T. McCAFFERY.

Tuyere.

No. 220,766. Patented Oct. 21, 1879.

Fig. 1.

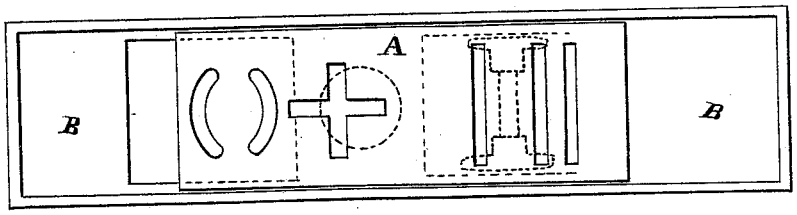


Fig. 2.

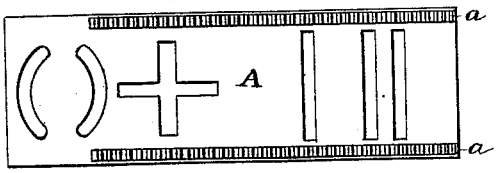
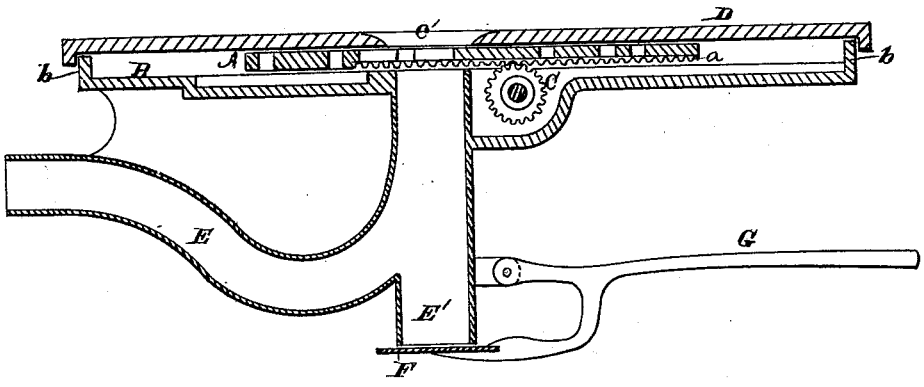


Fig. 3.



Witnesses

Geo. H. Strong.

Frank A. Brooks

Inventor

Thomas McCaffery

By Dewey & Co.

attys

UNITED STATES PATENT OFFICE.

THOMAS McCAFFERY, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN TUYERES.

Specification forming part of Letters Patent No. **220,766,** dated October 1, 1879; application filed March 3, 1879.

To all whom it may concern:

Be it known that I, THOMAS McCAFFERY, of the city and county of San Francisco, and State of California, have invented an Improved Tuyere for Blacksmiths' Forges; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improved tuyere for blacksmiths' forges; and my improvements consist in providing a flat metal plate provided with perforations of different sizes and shapes, said plate having rack-bars on its lower edges, so that a rack-wheel operated by a crank may move said plate back or forth in a case provided for it, enabling the workman to bring either one of the perforations under the hole in an upper plate through which the air passes from the bellows to the fire. In this way, either one of the various styles of blast-openings may be used, according to the work in hand.

In the accompanying drawings, Figure 1 is a top view with the cover removed. Fig. 2 shows the under side of the slide or perforated plate. Fig. 3 is a longitudinal section of the device.

Let A represent a slide or plate, which is perforated, as shown, at different points, said perforations being of different shapes, so as to admit air in a different manner to the fire, as hereinafter described. This plate rests on a metal box or base, B, which is placed in the bottom of a blacksmith's forge.

On the bottom of the plate A are rack-bars *a*, which engage with the wheel C, and a crank is secured to said wheel, so that by its movement the plate A is slid back and forth in its box. This box has flanges or edges *b* turned upward, and on these edges rest an upper plate or cover, D, as shown, the sliding perforated plate being thus inclosed, as shown. This upper plate or cover, D, has a central opening, *c'*, and the sliding perforated plate may be moved back or forth under it, so as to bring any one of the sets of perforations under this opening *c'*, and between it and the blast-pipe E. The blast-pipe E has an extension, E', at the lower end of which is a valve, F, controlled by a weighted lever, G.

In case any cinders or refuse pass through the openings in the plates they fall down the pipe onto this valve, and when they accumulate sufficiently the weight of the lever is overbalanced and the valve opens, discharging the refuse. When the weight on the valve is thus relieved it again closes the opening at the lower end of the pipe.

The openings in the sliding plate are made in any desired shapes—single, double, or variously formed. Either of these openings may be brought into position beneath the blast-opening of the forge. Between these openings is a closed space, which serves as a cut-off when desired.

The air from the blast-pipe, instead of being brought into a box or distributed under the forge, is brought from the bellows in a curved pipe, so that the current will not be broken, but will pass directly to the forge.

I am aware that tuyeres have been made having a rotary valve or a sliding valve, by the operation of which air is admitted to or cut off from the fire, and I do not therefore claim, broadly, valves for this purpose; but

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

The plate D, having the central opening, *c'*, and the plate A, provided with perforations of different sizes and shapes, in combination with rack and pinion *a* C and pipe E, having its mouth lying against plate A, as set forth.

In witness whereof I have hereunto set my hand.

THOMAS McCAFFERY.

Witnesses:

CHAS. G. YALE,

FRANK A. BROOKS.