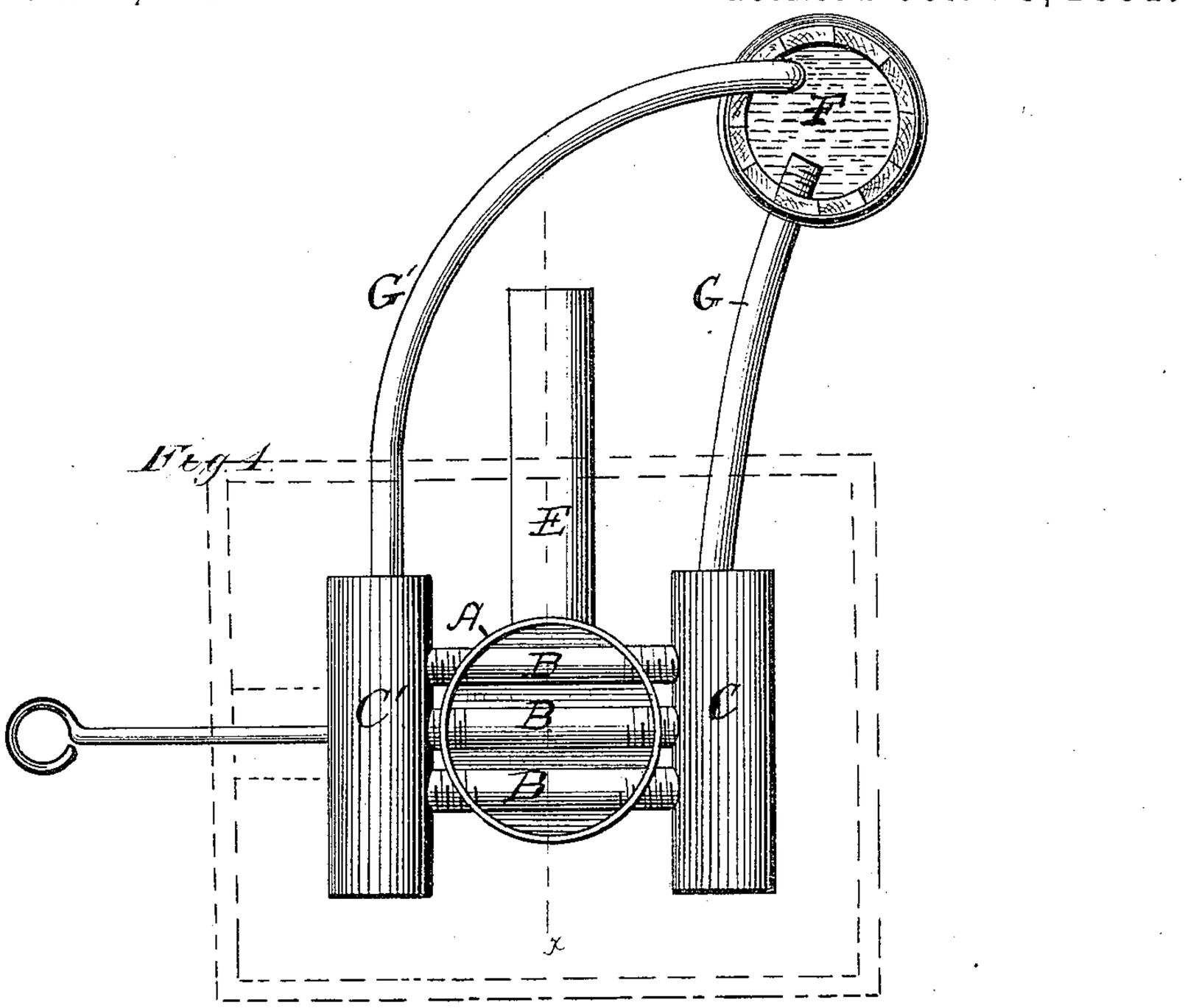
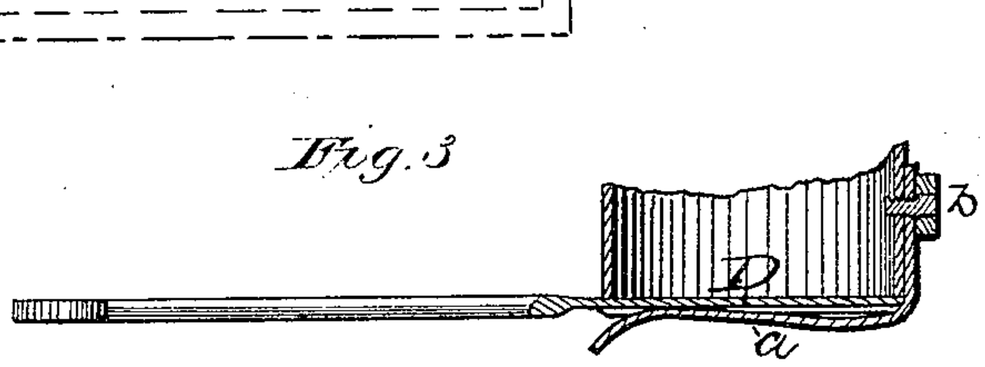
(Model.)

