

M. W. Barrett,

Tuyere,

N^o 43,619-

Fig. 1.

Patented July 19, 1864.

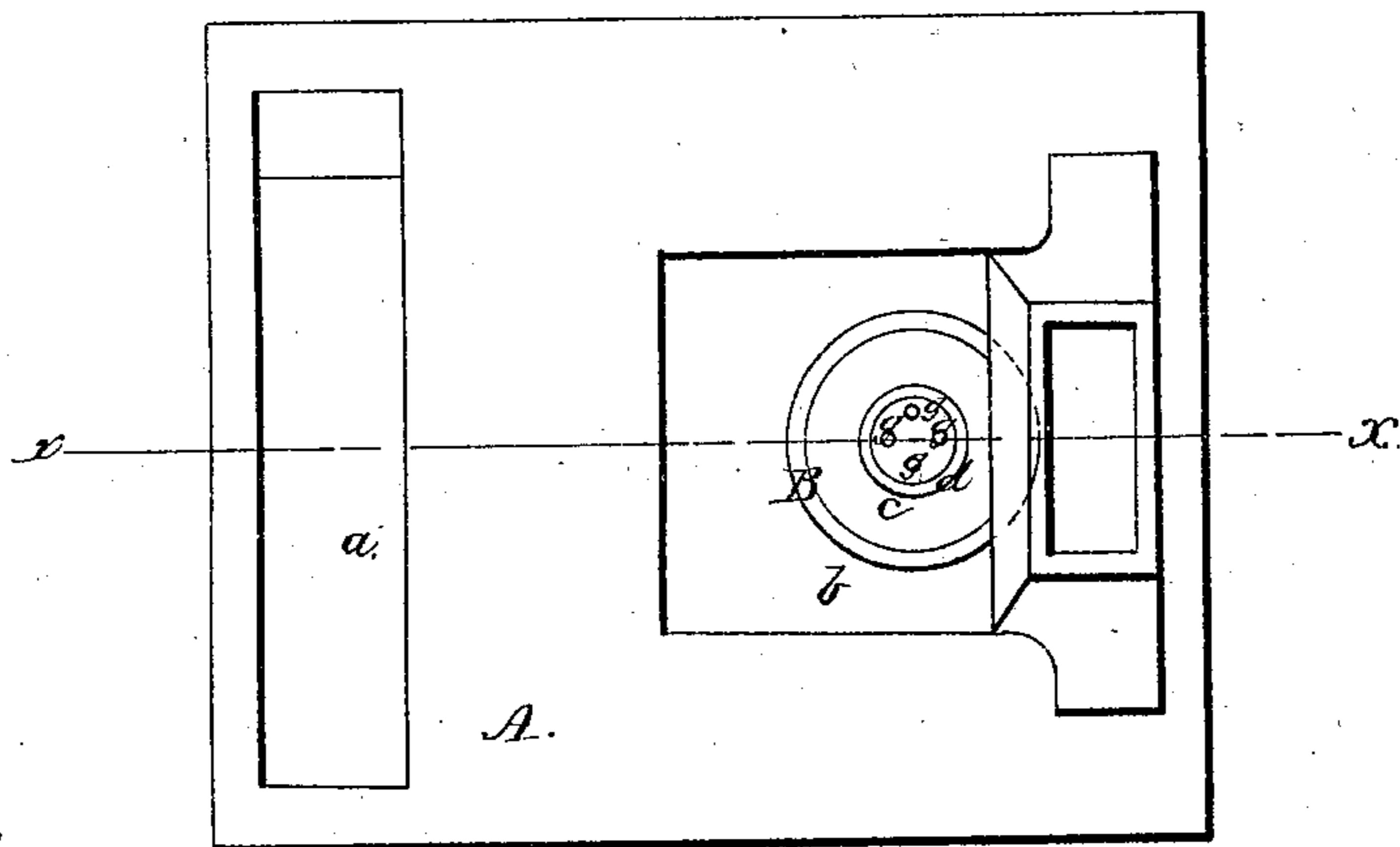
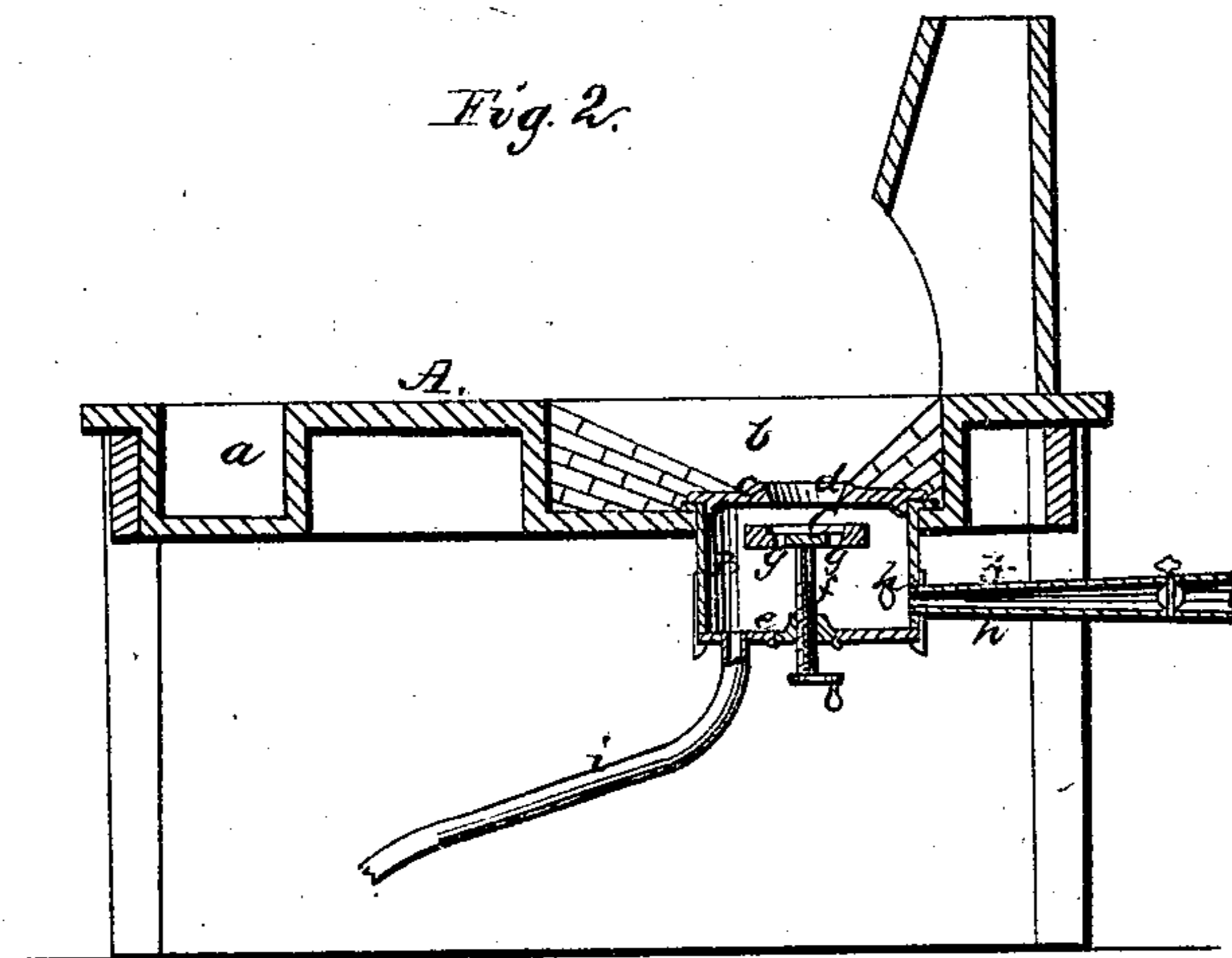


Fig. 2.



