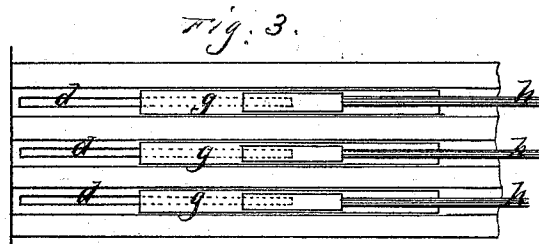
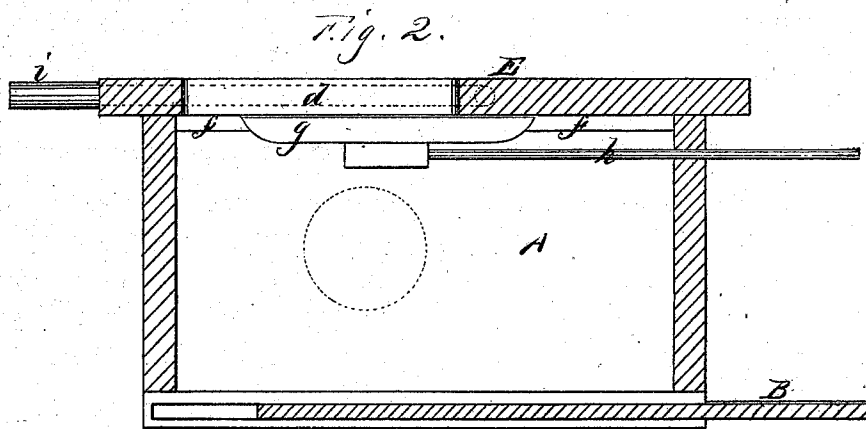
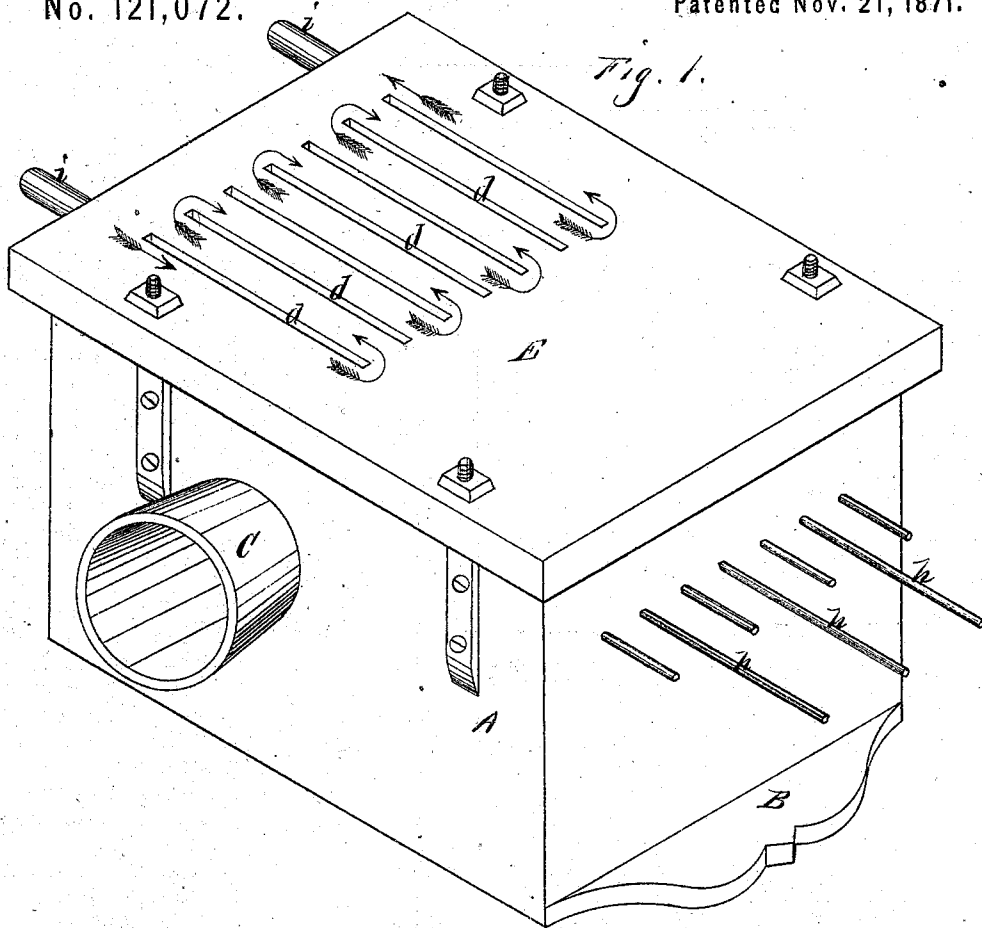


