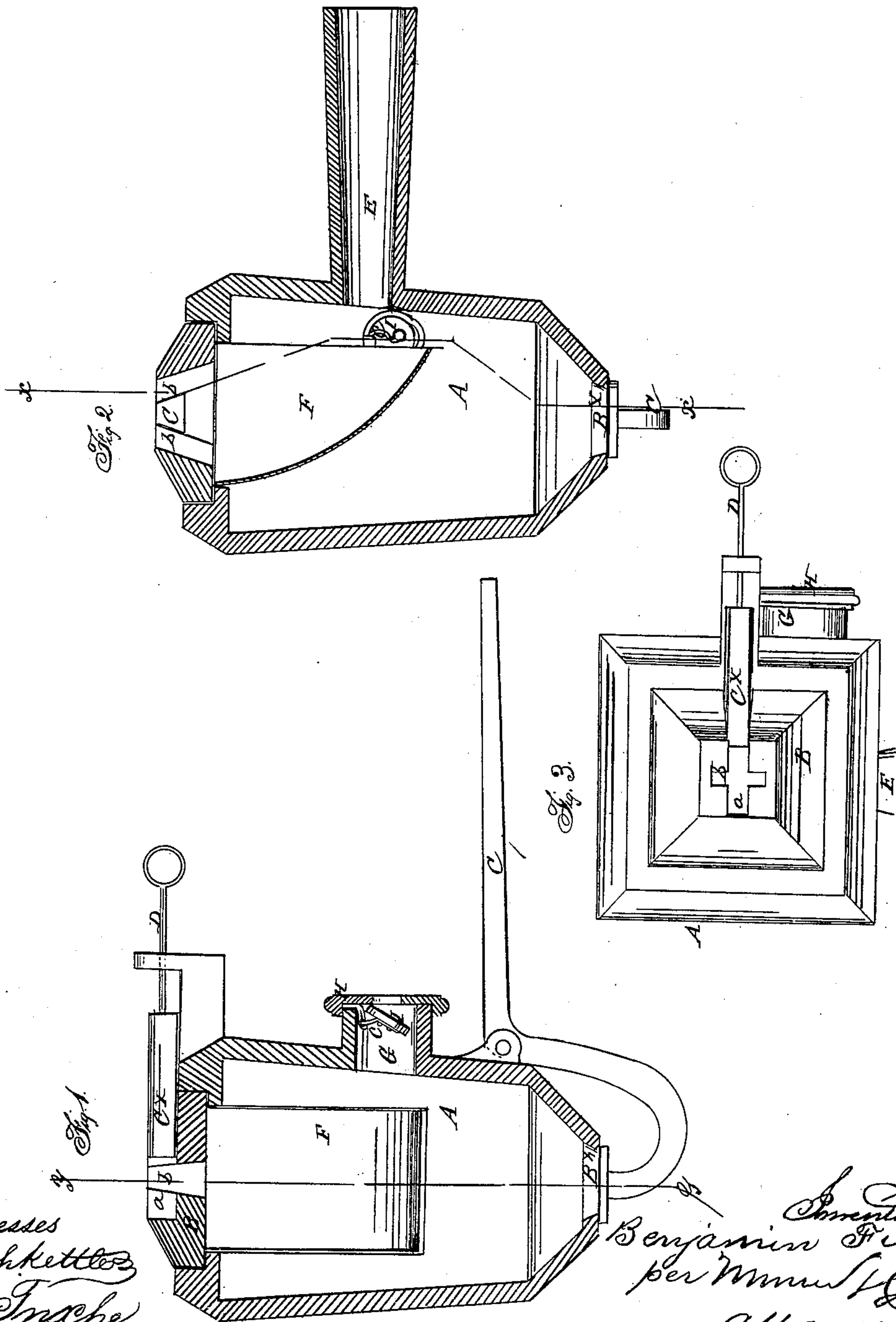


B. FISH.
TWYER.

No. 75,007.

Patented Mar. 3, 1868.



Witnesses
H. C. Ashkett
Theo. Trache

Inventor
Benjamin Fish
per Wm. S. G.
attorneys

United States Patent Office.

BENJAMIN FISH, OF MECHANICSBURG, PENNSYLVANIA.

Letters Patent No. 75,007, dated March 3, 1868.

IMPROVED TUYERE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, BENJAMIN FISH, of Mechanicsburg, in the county of Cumberland and State of Pennsylvania, have invented a new and improved Tuyere; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved tuyere for regulating the blasts of forge-fires, and it consists in a peculiar construction and arrangement of parts, as hereinafter shown and described, whereby several advantages are obtained, as will be presently set forth. In the accompanying sheet of drawings—

Figure 1 is a vertical section of my invention, taken in the line *x x*, fig. 2.

Figure 2, a vertical section of the same, taken in the line *y y*, fig. 1.

Figure 3, a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

A represents a box, which may be of wrought or cast iron, of quadrilateral form, and gradually diminishing in diameter from its top to its lower end, as shown in figs. 1 and 2. At the lower end of this box there is a valve *B^x*, attached to a lever *C*, and by actuating this lever at any time the valve may be opened, and the contents of the box discharged. In the top of the box *A* there is fitted a plate, *B*, which is provided with two slots, *a b*, crossing each other at right angles, as shown clearly in fig. 3. One of these slots, *a*, is rather longer and wider than the other, *b*, and the principal slot *a* has dove-tail sides and a slide, *C^x*, fitted in it, to which a rod, *D*, is attached, said rod extending out within convenient reach of the operator, so that the slide *C^x* may be adjusted to increase or diminish the capacity of the slots, *a b*, as occasion may require.

The principal slot *a* may, if necessary, be entirely closed, so that the blast can only pass through the ends of the slot *b* at each side of slide *C^x*. This is a great advantage in certain cases, as, for instance, in welding tires for wheels.

The top-plates *B* may be of different forms, different ones being inserted of a more or less conical form, as the nature of the work may require, but all provided with the slots *a b*, and the slide as above set forth, although the slots may vary in size.

E represents the socket into which the nozzle of the bellows is inserted; and *F* represents a deflector, which is placed within the box *A*, and serves to direct the blast up to the slots *a b*, as will be fully understood by referring to fig. 2, a space being allowed between the deflector and the side of box *A*, to admit of the escape of clinkers and dirt.

In the side of the box *A* there is a tube, *G*, through which air is admitted into the box. The outer end of this tube is covered by a cap, *H*, which is perforated at its centre, and is provided with a valve, *I*, at its inner side, said valve being attached or suspended in such a manner, by a link, *c*, that it will remain open when no blast is forced into box *A*. This will be fully understood by referring to fig. 2.

When the bellows is in operation, the valve *I* will be closed under the force of the blast.

By means of this automatic valve, gas cannot accumulate in the box *A*, and produce an explosion, as is not unfrequently the case in many of the ordinary tuyeres in use, and the cold air which is admitted into the box by the opening of said valve keeps the box cool, and prevents it, and particularly the plate *B*, from burning.

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

The improved tuyere, herein described, constructed and arranged substantially as set forth.

BENJAMIN FISH.

Witnesses:

B. F. ATKINSON,

JAMES S. HOUSTON.