Witnesses:

J. W. Coombs
C. W. Reed

Inventor:

M. W. Barrett
per Munn & Co
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UNITED STATES PATENT OFFICE.

M. W. BARRETT, OF MISHAWAKA, INDIANA, ASSIGNOR TO HIMSELF AND
GEORGE MILBURN, OF SAME PLACE.

IMPROVEMENT IN TUYERES.

Specification forming part of Letters Patent No. 43,619, dated July 19, 1864.

To all whom it may concern:

Be it known that I, M. W. BARRETT, of Mishawaka, in the county of St. Joseph and State of Indiana, have invented a new and Improved Tuyere; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a plan or top view of my invention. Fig. 2 is a longitudinal vertical section of the same, the line *x x*, Fig. 1, indicating the plane of section.

Similar letters of reference in both views indicate corresponding parts.

This invention is intended as an improvement on that class of tuyeres in which the air is forced into an air-box with an opening in its top to let the air escape to the fire, and in which the hole in said air-box can be partially closed by an adjustable valve.

The nature of my invention and its peculiar advantages will be readily understood from the following description.

A represents a hearth, built of brick or made with a cast-iron top supported by legs, or in any other suitable manner. This hearth is provided with two cavities, *a b*, one to hold water and the other to be lined with fire-brick and to form the fire-place. The bottom of the cavity *b* is perforated with a hole sufficiently large to receive the air-box B. This box is made of cast-iron or other suitable material in a cylindrical or any other desirable shape, and it is provided with a cover, *c*, which is perforated with a central circular aperture, *d*, through which the air is admitted to the fire. The bottom *e* is made in two parts, which are hinged to the central cross-bar and locked by suitable spring catches or latches, *k*, so that they can be easily opened for the purpose of cleaning out the ashes, cinders, &c., which will accumulate at the bottom of the air-box. The center of the bottom of the air-box is strengthened by a boss, and it is perforated with a tapped hole to receive the screw-rod *f*, which serves to adjust the valve C. This valve consists of a plain disk, which is perforated with four (more or less) small holes, *g*, and it is adjusted on the upper end of the screw-rod in such a manner that the aperture *d* in the cover of the air-box can be perfectly closed by screw-

ing it up until it touches the under surface of said cover. One or more pipes, *h*, conduct the air to the air-box B, and a pipe, *i*, emanating from the bottom of said air-box, serves to blow out the dust and cinders, if it is desired to do so, without opening the bottom.

The peculiar advantage of my invention, and its superiority over tuyeres of a similar construction, is derived from the shape of the valve C. If the valve is screwed up so that it is in contact with the inside of the cover *c*, no air will reach the fire, except what passes through the small holes *g*, and a very small but uniform fire can thus be kept. If it is desired to increase the blast, the valve is lowered, thus allowing the blast to pass through the holes *g* and through the opening left between the edge of the valve and the under surface of the cover. Wherever the valve may be set, a uniform central blast passes up through the aperture *d*, and a regular fire can be maintained capable of heating uniformly a large or a small piece of iron, according to the position of the valve.

The adjustable valves formerly employed to regulate the blast of tuyeres have been made conical or pyramidal, and the blast was adjusted by turning a flat surface or the apex under the aperture of the air-box. By this valve the aperture in the air-box cannot be completely closed, it being necessary to keep the valve at such a distance that it can be turned edgewise; and, furthermore, if the apex of the valve is turned up, and it does not exactly coincide with the center of the aperture *d*, the blast is diverted sidewise, and an irregular fire is the consequence. By my valve the fire can be regulated at pleasure. It always produces an even blast, and the heating of the work can be accomplished in less time and with less waste of fuel than it can with a tuyere of the ordinary construction.

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

The combination of the air-box B, hearth *b*, aperture *d*, valve C *g*, screw-shaft *f*, removable bottom *e*, and latches *k k*, all constructed, arranged, and operating as specified.

M. W. BARRETT.

Witnesses:

J. H. QUIGG,
JAS. SANDILAND.