

(No Model.)

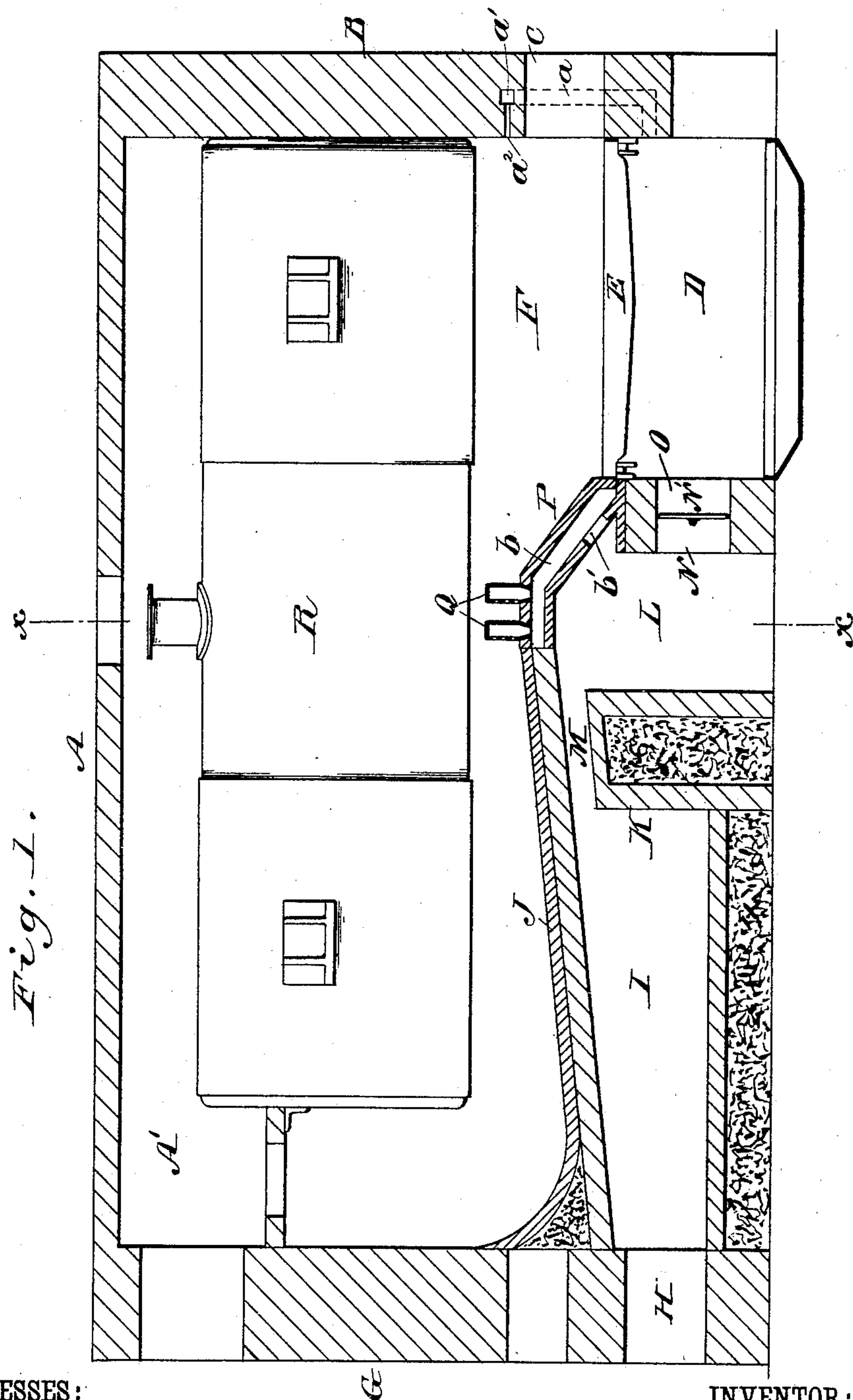
2 Sheets—Sheet 1.

J. H. WEITMYER.

FURNACE.

