J. O. Jones,

Tuyere.

No. 98976. Patented Jan. 18. 1870.

Fig. 1.

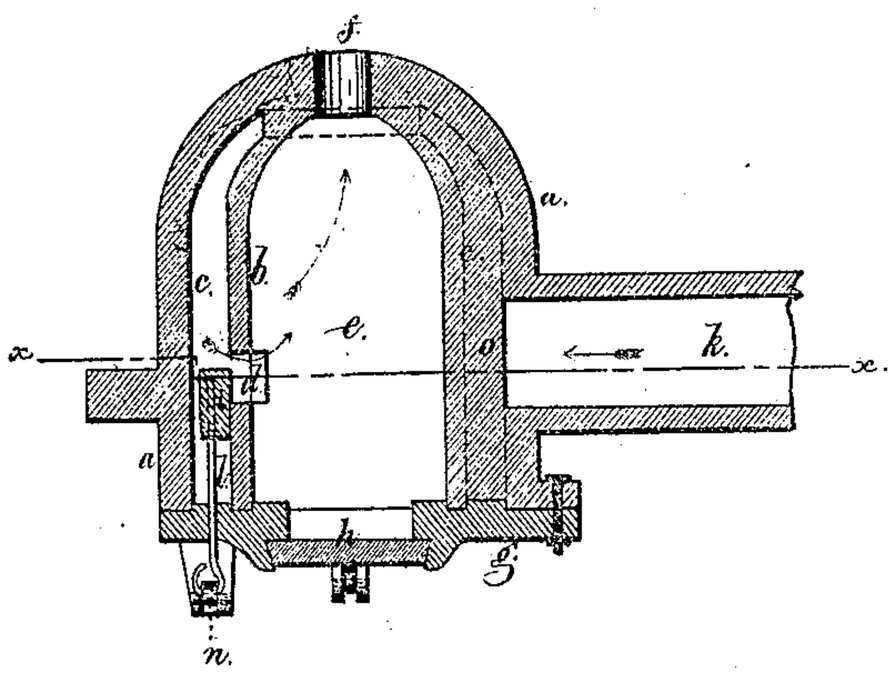


Fig. 2

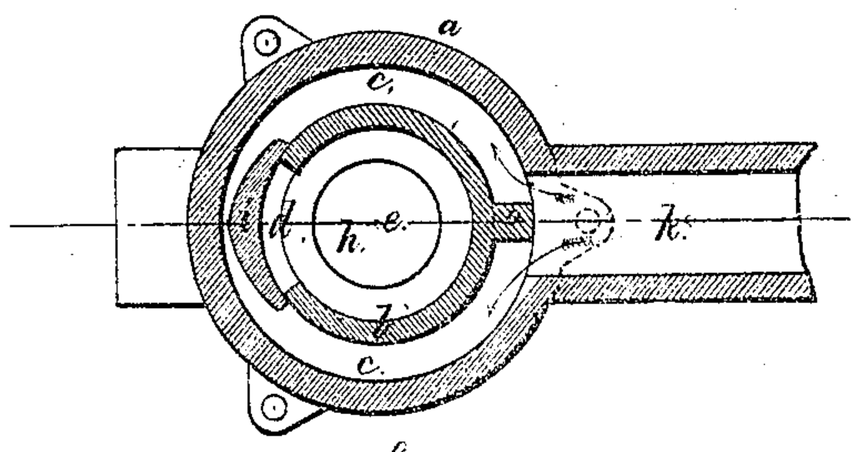
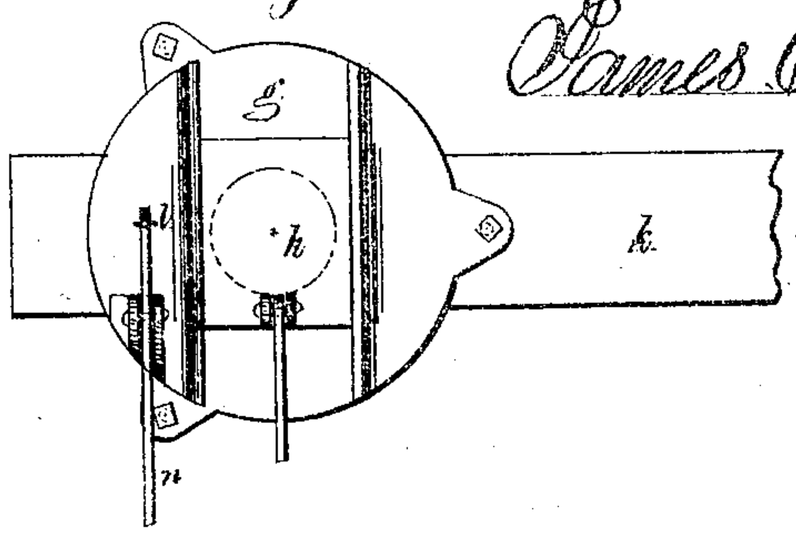


