(No Model.)

P. SIMON.

TUYERE.

No. 369,746. Patented Sept. 13, 1887.

Fig. 1.

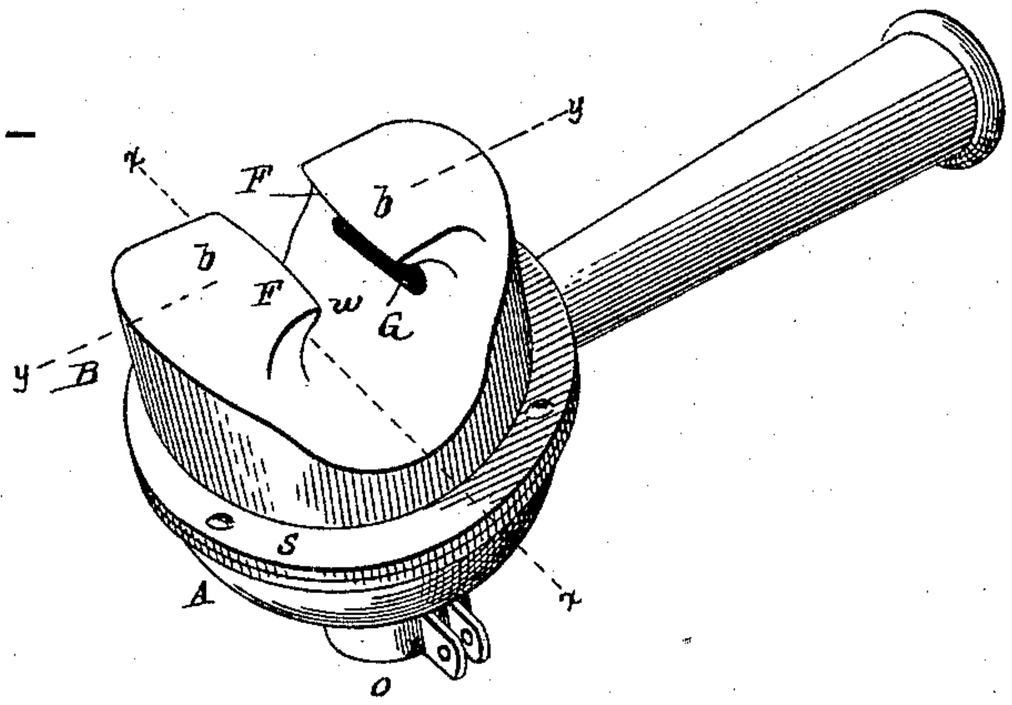


Fig. 2.

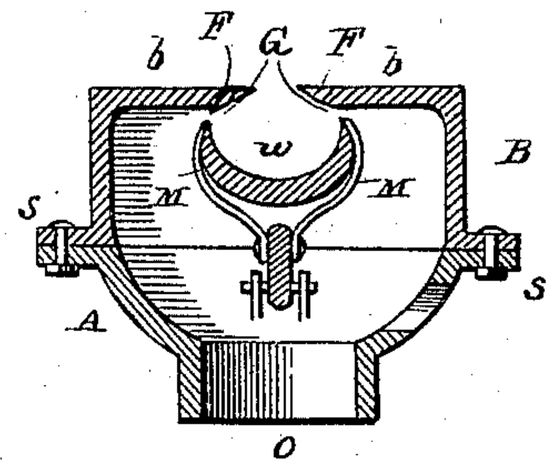
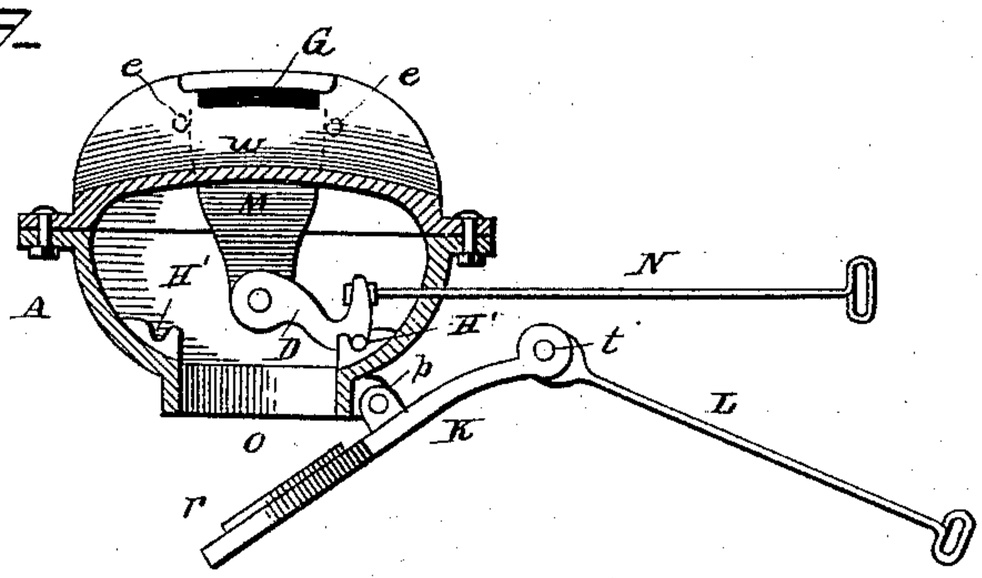


Fig. 3.