A.M. Worthing.

No. 121,072.

Tuyere.

Patented Nov. 21, 1871.



Witnesses.
 Geo. H. Strong
 A. Moore

Inventor.
 A.M. Worthing
 By his Atty's
 Daway & Co.

UNITED STATES PATENT OFFICE.

ALFRED M. WORTHING, OF RENO, NEVADA.

IMPROVEMENT IN TUYERES.

Specification forming part of Letters Patent No. 121,072, dated November 21, 1871; antedated November 13, 1871.

To all whom it may concern:

Be it known that I, ALFRED M. WORTHING, of Reno, county of Washoe, State of Nevada, have invented an Improved Tuyere; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My invention relates to an improved tuyere for blacksmith and other forges; and it consists of a box into which the blast is driven, and from which it is delivered upon the fire through slots in the top of the box.

The blast is regulated by slides which open or close the slots, as desired. A water-pipe is coiled so as to surround the blast-openings, in order to keep the tuyeres cool and prevent the cinders from adhering to the fire-surface.

In order to more fully illustrate and explain my invention, reference is had to the accompanying drawing forming a part of this specification, in which—

A represents a square metallic box having a sliding bottom, B, which can be removed when desired. In the side of this box is an opening to receive the nozzle C of a bellows or other blast-producing device. The top E of the box is provided with a number of parallel slots, *d d d*, which pass through the top at a short distance apart, so as to form a grate, over which the fire is made. The top E is made in two plates, between which are grooves for the passage of the pipes *i* around the slots *d*. When the pipes are in position the two parts or plates are secured together by means of suitable screws and nuts. Underneath this top are formed ways *f*, extending its entire length, one of which is in line with each of the slots *d*. Slides *g* move in these ways, being operated by rods *h*, which extend out

through the front of the box A, as shown, so as to be within easy reach of the workman. These slides are of sufficient length to entirely close the slots *d*, when they are moved under them, by means of the rods, and serve to regulate the blast from the tuyere to the fire. A pipe, *i*, one end of which is connected with the bottom of a water-barrel suitably placed, enters the top E at the rear side of the tuyere, near one corner, and passes around the slots, as indicated by the arrows, passing out again at or near the opposite corner. This last-mentioned end of the pipe leads into the top of the same barrel from the bottom of which the opposite end leads, so that a constant circulation of water is maintained at all times around the grate, which keeps it cool and prevents the cinders from clinging to the grate.

This tuyere is to be placed on a suitable foundation in the forge and the fire made directly upon the grate in the top of the box.

The blast from the tuyere upon the fire passes up through the slots *d*, and is regulated by moving the slides *g* back or forth, so as to open or close the slots, as desired. Any ashes or cinders which may fall through the slots into the box can be removed by taking out the sliding bottom B.

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

The box A, having a sliding bottom, B, and provided with the parallel slots *d* on its upper surface, in combination with the adjustable slides *g* and water-pipe *i*, substantially as and for the purpose above described.

In witness that the above-described invention is claimed by me I have hereunto set my hand and seal.

ALFRED M. WORTHING. [L. S.]

Witnesses:

J. F. PEACOCK,
M. MOORE.

(12)