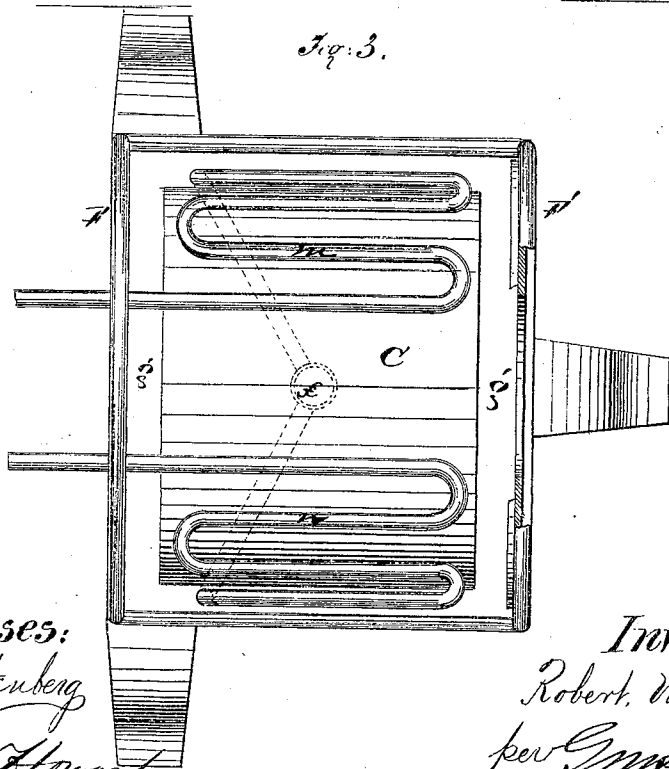
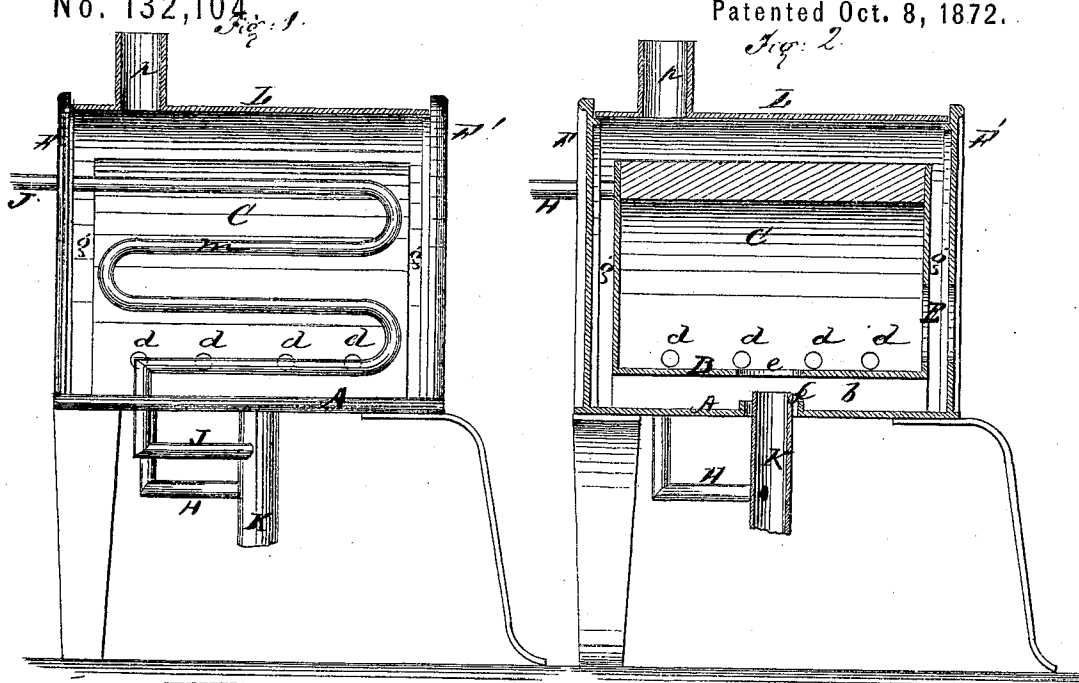


R. M. POTTER.

Improvement in Furnaces for Tinmen, Jewelers, &c.

