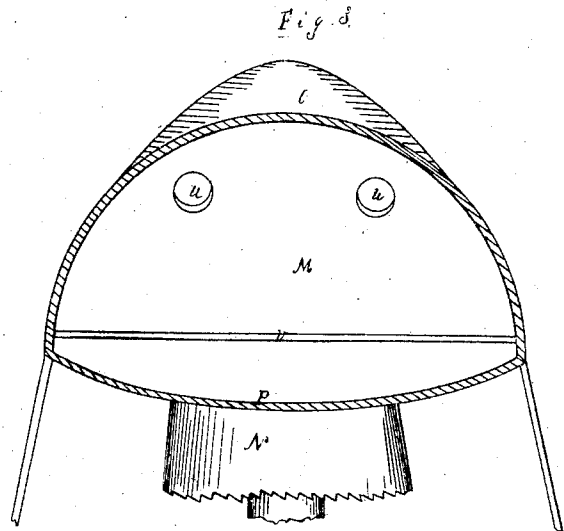
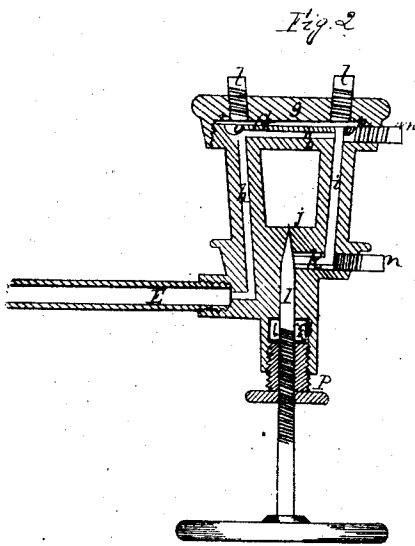
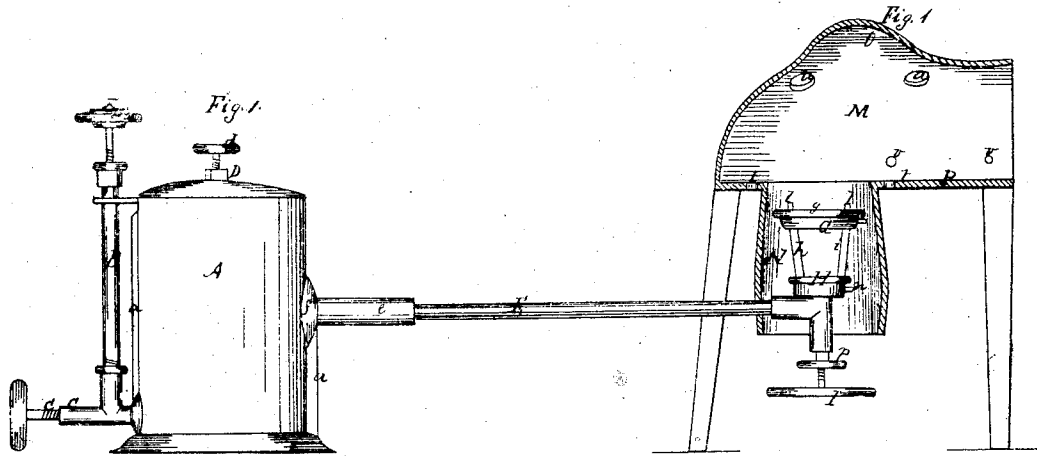


J. S. Hull.
Gas - Heater.

N^o 76195

Patented Mar. 31, 1868



Witnesses
J. S. Brown
W. F. Brown

Inventor
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United States Patent Office

JOHN S. HULL, OF CINCINNATI, OHIO.

Letters Patent No. 76,195, dated March 31, 1868.

IMPROVEMENT IN GAS-HEATERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN S. HULL, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented an Improved Tinner's Fire-Pot or Furnace, for heating soldering-irons, by burning hydrocarbon fluids; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a view of the apparatus complete, the fluid-fountain and burner being shown in elevation, and the heater, or furnace proper, in vertical section.

