

(No Model.)

G. W. RIGGIN.

2 Sheets—Sheet 1.

TUYERE.

No. 255,193.

Patented Mar. 21, 1882.

Fig. 1.

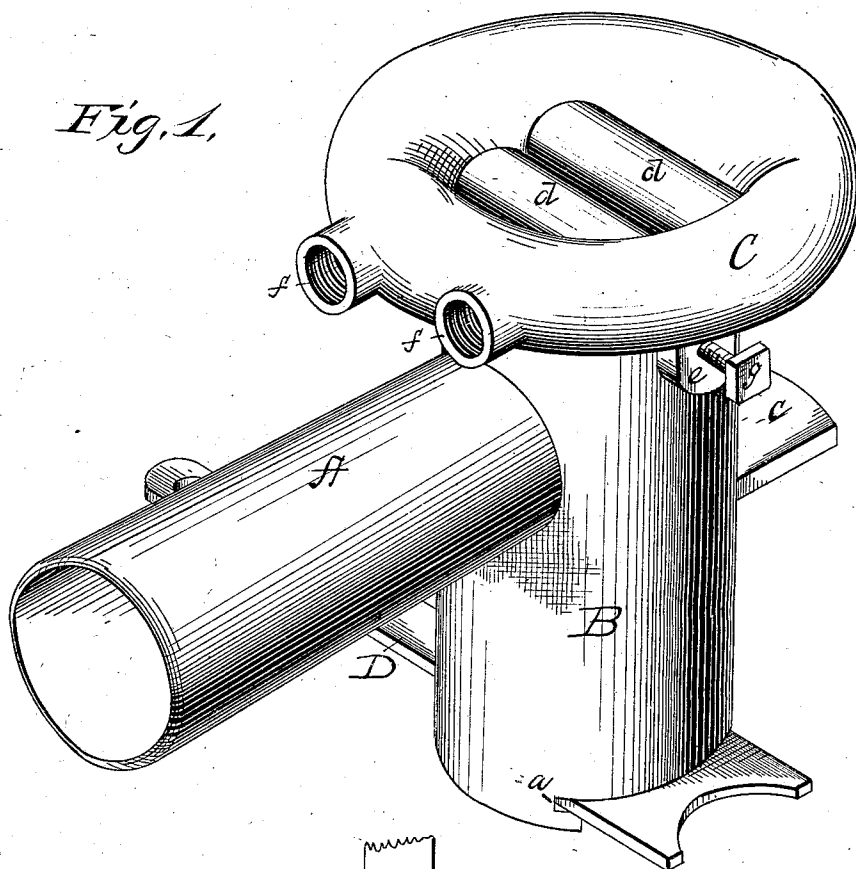
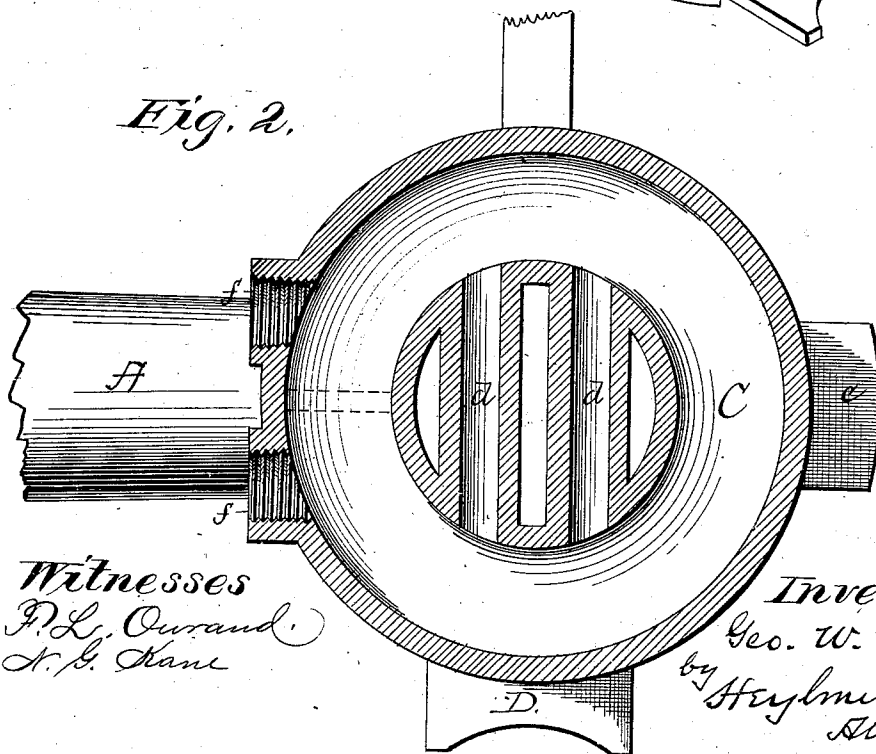


