C. H. EDWARDS.

TWYER.

No. 30,805. Patented Dec. 4, 1860.

Fig: 1

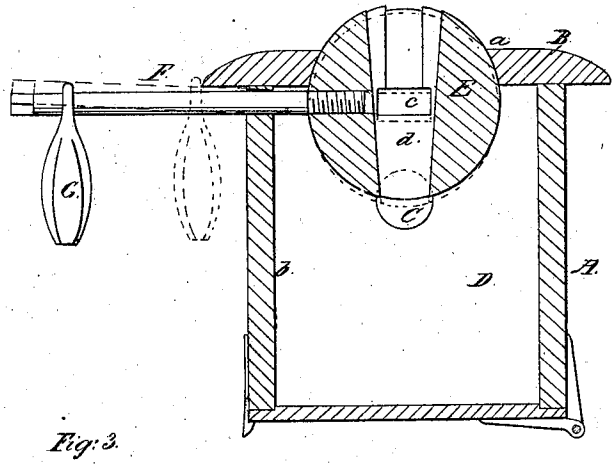


Fig: 3.

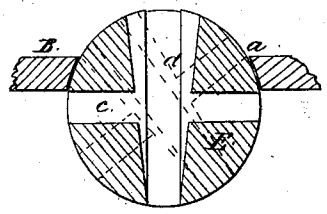


Fig: 2.

Witnesses:

H. W. Coombs.

R. S. Spencer

Inventor:

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by Munn & Co Attys

UNITED STATES PATENT OFFICE.

C. H. EDWARD, OF VERGENNES, VERMONT.

IMPROVED TUYERE.

Specification forming part of Letters Patent No. **30,805**, dated December 4, 1860.

To all whom it may concern:

Be it known that I, C. H. EDWARDS, of Vergennes, in the county of Addison and State of Vermont, have invented a new and Improved Tuyere; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention taken, in the line *x x*, Fig. 2; Fig. 2, a plan or top view of the same; Fig. 3, a detached sectional view of the sphere or ball, taken in the line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in having a sphere or ball fitted in the bed or plate of the forge and in the upper part of a wind-chamber formed in the masonry of the forge, the ball being provided with wind-passages of different dimensions, and so arranged that it may be turned and either of the wind-passages made to communicate with the wind-chamber and the fire, and also any two of the wind-passages made to communicate with the wind-chamber and the fire, as occasion may require.

The object of the invention is to control as perfectly as may be the action of the blast on the fire, so that the operator may extend or diminish the area of the same, as the nature of the work may require.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the masonry of a forge, which supports the bed or plate B, on which the fire is built. C is a pipe which receives the nozzle of the bellows, the pipe C communicating with a wind-chamber, D, formed by the walls of the masonry.

In the bed or plate B a circular opening, *a*, is made, through which a ball or sphere, E, projects a certain distance. This ball E is attached to the end of a shaft, F, which passes through one of the walls, *b*, of the masonry and has a sliding weight, G, placed on it.

The shaft F is allowed to turn freely in the wall *b*, and the ball E has two or more openings, *c d*, made entirely through it. These openings or passages vary in size, and they may be equal in diameter throughout, as shown by the opening *c*, or of taper or conical form, as shown by the opening *d*.

The opening *a* in the bed or plate B is of sufficient diameter to allow the upper part only of the ball E to project through it, and when the weight G is at the outer part of the shaft F said weight will keep the ball E snugly up in its seat in plate B, as shown in black in Fig. 1.

The operation is as follows: The chamber D is supplied with wind by means of the bellows, and when a small fire is required the ball E is turned so that the smaller passage *c* will form a communication between the wind-chamber and the fire. When a larger fire is required the ball E is adjusted so as to cause the larger opening *d* to form the communication between the wind-chamber and fire. A still larger fire may be obtained by allowing both openings *c d* to communicate with the fire and wind-chamber, as shown by the red lines in Fig. 3, and the largest fire may be obtained by adjusting the weight G on shaft F near the wall *b*, so that the ball E will not be retained up in its seat, and consequently a space allowed all around it between it and its seat or the edge of opening *a*, as shown in red, Fig. 1. This opening, in connection with the openings or passages in the ball, being all allowed to communicate with the fire, will cause the same to be extended over a considerable area.

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

1. The employment or use of the ball E, attached to a suitable shaft, F, provided with openings or passages, one or more, which extend entirely through it, and placed in the relation with the bed or plate B and wind-chamber D as shown, to operate as and for the purpose set forth.

2. Arranging the shaft F of the ball E in such a way that a weight, G, may be placed on said shaft, to operate as and for the purpose specified.

C. H. EDWARDS.

Witnesses:
HENRY DORR,
WM. T. HAVEN.