in place by a screw *l* and washer *n*. The box D is likewise provided with a similar regulating-faucet *o*, held to place by a screw *p* and washer *r*.

The frame A is formed with a wing L, extending out at right angles with the other part, which is formed with an opening *s*. The pipe H passes through said opening and is elevated at an angle of about forty-five degrees from a horizontal.

t is an adjusting-screw resting in the frame and placed in position to bear against the under side of the pipe H to adjust the latter in a vertical plane. The opening *s* extends out at the top of the wing L, and the jet-pipe G projects downward therein, and a pair of horizontal opposing adjusting-screws *u u*, held in the part L to have their points bear against said pipe G, as shown, serve to effect slight horizontal adjustments of the pipe G to bring the exit-orifice *e*' thereof exactly over the exit-orifice *o*' of the pipe H. The

device is constructed so that these exit-orifices will be one over the other; but occasional adjustments are necessary, on account of which the said screws *u u* are provided. These horizontal adjustments are very slight, and a slight looseness of the plug *a* in its bearing in the box *C* admits of all the horizontal motion necessary to the point *e* of the pipe.

The points *g* and *e* of the respective pipes *H* and *G* are separate from said pipes and secured to place thereon by means of screw-threads, as shown in Fig. 3. In the pipe *H* a perforated diaphragm or screen *v* (shown in Fig. 4) is placed in position to cross the passage *f*, for the purpose of straining the oil before it reaches the atomizing-point of the tube.

It will be observed that the oil is atomized by means of two independent adjustable tubes or pipes *G H*, one for an atomizing-jet of air and the other for the oil. These pipes are pivoted at one end to the parts *C* and *D*, respectively, and have their opposite or free ends pointing in substantially the same direction, and tapered or formed with slender points *e* and *g*, so that these extreme perforated ends or points may be brought together, while the pipes themselves occupy positions substantially parallel. The point of the pipe *G* is placed slightly back of the point of the pipe *H*, so that the air-jet shall be projected across the orifice in the point of the pipe *H*. These exit-points of the pipes are adjusted as to vertical movements by the screw *t*, as stated, and the point *e* is adjusted horizontally to the same vertical plane with the part *g* by means of the screws *u u*.

The pipe *H* is longer than the pipe *G*, it will be observed, and by pivoting or hanging them at different points in the same vertical plane an adjustment of said pipes in that plane will bring the exit-orifice of each to the relative position required. The screws *u u* do not act to prevent the pipe *G* moving freely in a vertical direction, and, as shown, its outer end rests by gravity upon the pipe *H*. Now, if in the position shown in Fig. 1, by raising the point of the pipe *H* by means of the screw *t* the two exit-points *e'* and *o'* will be brought more nearly vertically over each other as regards the plane of the axes of the pipes *G* and *H*, or by lowering the point *o'* it will move ahead of the point *e'*.

To confine and direct the flame produced by the ignited atomized oil, I employ a cylindrical tube or guard *R*, held in front of the jet-pipes in such a position that the jet of flame will be projected in a line corresponding to the axis of said tube. The tube is held by an arm *w*, pivoted at *a'* to a slide *b'*, held adjustably in bearings *c' c'* of the frame. Being thus held, the tube may be adjusted in

a direction toward or from the jet-pipes; or it may be turned up out of the way, as indicated in Fig. 5.

The jet-pipes *G* and *H* may be turned up, as indicated in Fig. 1, for the purpose of more conveniently removing the conical points and to remove and clean the screen, clear the passages of extraneous matter, and perform other operations thereon.

What I claim as my invention is—

1. A frame or stand formed with an air-box and an oil-box rigid with the frame or stand and having their respective axes parallel and in the same vertical plane, in combination with outflow jet-pipes joined to said respective boxes by jointed connections, and inflow-pipes for air and oil joined to said air-box and said oil-box, respectively, said jet-pipes having their axes in the same vertical plane and each held to turn on an independent pivot or axis crossing the axis of each respective jet-pipe, substantially as described and shown.

2. In combination with an air-pump, a frame or stand provided with an air-box and an oil-box, outflow or jet pipes joined to said respective boxes by jointed connections, an inflow-pipe for the oil connected with said oil-box, and a connecting-pipe for said air-pump and air-box, substantially as described.

3. A frame or stand provided with an air-box and an oil-box, both rigid with the frame or stand, in combination with jet-pipes for the air and oil, joined, respectively, to said boxes by jointed connections, inflow-pipes for air and oil connected with said respective boxes, the latter being in the same plane, and said jet-pipes having their pivotal axes apart and in a plane parallel with the plane of said boxes, an adjusting-screw bearing against said oil-jet pipe to move it in the plane of the oil-jet pipes, and adjusting-screws bearing against said upper or air-jet pipe to move it in a direction at right angles to said last-mentioned plane, substantially as and for the purpose set forth.

4. A frame formed with a wing *L*, having an opening therein, said frame being provided with an air-box and an oil-box having their axes at right angles to the plane of said wing, in combination with jet or outflow pipes joined to said respective boxes by jointed connections, and inflow-pipes for air and oil connected with said air-box and oil-box, respectively, said jet-pipes resting within the opening in said wing, substantially as described.

CHAS. H. CLARK.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.