No. 353,474.

Patented Nov. 30, 1886.



WITNESSES:

John McDeerney
W. B. Sedgwick

INVENTOR:

J. H. Weitmyer
BY *Munn & Co*

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

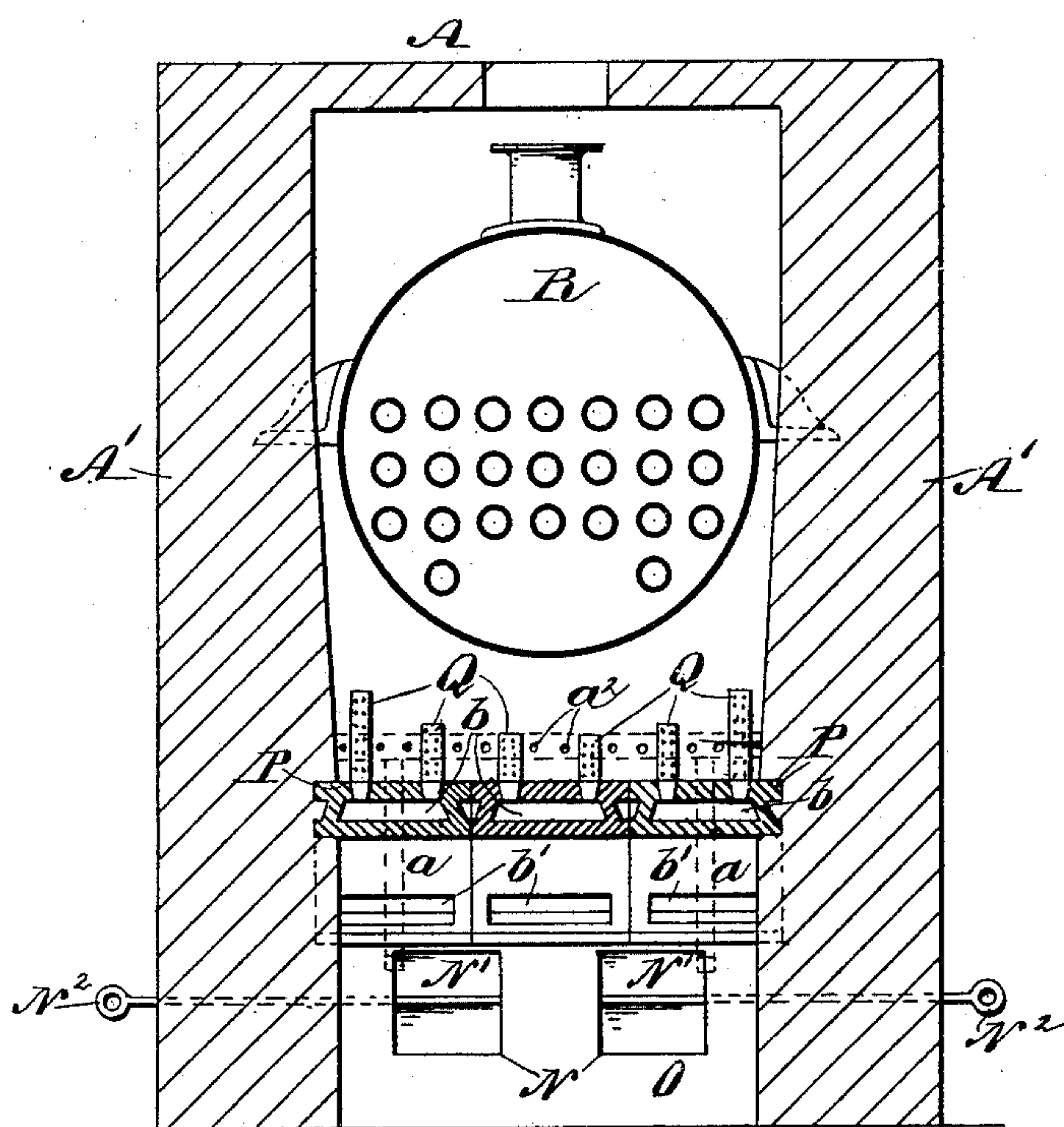
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Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN H. WEITMYER, OF HARRISBURG, PENNSYLVANIA.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 353,474, dated November 30, 1886.