Fig. 2.



Witnesses
P. L. Ouraud,
A. S. Kane

Inventor:
Geo. W. Rigglin,
by Heylmunt Kaug,
Attorneys.

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Fig. 3.

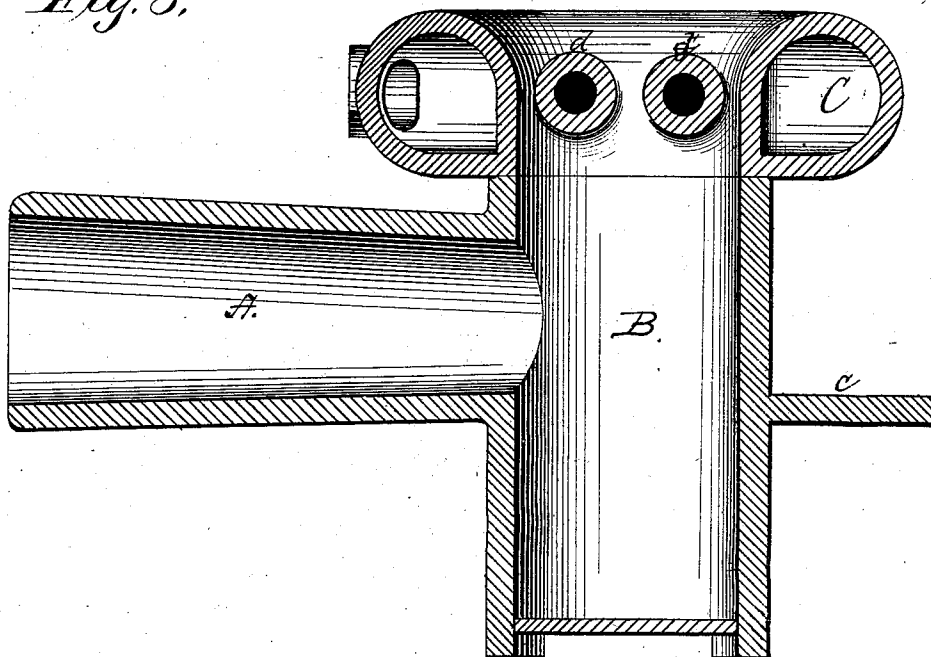
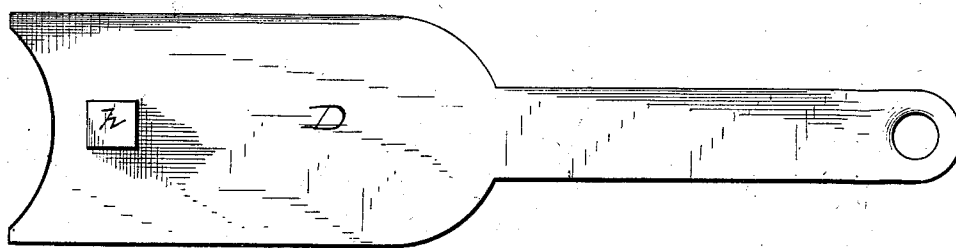


Fig. 4.



Witnesses:

C. L. Ormand

N. L. Kane.

Inventor.

