J. F. HAUSE.

Tuyere.

No. 222,041. Patented Nov. 25, 1879.

Fig. 1

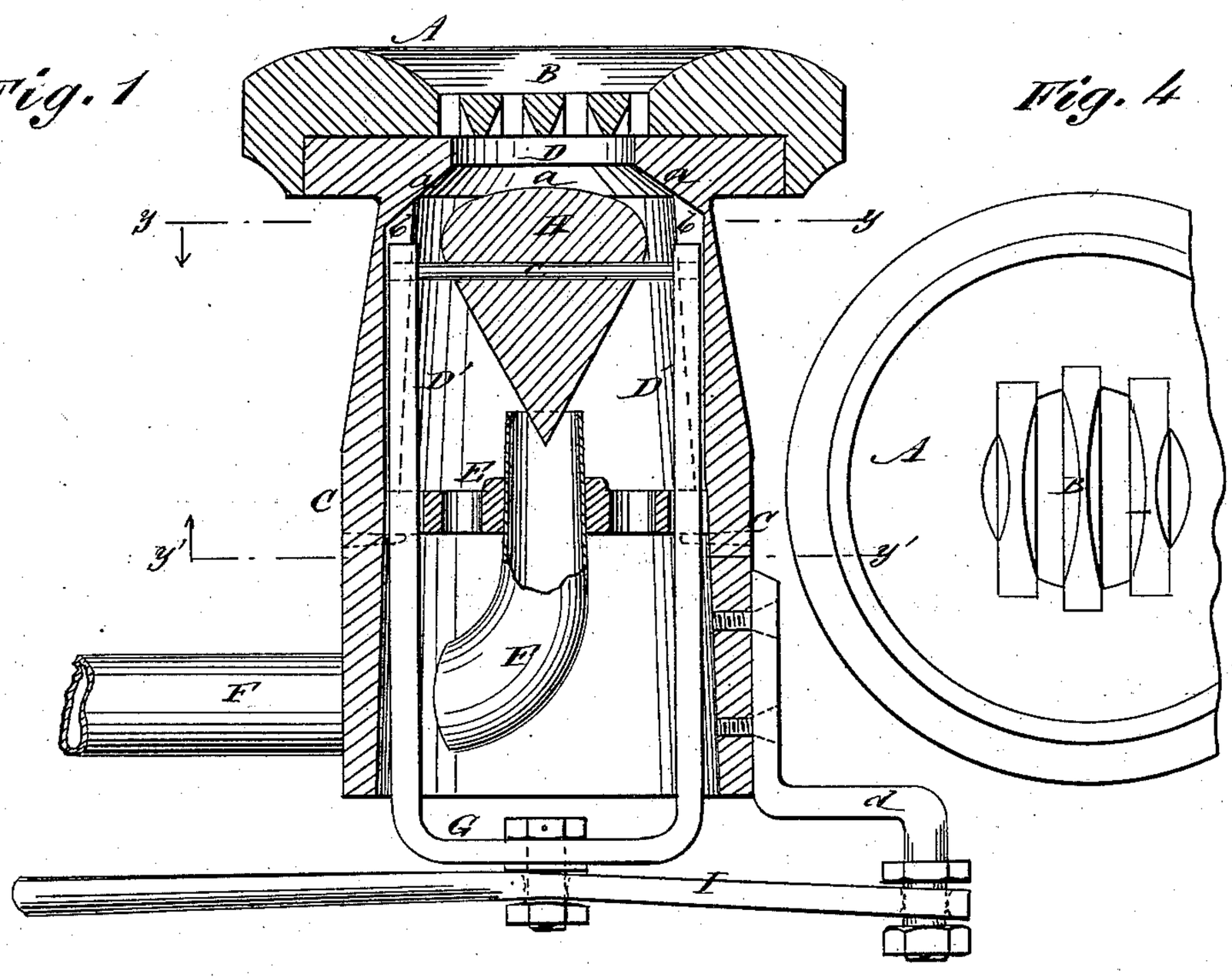
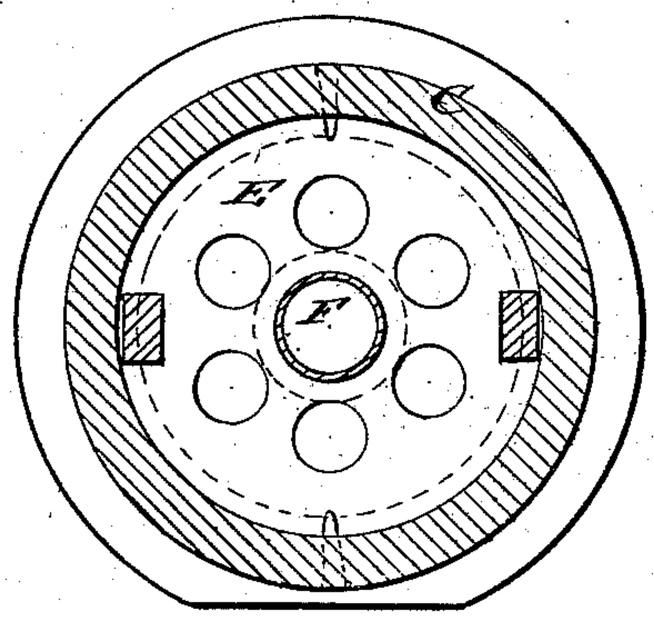


