P. P. BEALS.

Furnace for Heating Soldering-Irons.

No. 165,200. Patented July 6, 1875.

Fig. 1.

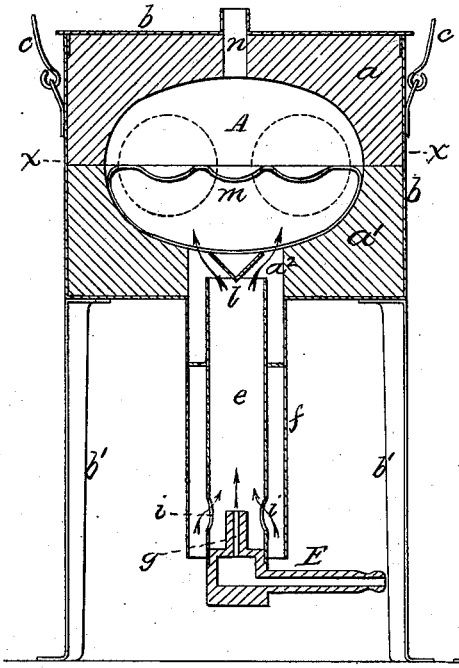


Fig. 2.

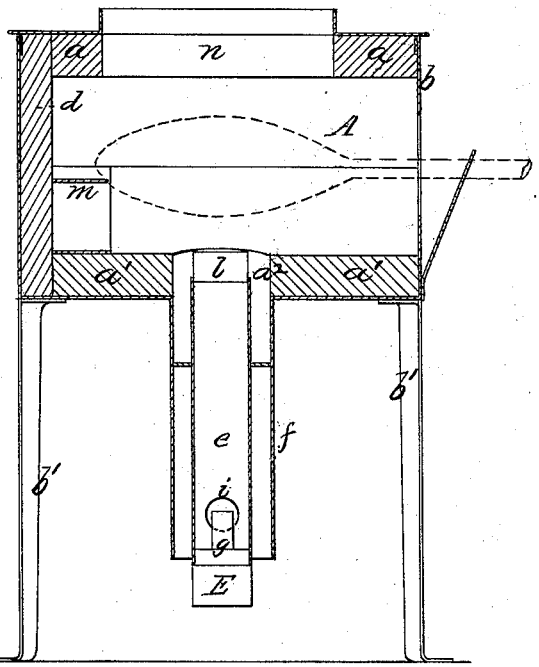


Fig. 4.

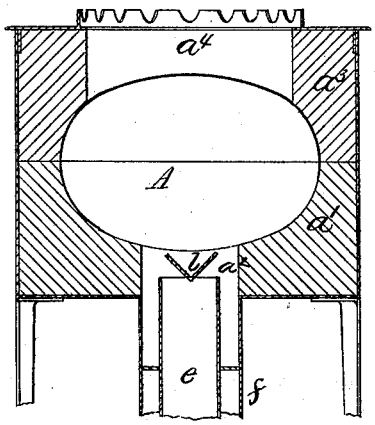
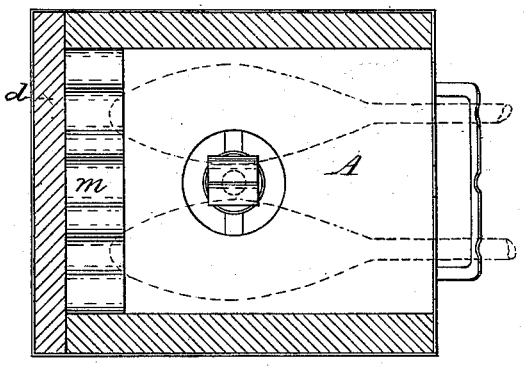


Fig. 3.



Witnesses

Jno. J. Bonner.

C. J. Buchheit.

P. P. Beals Inventor

by Jay Hyatt

Atty.

UNITED STATES PATENT OFFICE.

PASCAL P. BEALS, OF BUFFALO, NEW YORK.

IMPROVEMENT IN FURNACES FOR HEATING SOLDERING-IRONS.

