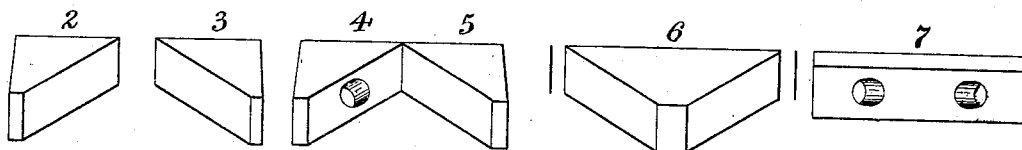
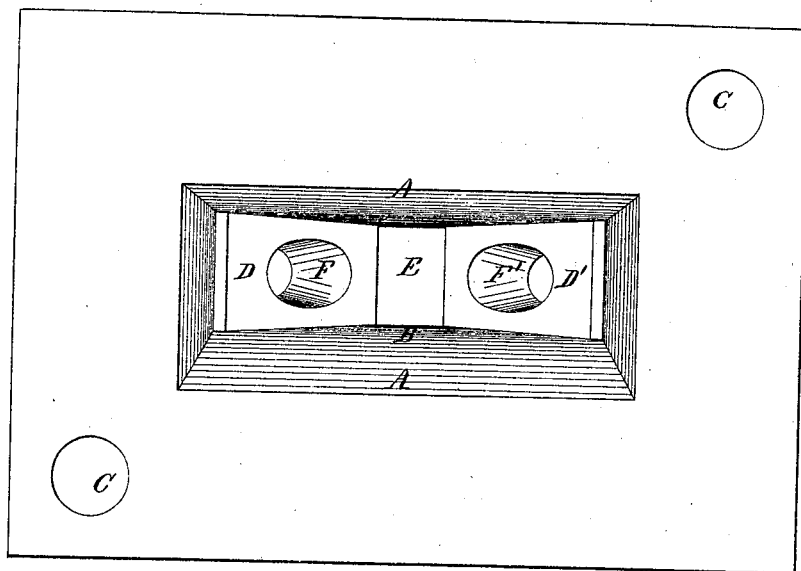


J. Fry,

Tuyere.

No. 112,914.

Patented Mar. 21. 1871.



Witnesses.

Lee P. Dean.

J. D. Egbertson.

Inventor.

John Fry.

UNITED STATES PATENT OFFICE.

JOHN FRY, OF SALISBURY, CONNECTICUT.

IMPROVEMENT IN TUYERES FOR BLAST-FURNACES.

Specification forming part of Letters Patent No. **112,914**, dated March 21, 1871.

To all whom it may concern:

Be it known that I, JOHN FRY, of Salisbury, in the county of Litchfield, in the State of Connecticut, have invented a new and Improved Tuyere for Blast-Furnaces; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

The nature of my invention consists in providing a blast-furnace with a wide-mouth tuyere, having in it changeable blocks, with flues through or between them, for dividing, enlarging or concentrating, and for directing the course of the blast.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I make a water-tight box of cast or wrought iron, or other suitable materials, the plate about three-eighths of an inch thick, eighteen inches long or wide, ten inches high, and twelve inches deep; it may be more or less.

Through the depth of the box, an equal distance from each side or end and from the top and bottom, I make a wind-passage or tuyere, as shown at A B in the accompanying drawing, twelve inches wide and four inches high at the mouth B, and twelve inches wide and five inches high at A A, where it connects with a wind-pipe of the same dimensions. Said tuyere is not necessarily made the size given above, but may be larger or smaller, varying the outside box with it. The balance of the space in the box surrounding the tuyere forms a water-chamber, and connects with water-pipes at C C. Said water-chambers are used to surround tuyeres in common use, and form no part of my claim. Said box is set with mortar in the wall of the furnace, in the usual place for furnace-tuyeres.

In the mouth or opening next the fire I fit some blocks of fire-brick or other suitable material, as D and D', with spaces between or flues through them, as E, F, and F', the space E being a direct passage, and flues F and F' oblique passages to the left and right.

The blocks D and D' can be removed and changed for other blocks, block, or plates or plate, of different size or shape, with or without flues, or with flues more or less oblique, some of which are shown by cuts 2, 3, 4, 5, 6, 7, thus directing the blast to any desired point or points in the furnace, and confining the blast to any desired capacity.

It is not my purpose to separate the blast in the box or tuyere A B, and through oblique tubes concentrate it again in the fire, as represented in the patent to Charles Foster, dated May 11, 1841; nor is it my purpose to use plates having oblique passages through them to concentrate the blast in the fire, as represented in the patent to Stiles and Graves, dated December 14, 1841; nor is it my purpose to change the shape or position of the fire by turning on pivots sector spherical blocks, as represented in the patent to George Campbell, dated March 22, 1870; but, rather, it is my purpose to concentrate the blast within the box or tuyere A B, and, through a single tube or passage, direct it to any desired point in the fire, and, by a change of blocks or plates having different-directed passage, to any other desired point, and, by changing for blocks or plates having more passages, direct the blast to several points in the fire at the same time, that, when any point in the furnace works cold, a blast may be brought to bear directly upon it.

Claim.

I claim as my invention—

The rectangular orifice A B through the rectangular water-chamber box, substantially as herein described, combined with the series of blocks or plates D and D', or 2 and 3, or 4 and 5, or 6 or 7, or substantially the same, for graduating or directing the blast, as and for the purpose set forth.

JOHN FRY.

Witnesses:

L. P. DEAN,
WM. H. DEAN.