Fig. 3.



Witnesses.

Chas. H. Smith

Geo. D. Walker.

James O. Jones

United States Patent Office.

JAMES O. JONES, OF BROOKLYN, E. D., NEW YORK, ASSIGNOR TO HIMSELF AND CHARLES HUBBARD, JR., OF SAME PLACE.

Letters Patent No. 98,976, *dated January* 18, 1870.

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, JAMES O. JONES, of Brooklyn, E. D., in the county of Kings, and State of New York, have invented and made a new and useful Improvement in Tuyeres; and the following is declared to be a correct description of the same.

In blacksmiths' forges, the gases from the fire often draw back into the blast-pipe, when the blast is shut off, and sometimes explode, doing considerable damage. Besides this, when the supply of air to the fire is shut off, while the smith is otherwise occupied, the fire frequently dies out, or gets too small to be easily rekindled.

The present invention is devised for the purpose of preventing gases passing into the blast-pipe, and for admitting a small supply of air when the blast is closed.

Figure 1 of the drawing is a vertical section;

Figure 2 is a sectional plan at the line *x x;* and

Figure 3 is an inverted plan of my improved tuyere.

In the drawing—

a represents the exterior or body of the tuyere;

b, an interior case, united to the body *a* at the upper end, and leaving an annular blast-passage, *c*, opening at *d* into a central chamber, *e;* and

f is the nozzle or exit-tube of the tuyere.

A plate, *g*, is provided to close the lower end of the passage *c* and chamber *e*, and in this plate *g'* is an opening into the chamber *e*, provided with a slide or valve, *h*, which is to be closed when the blast is let into the tuyere by the pipe *k*, but when the blast is shut off, this valve *h* is to be opened, to allow a current of air to ascend through the fire, and carry off the gaseous products of combustion, and prevent their drawing down into the blast-pipe, and at the same time causing the fire to remain in the desired state of combustion. The valve may be opened more or less, according to the fire required when the blast is shut off.

The slide valve *i*, operated by the rod *l* and lever *n*, is employed to open or close the opening *d*, so as to admit or shut off the blast, and this valve *i*, being in the annular chamber or passage *c*, the blast acts to keep the valve to its seat, and hence to prevent leakage. This valve *i* allows the separate cock heretofore used in the blast-pipe to be dispensed with entirely.

The blast of air entering the passage *c* is divided by the partition *o*, so as to travel equally in the two sides of the annular chamber *c*, and thereby the tuyere is cooled and the blast heated.

This tuyere is much cheaper than others heretofore made, and a saving is effected in the fuel, because the blast can be stopped without the fire being deadened to too great an extent. Hence the blast is only required when the forge is in use. Besides this, the cost of a cock in the blast-pipe is avoided.

I claim, as my invention—

1. The annular chamber *c* and partition *o*, in combination with the valve *i*, opening *d*, and chamber *e*, as and for the purposes specified.

2. The valve *h*, in the plate *g*, in combination with the chambers *c* and *e*, air blast-pipe *k*, valve *i*, and opening *d*, substantially as and for the purposes set forth.

Dated November 20, 1869.

JAMES O. JONES.

Witnesses:

GEO. D. WALKER,

GEO. T. PINCKNEY.