Specification forming part of Letters Patent No. **165,200**, dated July 6, 1875; application filed May 31, 1875.

To all whom it may concern:

Be it known that I, PASCAL P. BEALS, of the city of Buffalo, in the county of Erie and State of New York, have invented certain Improvements in Furnaces for Heating Soldering-Irons, of which the following is a specification:

My invention relates to that class of tinsmiths' furnaces which are heated by means of a gas-flame.

The nature of my improvement will be best understood from the following description:

In the accompanying drawing, Figure 1 is a central cross-section; Fig. 2, a central longitudinal section; Fig. 3, a horizontal section of my improved furnace, in line *x x*, Fig. 1. Fig. 4 is a central cross-section of the apparatus in a slightly-modified form.

Like letters of reference refer to like parts in each of the figures.

A represents the heating-chamber of the furnace, having the shape of a hollow cylinder, preferably of elliptical cross-section. It is formed by two recessed or arch-shaped pieces of fire-brick, *a a*^{1}, arranged one on the other, so as to form the cavity between them, as clearly shown in the drawing. The fire-bricks *a a*^{1} are supported in a metallic case or frame, *b*, provided with suitable legs *b'*, and a bail, *c*, so as to be portable. The rear end of the heating-chamber A is preferably closed by rectangular fire-brick, *d*. E is the gas-burner, secured to the under side of the metallic casing, and projecting into an opening or passage, *a*^{2}, formed in the lower fire-brick *a*^{1}, and communicating with the chamber A. The burner E consists of an outer tube, *f*, an inner concentric tube, *e*, and a gas-jet, *g*, opening into the lower end of the tube *e*. The gas-jet is connected with the gas-pipe by a rubber hose or other suitable means. *i* are openings formed in the inner pipe *e*, near its lower end, for admitting air into the same, as indicated by arrows in Fig. 1. The air so admitted mixes with the gas as it ascends the pipe *e* toward the point of ignition at the upper end thereof, thereby causing a more perfect combustion of the gas. *l* is a V-shaped deflector, secured to the upper end of the tube *e* in the opening *a*^{2}, so as to divide the flame, as indicated by arrows in Fig. 1. *m* is a metallic cross piece or bridge, arranged in the rear portion of the heating-chamber A, for supporting the points of the soldering-irons and protecting the same from excessive heat. *n* is a longitudinal opening formed in the upper fire-brick *a*, for the escape of the products of combustion. The front of the case *b* is provided with openings for the admission of the soldering-irons, which openings may be provided with sliding or other suitable doors for preventing the escape of the heat.

My improved apparatus, as represented in the drawing, is more especially designed to receive two soldering-irons at a time, arranged side by side, as indicated by dotted lines in the drawing.

The deflector *l* serves to divide the flame, and direct the same toward both irons, so as to properly heat the same.

When only one iron is to be heated it is placed centrally in the chamber A, and the inner tube *e*, with the deflector *l*, is given a quarter-turn, when both parts of the flame will issue in the central line of the chamber A.

When the furnace is intended to be used for heating a kettle—for instance, in melting lead—the upper fire-brick *a* is removed and replaced by a brick, *a*^{3}, provided with an opening, *a*^{4}, of sufficient size to receive a kettle, as clearly shown in Fig. 4.

In my improved furnace the vault-like form of the heating-chamber operates to concentrate the heat upon the soldering-irons, and the fire-brick walls prevent radiation, thereby rendering the device very economical, while the supporting-bridge *m* protects the points of the soldering-irons against becoming overheated, which often takes place in ordinary furnaces, thereby doing away with the frequent retinning of the irons.

The entire apparatus is light, compact, and cheap of construction.

What I claim as my invention is—

1. The combination, with the gas-burner E, of the metallic case *b* and heating-chamber A, constructed of fire-bricks *a a*^{1}, and provided with flame and escape apertures *a*^{2} *n*, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the heating-chamber A and gas-burner E, of the bridge *m*, for supporting and protecting the points of the soldering-irons, substantially as hereinbefore set forth.

Witnesses: PASCAL P. BEALS.

JNO. J. BONNER,

C. J. BUCHHEIT.