No. 132,104.

Patented Oct. 8, 1872.



Witnesses:
H. L. Wattenberg
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Atty

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN FURNACES FOR TINMEN, JEWELERS, &c.

Specification forming part of Letters Patent No. 132,104, dated October 8, 1872.

To all whom it may concern:

Be it known that I, ROBERT M. POTTER, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Compound Furnace; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The object of this invention is to construct a furnace for tinmen, jewelers, &c.; and the invention consists in a furnace whereby the heat is generated by a flame of hydrocarbon gas mixed with air, the gas and air being superheated and supplied to the furnace by means of a blower.

Heretofore furnaces generally used by tinmen, jewelers, &c., have been simply furnaces wherein the heat was generated by charcoal in a state of combustion. A furnace of this kind is objectionable for many reasons. Among them is the expense attending their use, the danger of fire from sparks and dropping coals, the length of time required to accomplish the object sought, and the unavoidable dirt. It is believed that my furnace—a full description of which is hereinafter given—fully obviates all of the above objections, and, at the same time, possesses many advantages over any furnace of similar construction heretofore used.

In the accompanying sheet of drawing, Figure 1 is a side elevation of my furnace with the covering-plate in section; Fig. 2, a longitudinal section of same; and Fig. 3, a top view of furnace with covering-plate removed.

Similar letters of reference indicate like parts in the several figures.

A represents a bed-plate, which may be of cast-iron or any other suitable material. Built upon this bed-plate, of fire-brick or other refractory material, is a bed, B. This bed is so laid as to leave a space, *b*, between it and the bed-plate. (See Fig. 2.) Over the bed B is turned, with fire-brick or otherwise, an arch, C. Near the lower side of this arch above described, and near the bed-plate A, a series of perforations, *d d d*, is made; and through the center of the bed B is an opening, *e*, corresponding with a like opening, *f*, in the bed-

plate A. The ends of the arch C are closely built up, with the exception of an opening, E, which is the furnace-mouth. Secured to the bed-plate A are two semicircular plates, F F', which may be denominated the front and back plates of the furnace. These plates do not come in contact with the ends of the arch C, but an air-space, *g*, is left between them. Passing through the back plate F are two pipes, H and J. These pipes are turned backward and forward, and form worms *m* and *n* on each side of the arch C, against which they lie, and thence they pass downward through the bed-plate A and enter into a common pipe, K, which depends from the opening *f* in the bed-plate A, one pipe, H, entering said pipe below the other. Fitting between the plates F F' inclosing the arch D is a covering-plate, L, which may be made of any desirable metal. This covering-plate is curved, and fits tightly between the plates F F' and onto the bed-plate A. It is also provided with an outlet-pipe, *p*, through which may be carried off any superfluous heat or gas.

My furnace being constructed substantially as above described, its operation is as follows: Hydrocarbon gas is admitted into the pipe J (from any desirable hydrocarbon gas apparatus) and air is forced through the pipe H. By means of a blower or other suitable pressure the air and gas at once pass to the pipe K, whence, by reason of the pressure in the pipe H, they are mixed and forced through the openings *f* and *e* into the furnace, where they are ignited and produce an intense flame. As the furnace becomes heated it imparts its heat to the air and gas as they pass through the worms *m* and *n*, so that the air and gas, as they pass into the furnace, have attained a great degree of heat, or become superheated, which tends to produce a more perfect combustion. The heating of the gas and air in the pipes H and J is facilitated by the heat and gas which passes through the holes *d d d*.

The furnace being constructed and operated as above described, a soldering-iron or crucible may be introduced therein through the furnace-mouth E, which is then closed, and in a very short time the iron is heated or the metal in the crucible reduced.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The hydrocarbon and air pipes, forming separate coils within the furnace and uniting in a common tube or burner, substantially as herein described.

2. A compound furnace, comprising an inclosed fire-chamber surrounded by an air-

space, an outer casing, and hydrocarbon and air pipes, separately coiled within the furnace and uniting in a common tube or burner, all substantially as herein described.

ROBERT M. POTTER.

Witnesses:

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