Fig. 4

Fig. 2

Fig. 3



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IMPROVEMENT IN TUYERES.

Specification forming part of Letters Patent No. **222,041**, dated November 25, 1879; application filed May 27, 1879.

To all whom it may concern:

Be it known that I, JOHN F. HAUSE, of Woodstock, in the county of Cherokee and State of Georgia, have invented a new and Improved Tuyere, of which the following is a specification.

This invention relates particularly to improvements in the construction and operation of tuyeres for blacksmiths' forges, the object whereof is to procure a more perfect control of the blast, and to prevent ashes, cinders, dust, &c., from falling into the orifice of the blast-pipe.

The invention consists in combining a grating, blast-pipe, a vertically-adjustable cone-valve with apex directly over the blast-pipe, a frame, and lever, all as hereinafter described.

In the accompanying drawings, Figure 1 is a vertical section of my improved tuyere on line *x x* of Fig. 2. Fig. 2 is a horizontal section on line *y y* of Fig. 1, looking downward. Fig. 3 is a horizontal section on line *y' y'* of the same figure looking upward; and Fig. 4 is a top view of the grating and hearth.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A is the hearth of the forge, having in the center a grate, B. Below the hearth is a barrel, C, the upper end whereof forms the mouth of the tuyere, and is designated by the letter D. The lower part, *a*, of this mouth is beveled outwardly, so as to form a conical seat for the valve.

About midway of the height of the barrel C is fixed inside a circular grating, E, and from this point upward the diameter of the barrel is contracted gradually to the seat *a*. The object of this construction of the upper part of the barrel is to deflect the blast upward toward the center from the sides after it has been spread out in a hollow cone by the valve, as will be hereinafter described.

The blast-pipe F is carried through the side of the barrel near its lower end, then curved upward and passed through a hole in the grating E, concentric to the barrel, said grating thus forming a collar for supporting the blast-pipe, the orifice whereof is thus made to fall under the center of the mouth D.

A right-angular frame, G, has its two side pieces or arms passed up through opposite slots in the periphery of the grating E and thence into ways *b b*, in the contracted portion D' of the barrel, above the grating. The upper ends of the arms are joined by a horizontal rod, *c*, on which is hung the valve H. This valve, it will be observed, is an inverted cone with a convex base, so hung that its apex falls right over the center of the orifice of the blast-pipe, while its base is just below the mouth of the tuyere.

The head of frame G is connected by a pivot with the lever I, fulcrumed in the end of right-angular arm *d*, projecting downward from the end of the barrel.

The operation of the tuyere is as follows: The blast from pipe F strikes the conical sides of the valve, and is spread out in a hollow cone toward the sides of the barrel; but, coming in contact with these contracted sides, it is deflected upward and inward, over the base of the valve, through the mouth D, and concentrated upon the center of the fire on grate B, whereby it its delivered in the most efficient manner.

By means of the lever the valve is raised and lowered to and from the seat *a*, so as to enable the mouth of the tuyere to be contracted or enlarged at will. By this arrangement perfect control is obtained over the blast.

The convex base of the valve makes a close connection with the seat *a* when required; and, in addition, the ashes, cinders, dust, &c., falling from the fire through the grate, strike on this convex surface and are deflected to the sides of the barrel, away from the entrance to the blast-pipe, and, falling on the grating E, pass through the openings therein and thence out of the barrel.

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

In a tuyere, the combination of barrel C, having inclined seat *a*, grating E, which is perforated to permit the cinders to pass, blast-pipe F, vertically-adjustable conical valve H, arranged with its apex directly over the blast-pipe, frame G, and lever I, substantially as described.

J. F. HAUSE.

Witnesses:
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