Application filed June 25, 1886. Serial No. 206,226. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. WEITMYER, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented a new and Improved Furnace, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a longitudinal sectional elevation of my new and improved boiler-furnace; and Fig. 2 is a transverse sectional elevation of the same, taken on the line *x x* of Fig. 1.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

The arch A, side walls, A', and front wall, B, of the furnace are constructed in the usual manner, except that at each side of the door C is formed in the front wall, B, the air-flues *a a*, which open at their lower ends in the ash-pit D below the grate-bars E, and connect at their upper ends with the ends of the horizontal flue *a'*. The flue *a'* is put in communication with the fire-box F by means of numerous small passages, *a''*, so that the heated air which enters the flues *a a'* from the ash-pit D enters the fire-box in small jets issuing from the small passages *a''*, and materially aids combustion.

The back wall, G, of the furnace is formed with the draft-opening H, through which air enters the air-heating chamber I, beneath the flame-bed J. From the chamber I the air passes over the bridge-wall K into the secondary chamber L.

The passages M, between the upper edge of the bridge-wall K and the flame-bed J, are made quite narrow, so the air will be forced into close contact with the flame-bed and become highly heated therefrom. A portion of the heated air from the chamber I passes through the opening N in the back ash-pit wall, O, into the ash-pit, and thence passes up between the grate-bars E, among the fuel, to support combustion. The wall O supports the forward edge of the fire-back P, which joins the flame-bed J at its rear edge, as shown in Fig.

1. The fire-back P is made hollow or chambered, as shown at *b*, and a part of the heated

air from the secondary chamber L enters the chamber *b* through the passage *b'*, and this air, so entering the fire-back, becomes highly heated and in a considerable degree cools the fire-back.

From the chamber *b* of the fire-back the air, in a highly-heated state, issues into the furnace in small jets through the series of perforated pipes Q, so that a very intense heat is produced in the space between the boiler R and the flame-bed J. The tubes Q are placed at a suitable distance apart entirely across the furnace, so they produce a reverberatory action in the furnace, like the bridge in an ordinary reverberatory furnace, and the tubes are imperforate upon their front surfaces, so the jets of air issuing from the pipes will not interfere with, but rather assist, the draft of the furnace.

In the openings N made through the back ash-pit wall, O, are fitted the dampers N', which may be turned from the outside of the furnace by the rods N'', for opening more or less the said openings N for regulating the draft of the furnace.

By constructing the furnace as described all of the air entering the furnace becomes heated from contact with the heated surfaces of the furnace, and it is distributed to cause the most effective combustion of the fuel and utilization of the heat.

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

1. A furnace constructed with a rear inlet-passage, I, below the flame-bed, terminating in an enlarged chamber, L, at the back wall of the ash-pit, and communicating therewith, a check-wall, K, extending near to the flame-bed and forming the narrow passage M, between passage I and chamber L, whereby the entering cold air will strike the wall K and be forced upward against the flame-bed and be highly heated before entering the ash-pit and furnace-chamber, substantially as set forth.

2. The combination, in a furnace, with the flame-bed, the fuel-chamber, and the intermediate hollow fire-back having upper and lower openings, and the ash-pit having an opening in its rear wall provided with a damper, of a rear inlet extending below the flame-

bed and terminating in an enlarged chamber below the fire-back and rear of the ash-pit wall, and a check-wall separating the said passage and enlarged chamber and extending upward to a point near the flame-bed, substantially as set forth.

3. The hollow fire-back P, having a horizontal upper portion apertured and provided

with perforated tubes, the forward side being inclined downward and apertured in its rear to wall to communicate with an air-supply chamber, substantially as shown and described.

JOHN H. WEITMYER.

Witnesses:

D. MAEYER,

ED. M. COOPER.