J. FIELDHOUSE.

Pipe-Welding Furnace.

No. 161,401. Patented March 30, 1875.

FIG. 1.

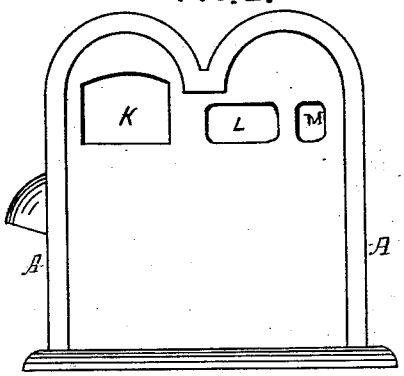


FIG. 2.

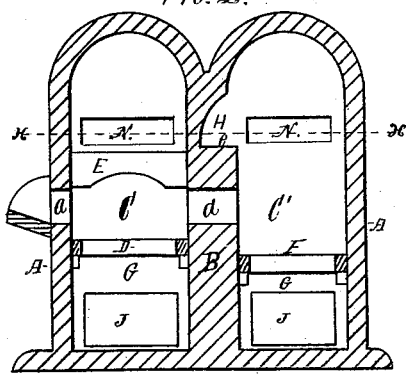
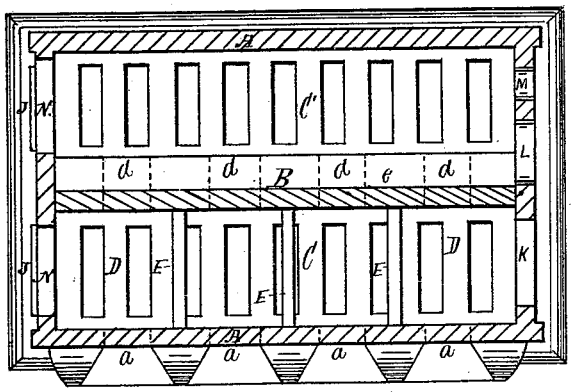


FIG. 3.



Witnesses:
C. H. Sherburne
F. B. Goodwin

Inventor.
Joseph Fieldhouse
per Sherburne & Co
Attorneys

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOSEPH FIELDHOUSE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE N. DUTCHER, OF SAME PLACE.

IMPROVEMENT IN PIPE-WELDING FURNACES.

Specification forming part of Letters Patent No. **161,401**, dated March 30, 1875; application filed January 23, 1875.

To all whom it may concern:

Be it known that I, JOSEPH FIELDHOUSE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pipe-Welding Furnaces; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end view of a pipe-welding furnace embodying my said invention. Fig. 2 is a vertical transverse section of the same, and Fig. 3 is a sectional plan taken on the line *x x* drawn across Fig. 2.

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

My invention relates to that class of furnaces used for heating wrought-iron pipe-blanks preparatory to welding the same; and its object is to improve the pipe-welding furnace for which Letters Patent No. 56,919 were granted to me on the 7th day of August, 1866. To that end it consists in providing the partition-wall, between the oven and welding-chamber, with a recess communicating with the welding-chamber, and extending the entire length of the wall, forming a shelf on which the pipe-blanks are placed after being taken from the oven, whereby they are evenly heated their entire length before being passed into the welding-chamber proper, where the final or welding heat is taken.

In the drawing, A A represent the main or outer walls, which are constructed of any suitable material. B is the partition-wall, which is centrally located between the walls A A, forming two separate chambers, C and C′, shown in Fig. 2, C constituting the oven and C′ the welding-chamber. D is the fuel-grate of the oven, which is loosely secured to the walls A B immediately below the fuel-supply openings *a* formed through the side wall A. E is a series of transverse bars, the ends of which are permanently secured in the walls A B above the fuel-supply openings *a*. These bars are so arranged as to support the pipe-blanks immediately over the fire during the first process of heating the blanks. F is the fuel-grate of the welding-chamber, which is loosely secured to the walls B A slightly below the plane of grate D, as shown in Fig. 2. G G are the ash-pits, into which the ashes pass through their respective grates D F. The partition-wall B is provided with a series of horizontal flues or openings, *d*, passing through the same, as shown by dotted lines, Fig. 3. These openings communicate with the welding-chamber slightly above the grates, and are each located directly opposite to one of the fuel-supply openings *a*, the object of which is to allow the fuel to be passed through them into the welding-chamber. H is a recess which is formed in the side of the partition-wall adjacent to the welding-chamber, and extending its entire length. The arrangement of this recess at its base is such as to form a horizontal shelf, *e*, of sufficient area, on which several pipe-blanks may be placed side by side while being heated preparatory to being passed into the welding-chamber, where the greater temperature is obtained. J J are the doors that close the openings which communicate with the ash-pits, through which the ashes are removed from the separate chambers. K is the opening communicating with the oven through which the pipe-blanks are passed into the oven or removed therefrom. L is the opening communicating with recess H, and M is the opening communicating with the welding-chamber. N N are the escape-openings through which the smoke passes from the respective chambers.

In using my improved furnace the fuel is first passed through openings *a* onto grate D, where it is allowed to remain until it is thoroughly ignited, when it is passed through openings *d* onto grate F of the welding-chamber C′, where the greater temperature of heat is to be obtained. Several of the pipe-blanks to be welded are first passed through opening K on the bars E of oven C, where they are allowed to remain until a red heat is obtained, when they are removed from the oven and passed through opening L upon shelf *e*, where a greater and more uniform heat is obtained. The blanks are taken from this shelf one at a time and passed through opening M into the welding-chamber, where it is allowed to remain until

the proper welding-heat of the blank is obtained, when it is removed and welded in any known manner.

As but one blank can be placed in the welding-chamber at the same time, on account of their liability of being welded or stuck together in the event of their coming in contact, it is readily seen that by the use of the shelf, on which several blanks can be placed at the same time and subjected to a greater degree of heat than that obtained in the oven before being passed into the welding-chamber, I am enabled to utilize the heat which otherwise would be lost, thus making a great saving in fuel, besides greatly increasing the capacity of the furnace, so as to facilitate the manufacture of wrought-iron pipe.

I do not wish to confine myself to one shelf, or to locating it on the partition-wall, as more may be used; or if but one is used it may be located on the outer wall, the result being the same.

Having thus described my invention, I claim—

In the pipe-welding furnace herein described, the recess H, arranged to form the shelf *e* for supporting the pipe-blanks, in combination with opening L, arranged to admit of the insertion and removal of the pipe-blanks, as specified.

The above specification of my invention signed by me this 29th day of December, 1874.

JOSEPH FIELDHOUSE.

Witnesses:
N. H. SHERBURNE,
F. O. GOODWIN.