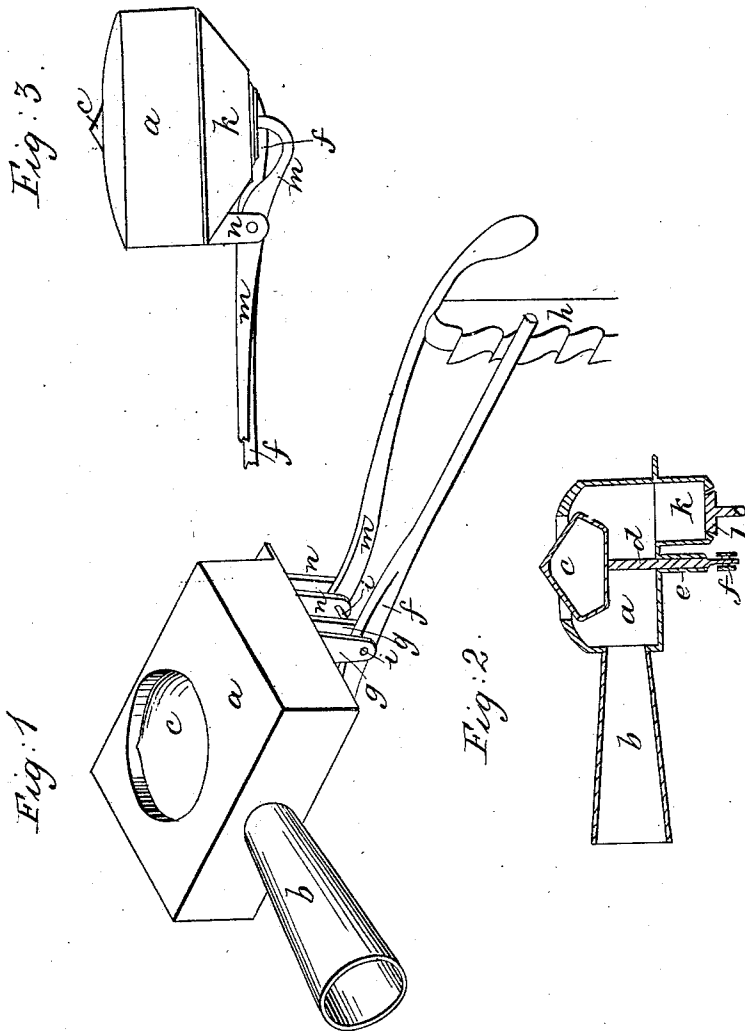


R. D. PORTER.

Tuyere.

No. 6,217.

Patented March 27, 1849.



UNITED STATES PATENT OFFICE.

ROBERT D. PORTER, OF HARPERS FERRY, VIRGINIA.

CONICAL VALVE IN TWYERS.

Specification of Letters Patent No. 6,217, dated March 27, 1849.

To all whom it may concern:

Be it known that I, ROBERT D. PORTER, of Harpers Ferry, in the county of Jefferson and State of Virginia, have invented a new and Improved Twyer for Blacksmith's Forges; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, is a perspective view; Fig. 2 a vertical section, and Fig. 3, an elevation.

Similar letters indicate like parts in both figures.

My improved forge twyer is composed of the air box *a*, of the form represented in the drawings, and the various parts connected therewith, as hereinafter set forth.

b, is the tube for connecting the air box of the twyer with the bellows, or other blowing apparatus.

The box *a*, is cast with an aperture in its top, round or oval, to the inner edge of which is accurately fitted the conical valve *c*, terminating in a point, as shown in the drawings.

The stem *d*, of the valve (*c*), passes down through the guiding tube *e*, projecting from the bottom of the air box; the lower end of the stem *d*, is jointed to the lever *f*, which sustains the valve *c*, and by which its position is adjusted: the lever *f*, is supported by the joint pin *i*, between the lugs *g*, *g*,—descending from the bottom of the front side of the air box. The outer end of the lever *f*, is supported by notches in the standard *h*, or in any other convenient manner—by means of which its position can be readily adjusted, for the purpose graduating the position of the valve *c*, and thereby increasing or diminishing the space between the same and the sides of the aperture in the box *a*, for regulating the discharge of air to the fire, as circumstances may require. On the opposite side of the air box (*a*), from the bellows tube (*b*), there descends from the bottom of the box an ash pit (*k*), (Fig. 2,) the sides of which incline downward toward the center of its base, (as shown in Fig. 3) in which is located the valve *l*, opening downward; the stem of the valve *l*, is jointed to the balance lever *m*; the lever *m*, works on the fulcrum pin *i*, between the lugs *n*, *n*; and its front end is sufficiently heavy to close the valve *l*. The valve *c*, being of a

conical shape the air in escaping around it from the air box, will act upon its entire exposed surface and prevent it from being injured by fire. The pointed shape of the valve also facilitates the free discharge of the ashes and cinders into the ash box, and prevents their accumulation above the valve. Should any ashes or cinders lodge in the air space about the valve, they can be readily removed by elevating the front end of the lever *f*, suddenly, and bringing it back to its rest again. The strength of the blast as it enters the air box *a*, through the pipe *b*, drives the ashes and cinders, as they fall through the valve opening, forward into the ash pit: the smith can at any moment discharge the ashes and cinders from the ash pit by elevating the front end of the lever *m*, and thereby opening the valve *l*.

I generally cast the air box *a*, the pipe *b*, the vertical guiding tube *e*, and the ash pit *k*, all in one piece.

In practice it is found that the forge fire has no injurious action upon the top of the air box *a*, or the valve *c*; the air within the box, and its passage therefrom over the face of the valve, serving as a perfect protection from injury from this cause.

In constructing the masonry of the forge for the reception of my improved twyer, an aperture must be formed in the front wall thereof, and a passage extended therefrom under the twyer; through this passage and aperture, the levers *f*, and *m*, extend out within a convenient distance of the smith working at the forge; and into the rear end of the passage, the cinders and ashes are discharged from the ash pit of the twyer, from which they may be removed by a scraper inserted into the opening in front; or in any other suitable manner.

Having thus fully described my improved forge twyer, what I claim therein as new and desire to secure by Letters Patent, is—

The giving the movable valve *c*, the form of a cone for the purpose of facilitating the discharge of the ashes and cinders into the air box and ash pit, and for protecting the valve from being injured by the fire, substantially as herein set forth.

ROBT. D. PORTER.

Witnesses:

Z. C. ROBBINS,
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