Figure 2, a central vertical section of the burner on an enlarged scale.

Figure 3, a front view of the heater on an enlarged scale.

Like letters designate corresponding parts in all of the figures.

In the application of the hydrocarbon fluids, such as benzine, petroleum, coal-oil, &c., or alcohol, to this use, the fluid is confined in a strong, close vessel, A, in which atmospheric air is compressed by means of an air-pump or condenser, B, for the purpose of forcing the fluid to the burner in constant quantity, and with such pressure as to produce a blow-pipe flame of intense heating power. The principal appendages of the air-pump and the fountain are a cut-off valve, C, to secure the air when once compressed within the vessel; a vent-valve, *d*, to let off the compressed air when the fountain is not in use; ducts *a a*, outside of the vessel A respectively, to conduct the air from the pump to the top of the vessel, and the fluid from the bottom thereof to the pipe E, which conducts the fluid to the burner. The ducts are located outside of the vessel, for convenience of construction and repair. The burner gasifies the fluid and superheats the gas before it issues in the burning-jet. First, the fluid presses upward from the conducting-pipe E through a small passage, *h*, into the enlarged disk-shaped retort, or gasifier and superheater, as well as flame-spreader, G, which has an annular chamber, *o*, therein, for containing a surplus of the just generated gas more than what passes away for immediate use; then the gas descends through another small passage, *i*, down into the burner-head H, where another enlarged chamber, *k*, receives it, and retains also a surplus quantity, so as to insure a constant and full supply to issue at the jet-aperture *j*, which is located centrally under the disk G. The flame of the jet spreads around the passages *h* and *i*, (which form hollow supports for the retort-disk G,) and under the said disk. The cone-point I, which closes and regulates the flame of the jet, is packed with asbestos, *s*, compressed by a screw, *p*. The annular chamber *o*, in the disk G, is enclosed by a cap, *g*, which screws down over the disk, and has the joint packed with asbestos. Thus ready access may be had to the inside of the retort for cleansing it out if it becomes foul. The passages *h* and *i* open at the upper end out through the disk-cap *g*, and these openings are closed with screw-plugs *l l*, or their equivalent, which can be removed at any time, for gaining access to the passages to clear them out. This arrangement is important, since the small passages occasionally become clogged with the solid impurities of the oils. Similar plugs *m* and *n* close openings respectively into passages *g* and *k* in the disk G and burner-head H. The heater, M, is placed over the burner, having a "cone" or draught-regulator, N, (represented as a "double cone" or conical, both upward and downward, in the drawings,) extending downward from its bottom, P, in which the burner is located. The heater is substantially of the form shown, being convex at the top, with a swell or dome, O, in the middle, over the burner, for the purpose of concentrating and reverberating the heat downward upon the soldering-irons, which are placed over the burner. The mouth of the heater is open for the reception of the soldering-irons, which rest on cross-bars or rods *v v*.

An important feature of the heater is a number of apertures, *t t*, through the bottom thereof, around the burner-cone N, and another set of holes, *u u*, in the top, around the reverberating swell O. Without these apertures there would not be a sufficient supply of air to produce perfect combustion and intense heat.

This furnace may be used for other analogous purposes, such as for melting metals and alloys in small quantities. It heats rapidly and uniformly, and is very economical in use.

What I claim as my invention, and desire to secure by Letters Patent, is—

A burner, supplied by the force of compressed air, in combination with a tinner's fire-pot, for the purpose herein specified.

I also claim the chambered gasifying and superheating disk G, substantially as and for the purpose herein set forth.

I also claim the screw-cap *g*, applied to the disk *G*, substantially as and for the purpose specified.
I also claim the enlarged passage *k* in the burner-head, for the purpose set forth.
I also claim the screw-plugs *l l*, *m m*, substantially as and for the purpose herein specified.
I also claim the swell or dome *O*, in the top of the heater, substantially as and for the purpose herein specified.

JOHN S. HULL.

Witnesses:

J. S. BROWN,
Wm. F. BROWNE.