

J. H. GARTSIDE.

Improvement in Tuyeres.

No. 131,750.

Patented Oct. 1, 1872.

Fig 2.

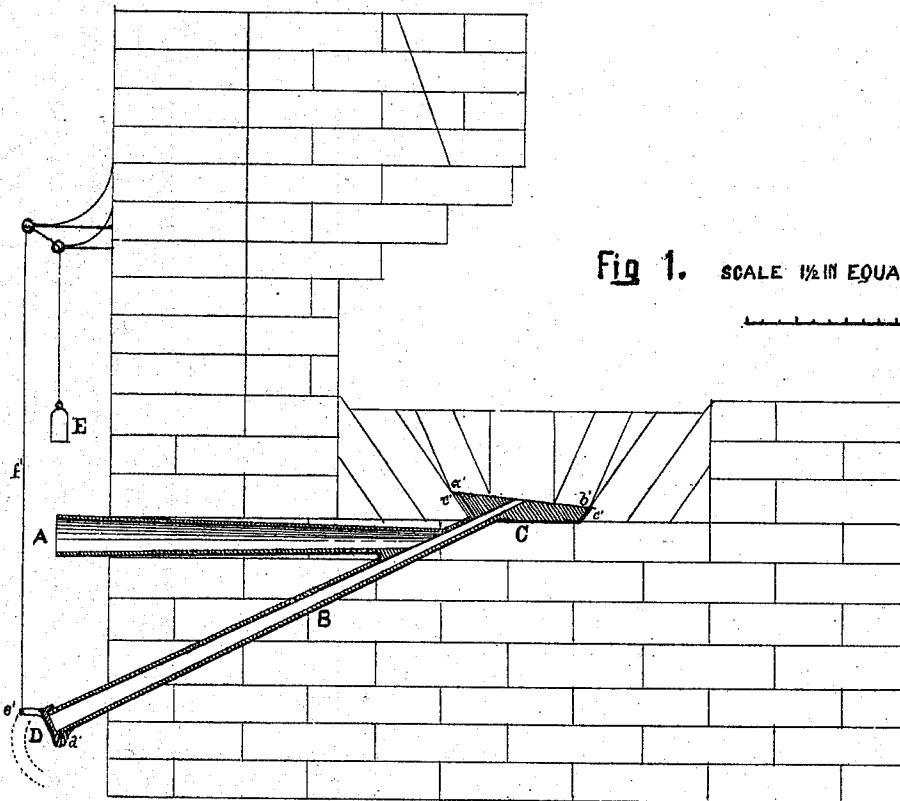
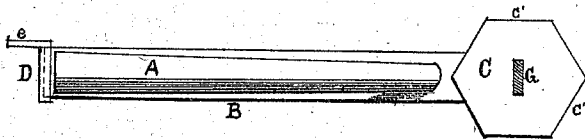


Fig 1. SCALE 1/2 IN EQUAL TO 1 FT

WITNESSES.

John B. Geysen.
William M. Gartside

INVENTOR

Joseph H. Gartside

UNITED STATES PATENT OFFICE.

JOSEPH H. GARTSIDE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN B. GEYSER, OF SAME PLACE.

IMPROVEMENT IN TUYERES.

Specification forming part of Letters Patent No. 131,750, dated October 1, 1872.

To all whom it may concern:

Be it known that I, JOSEPH H. GARTSIDE, of the city of Pittsburg, county of Allegheny and State of Pennsylvania, have invented certain Improvements in Tuyeres for Blacksmiths' Fires, of which the following is a specification:

My invention relates to the improvement of tuyere-irons, so as to avoid many of the troubles incident to the working of blacksmith fires, such as the choking of air-passage by clinkers and dust; the collection of gas from the fire in the bellows, by which many are destroyed; the maintaining of the fire when not in use; and the production of a clean heat upon the iron at all times, as well as the obtaining of a direct blast from the bottom of the fire, and allowing the same to be cleaned with greater ease by the workman. To accomplish this I have added to the ordinary tube into which the bellows-nozzle or blast-pipe fits a second tube, which the first strikes at an angle a short distance below the fire bed or box. This angle may be of any number of degrees, although I prefer it at twenty-five. At the upper end of this tube, a short distance from the connection of the two, is the fire-bed or bottom-plate of the fire. This plate is made of any desired size, and is thicker on the back than at the front, so as to produce a slope and allow the clinker and refuse to settle at the front edge. The edge of the bed-plate is squared off all round, so as to suit to an ordinary-sized brick. Any number of sides can thus be put upon the plate, but six sides will ordinarily be enough. These edges are sloped from the outside of the top of the plate inward to the bottom thereof, so as to give the bricks placed around it a cant and make the nest in which the fire is placed larger at the top of the bricks than at the bottom. The opening in the attached tube can be of any desired shape; but I prefer it of an oblong square. This opening increases in size from the discharge in the bed-plate to the other end, so that any dust or clinker that may pass into it out of the fire shall have an unobstructed passage to the bottom or end below. Attached to the lower end is a small flap or door-valve, hinged, so that at the will of the workman it can be closed or opened.

In the accompanying drawing, Figure 1 is

a vertical side sectional view of my invention, showing the tuyere in position; and Fig. 2 is a top-view of the tuyere, showing the shape of the fire-bed plate.

The same letters of reference apply to both.

A is the round tube or pipe into which the nozzle of the bellows or blast-pipe fits. It tapers to a smaller size, until it strikes and enters the second tube set at any required angle, and marked B. The passage in the said tube tapers on upward until it makes its exit in the bed-plate C. This bed-plate has its edges *c'* squared, so that the corners will be apart the width of an ordinary brick, and has a slope to the front marked *a' b'*, to allow refuse to slide in that direction and accumulate in front of the opening by which the blast enters the fire. At the bottom of the tube B is a flap or door-valve, D, attached to the tube by the hinge *d'*, and having an arm, *e'*, to which a cord, *F'*, is fastened. The said cord passes up along the side of the forge and through two eyelets or other analogous arrangement, and has at its other end a weight, E, which, when hanging free, keeps the said door-valve D closed.

The tuyere being in place, and the fire in order, the workman allows the weight E to hang free, which closes the door-valve D. The blast being put on, the air rushes through the opening G in bed-plate C, and gives him his heat. Should any dust or clinker get into this opening it passes down the tube B and accumulates against the door-valve. Cinder in a fluid state runs along the incline *a' b'* and accumulates at the front edge of the fire-bed. Should the workmen desire to leave the fire for other work, he lifts the weight E and places it upon the forge, thus relieving the door-valve D, which by its own gravity falls open, and the dust escapes out of the tube, while at the same time a natural draft of air is introduced into the fire-nest, preventing it from going out, and not allowing any gas to pass from the fire into the bellows, to their detriment. Should the clinker accumulate too much on the front of the incline the workman must clean it off; but at most this will be necessary but once or twice a day, instead of every hour, as is usual in ordinary fires. The blast being forced into the bottom of the fire, there is no chance for

the sulphur in the coal to act upon the iron and spoil it, and good welding heats can be obtained without the use of sand or other accessories. These advantages have been practically proven.

I make no claim to the tapering round tube A, for the reception of the nozzle of the bellows or blast, for that is in common use; but

I claim as my invention—

1. The angular fire-bed plate C, the slope a' b' , and beveled edges c' c' at the upper end of the tube B, substantially as and for the purposes hereinbefore set forth.

2. The combination of the tubes A and B, the bed-plate C, and door-valve D, substantially as shown and described, and for the purposes hereinbefore set forth.

In testimony whereof I have hereto set my hand and seal this 10th day of June, A. D. 1872.

JOSEPH H. GARTSIDE. [L. s.]

Witnesses:

JOHN B. GEYSER,

WILLIAM N. GARTSIDE.