WITNESSES

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TUYERE.

SPECIFICATION forming part of Letters Patent No. 369,746, dated September 13, 1887.

Application filed March 22, 1887. Serial No. 231,944. (No model.)

To all whom it may concern:

Be it known that I, PHILIPPE SIMON, a citizen of the United States, residing at Green Bay, in the county of Brown and State of Wisconsin, 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.

My invention relates to a class of tuyeres having opposite side blast-issues raised above a concave fire-bed.

My invention consists in a novel construction of the crown-piece or fire-bed of the tuyere, provided with blast issues and deflectors which give a rotary or whirl blast and afford a deeper and hotter fire.

My invention also consists in a novel construction of the valve to regulate the blast-issue, whereby the volume of the blast may be diminished or increased without changing its direction.

My invention further consists in the novel construction and arrangements of the parts, hereinafter more fully shown and described.

Reference being had to the drawings forming part of this specification, Figure 1 is a perspective view of the tuyere. Fig. 2 is a longitudinal vertical section taken on the line *x x* of Fig. 1. Fig. 3 is a vertical cross section taken on the line *y y* of Fig. 1.

A denotes the lower part of the tuyere, with an opening at one side for the wind-pipe and an opening in the bottom provided with a valve-seat, *o*.

r is a hinged valve riding upon the lever R. This lever is hinged or swung to the tuyere at *p*, and is provided with a rod, L, journaled thereto at *t*.

S S are flanges made or cast integral with the upper and lower portion of the tuyere.

M M are valves to regulate the blast-issues G G, and are operated by the rod N and lever D.

B is the upper portion of the tuyere, and it is made or cast with the flattened crown-pieces *b b* and projecting lips or deflectors F F, blast-issues G G, and concave recess W, narrowed above and having concave flaring side openings, as seen in Fig. 1.

e e are guides to the valves M M.

The tuyere is made of two pieces or castings, A and B, provided with flanges S S, through which they are fastened in any suitable manner, forming together the air-chest. The lower portion may be built into a forge or permanently fastened. The upper portion may be readily removed in case of breakage or deterioration. The valve *r* is self-closing by the overpoise of the lever R, and may be opened by the rod L to remove ashes or cinders, or when it is desired to give a natural draft to keep the fire alive. The valves M M are made of thin flat steel springs of sufficient width to cover the blast-issues. They are journaled to the lever D and operated by the rod N. They have a vertical movement and embrace the inner walls of the concave recess W, riding upon the same, conforming to their curvilinear sides, and, by hugging them closely, alter little, if any, the shape of the blast-issues when partly closed, and thereby diminish the draft without changing its direction or character. These valves are prevented from lateral play by the guides *e e*, which are projections made in the castings. The lever D, for operating the valves M M, is reversible for a left-hand tuyere, and provision is made for journaling the same in such case at H′, as shown in Fig. 3. The crown-pieces *b b* are flat on top to form a bed from which the fuel may be heaped up over the recess W. The lips F F are beveled on the under side upwardly, but form a straight edge at the mouth of the blast-issue. They serve to intercept the upward escape of the opposite blast and deflect it downwardly and around the concave recess W, giving a whirl or rotary blast therein. The blast-issues, as shown in Fig. 2, are shaped to throw the blast straight out, causing the blasts to intersect and impinge against the opposite lip or deflector,

The recess W is narrowed at the top to nearly one-half of its greatest width, as shown in Fig. 2, and its side or end openings are made flaring to admit of the air being drawn in freely under the fire. This construction of the concave recess admits of the free use of the poker to stir the fire from below to remove slag and keep a clean fire.

Having thus described my invention, what

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

1. A tuyere having a concave fire-bed or recess, W, deflectors F F above said fire-bed, and cross blast-issues G G below said deflectors, said fire-bed having flaring end openings and narrowed at the top to about one-half of its greatest width by the projecting lips or deflectors F F, substantially as shown and described.

2. In combination with a tuyere having cross blast-issues, the spring-valves M M, located at the mouth of the blast-issue, the lever D, and rod N, said valves arranged to diminish or increase the size of the blast-issue, substantially as shown and described.

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

PHILIPPE SIMON.

Witnesses:

H. T. E. BERENDSEN,

WILLIAM HEYMAN.