Geo. W. Rigglin,

by Hyilmunt Kane
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE W. RIGGIN, OF MADISONVILLE, KENTUCKY, ASSIGNOR TO T. B. JONES, OF SAME PLACE.

TUYERE.

SPECIFICATION forming part of Letters Patent No. 255,193, dated March 21, 1882.

Application filed December 30, 1881. (No 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 smiths' forges and furnaces; and its object is to provide a tuyere-iron the face and grate of which are hollow, and which serve as the grate-bars of the fire, and are preserved from the effects of heat and slag by water.

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

In the accompanying drawings, Figure 1 is a perspective view of my improved tuyere ready for setting in position. Fig. 2 is a cross-sectional view taken through the center of the rim and grate-bars. Fig. 3 is a vertical central sectional view, showing also the extending plate which supports and retains the front of the tuyere in place; and Fig. 4 is a plan view of the movable bottom of the tuyere.

To manufacture my improved tuyere I cast the tuyere-pipe A and cylindrical chamber B in one piece, the latter being formed at the lower end with guideways or flanges *a* to receive the ash pan or plate. This chamber B is also formed with a lateral extending plate, *c*, for the purpose of affording means upon which the front end of the tuyere may rest, and by which it can be retained and fastened in the walls of the fire-place or furnace. I then cast the rim and face with grate-bars of the tuyere, which is composed of the circular hollow rim C, hollow grate-bars *d*, attaching-lugs *e*, and openings *f f'*, for attaching conducting and eduction pipes, for conveying water to and from the tuyere-face. The lugs or ears *e*, arranged opposite to each other, are provided with set-screws

g, by which means the top or face and the chamber of the tuyere are secured together, as seen in Fig. 1 of the drawings.

The letter D (see Fig. 4) represents the movable bottom of the tuyere, and this fits in the guideways *a* of the chamber B, and is provided with a stopping bolt or device, *h*, which serves as a stop and prevents the plate from being entirely withdrawn in usual course of emptying the chamber of slag and ashes.

From the foregoing description and reference to the drawings it will be observed that the tuyere is composed of three parts aside from the fastening-screws and stop-bolt—to wit: the cored face-rim and grate-bars, the cored tuyere-pipe and cylindrical chamber, and the movable bottom.

The parts formed as described are arranged for use by setting the tuyere-pipe and chamber in proper position, the same being sustained and secured therein by the tuyere-pipe on one side and the extending flange or piece on the other, and then setting the rim and face-piece on the top of the chamber and securing it in place by means of the screws in the lugs; or the rim and face may be set and secured in place before the tuyere and chamber-piece is set in place. After setting the tuyere-iron in position the pipes leading to and from the reservoir can be attached, the bottom plate can be fitted in position, and the device is ready for use.

The reservoir, with connecting-pipes for establishing a circulation of water in the tuyere, is shown in the patent granted to me for improvements in tuyeres, dated October 25, 1881, No. 248,794, to which reference may be made. If so desired, the rim may be cast with a partition between the pipe-holes, substantially as indicated by the dotted lines in Fig. 2 of the drawings. The water entering through the conducting-pipe fills the circular chamber of the rim, and crosses and fills the hollow grate-bars, and the result is that the iron of the rim and grate is not materially injured by the heat, and, being kept comparatively cool under the circumstances, the slag and cinders do not adhere.

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

1. In a tuyere, the circular hollow water-chamber formed with hollow transverse grate-bars connecting and opening therein, and pipe-connections, substantially as described.
- 5 2. In a tuyere, the circular hollow water-chamber formed with hollow transverse grate-bars, pipe-connecting means, and fastening-lugs, in combination with the chamber and tuyere-pipes, substantially as described.
- 10 3. The tuyere herein described, consisting of the circular hollow water-chamber formed with

connecting transverse grate-bars, the tuyere-pipe and chamber formed with the projecting piece, and the movable bottom, substantially as and for the purpose set forth. 15

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

GEORGE W. RIGGIN.

Witnesses:

ARCH. W. SLATON,
W. T. DAVES.