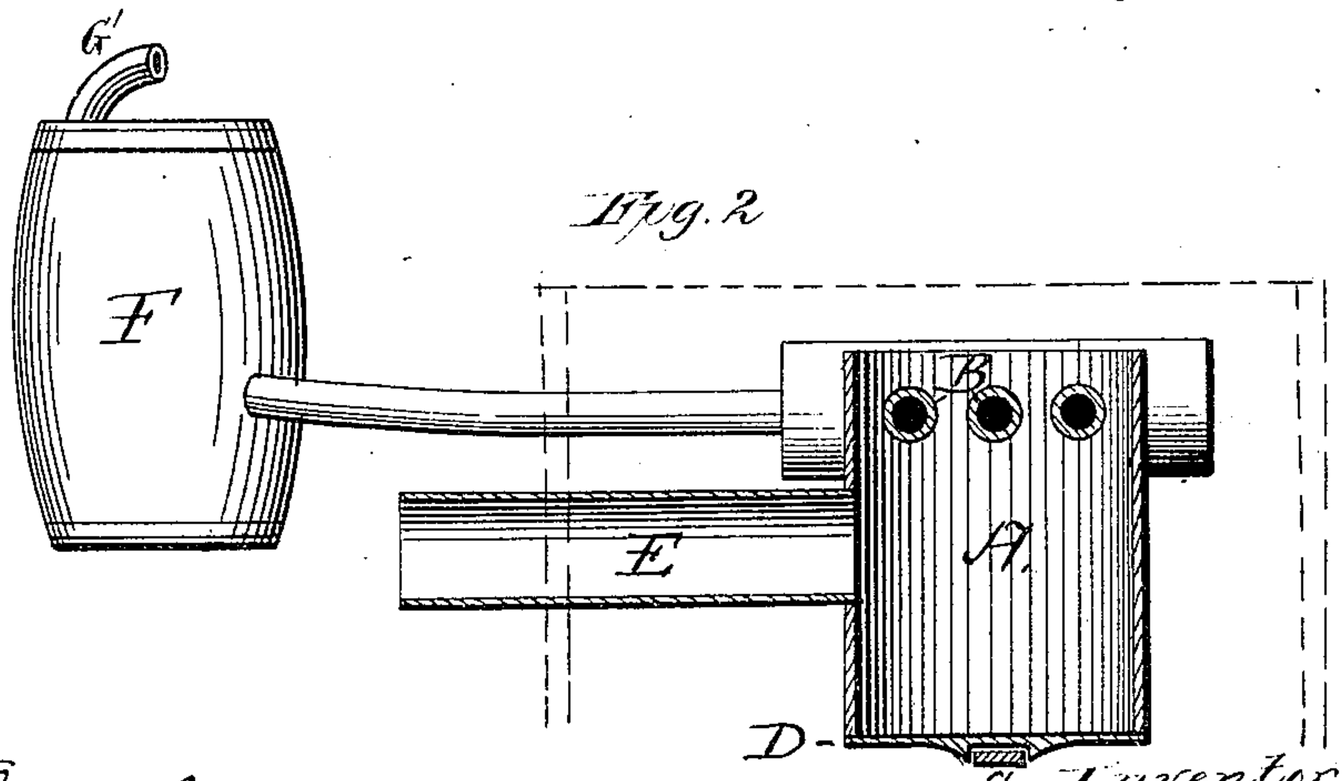
G. W. RIGGIN.

TUYERE.

No. 248,794. Patented Oct. 25, 1881.







Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE W. RIGGIN, OF MADISONVILLE, KENTUCKY.

TUYERE.

SPECIFICATION forming part of Letters Patent No. 248,794, dated October 25, 1881.

Application filed June 17, 1881. (Model.)

To all whom it may concern:

Be it known that I, GEORGE W. RIGGIN, a citizen of the United States of America, residing at Madisonville, in the county of Hopkins and State of Kentucky, have invented certain new and useful Improvements in Tuyeres; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention has relation to improvements in tuyeres for forges and furnaces; and its object is to provide a tuyere-iron the face or gate of which is kept cool by the effects of water, and thus preserve the tuyere-face and prevent the adherence of slag and cinders as they drop from the fire above; also to deliver a direct and vertical blast to the fire.

My invention consists in the novel construction and combination of parts, as will be hereinafter more fully set forth, and specifically claimed.

In the accompanying drawings, Figure 1 is a plan view of the tuyere attachment. Fig. 2 is a transverse sectional view, taken through the line *x x*, and Fig. 3 is a detail view.

The letter A represents the chamber or box, made of the desired diameter and length, open at both ends, and formed with holes near the upper end for the passage of pipes.

The letter B represents pipes passed horizontally through the holes in the cylinder. They form the face of the tuyere, and serve as grate-bars on which the fire rests, and they are formed with screw-threads and engage with the female screws in the sides of the drums C and C′, substantially as shown in Fig. 1 of the drawings. These drums are cylindrical in form, preferably, and are formed with a solid head on one end and with the other end perforated to receive the induction and eduction pipes.

The letter D represents a movable bottom placed over the lower end of the chamber, and held firmly in place by the spring *a*. This bottom has flanges on the under side which embrace the edges of the spring *a*, and by these means the bottom is guided and held in position.

The spring *a* is held to the chamber-wall and in position by a bolt, *b*, extending through the struck-up part of the spring and the wall of the chamber. A handle is attached to the bottom, by which it is removed and replaced.

The letter E is the blast-pipe or nozzle of the tuyere. This is securely fixed in the wall of the tuyere-chamber and communicates with the blast.

The letter F represents a barrel or box for holding water, and in this barrel is fixed the pipe G, piercing the side near the bottom, and extending to the head of the drum at the side of the tuyere. It is screwed or otherwise secured in the head of the drum, and serves as an induction-pipe for the water from the reservoir to the tuyere-pipes.

The letter G′ represents the eduction-pipe fixed in the head of the drum C′, and leading from thence to the water-source, into which it extends and deposits the condensations or flow.

The fire-place with an opening sits over the casing of the tuyere-chamber, and is of the usual construction.

It will be observed by reference to the drawings that the operation is as follows: The reservoir-barrel being filled with water, it courses through the pipe fixed in the bottom to the drum, with which it connects, and, filling that, passes through the pipes across the tuyere-chamber into the other drum, and thence to the pipe leading from that drum to the reservoir. In this operation the face of the tuyere or grate-bar pipes is kept from overheating, thereby preventing the lodgment of slag and cinder on the cross-pipes. It will also be observed that by the construction and arrangement of the parts I am enabled to obtain a direct delivery of the blast to the fire.

If desired, a separate reservoir may be placed at the end of each pipe.

When it is desired to remove the slag and cinders from the cylinder of the tuyere, the bottom is drawn out and they drop in the ash-pit, from where they may be taken by the usual means.

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

1. In a tuyere, the chamber or box A, pro-

vided at its upper end with a plurality of water-pipes connected directly with the side water-drums, C C′, serving as grate-bars, and at its lower end with a removable bottom, sustained in position by means of a flat spring, substantially as described.

2. In a tuyere, the combination of the box A, provided with the horizontal pipes B, the side drums, C C′, the supply and return pipes, and reservoir F, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. RIGGIN.

Witnesses:

W. T. DAVES,

THOMAS B. JONES.