

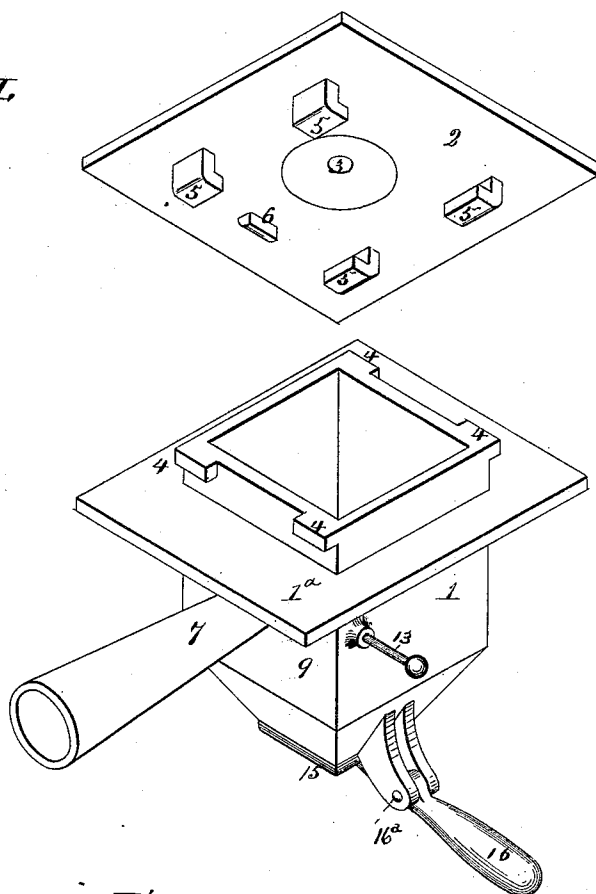
(No Model.)

F. G. KOEHLER.  
TUYERE IRON.

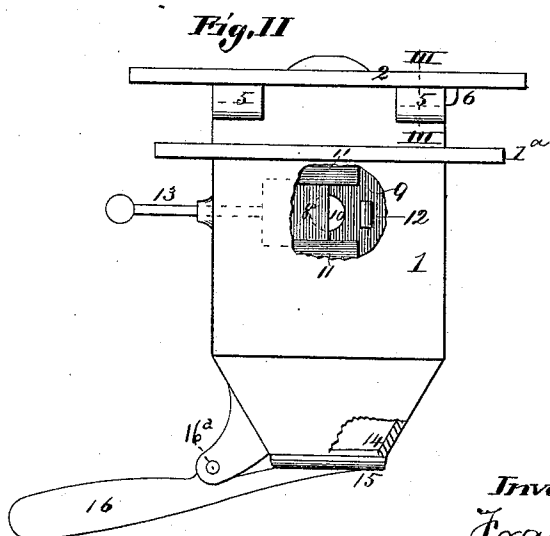
No. 410,903.

Patented Sept. 10, 1889.

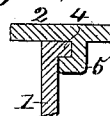
*Fig. I.*



*Fig. II.*



*Fig. III.*



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# UNITED STATES PATENT OFFICE.

FRANK G. KOEHLER, OF ST. LOUIS, MISSOURI.

## TUYERE-IRON.

SPECIFICATION forming part of Letters Patent No. 410,903, dated September 10, 1889.

Application filed June 14, 1889. Serial No. 314,196. (No model.)

### *To all whom it may concern:*

Be it known that I, FRANK G. KOEHLER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Tuyere-Irons for Blacksmiths' Forges, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This tuyere has a removable top to allow the removal of the same without the disturbance of the body. It has also a gravitating gate at bottom and a slide-valve or damper to adjust the force of the blast or to shut it  
15 off.

Figure I is a perspective view of the tuyere with the top detached. Fig. II is a side elevation with part broken away to show the valve. Fig. III is a detail vertical section at  
20 III III, Fig. II.

The main chamber or body of the tuyere is seen at 1. It is made with a removable top 2, having the orifice 3 for the blast to pass upward to the fire. The chamber 1 or body is  
25 cast with lugs 4 for the engagement of the angle-lugs 5, cast upon the under side of the top 2.

6 is a stop cast upon the under side of the top, which comes against the side of the body  
30 when the top has reached its proper position. It will be seen that a very slight horizontal movement is needed to attach the top. The body is firmly set in the brick-work, and will ordinarily last many years, while the top is  
35 liable to injury from the varying and sometimes excessive heat and from the impact of the blacksmith's tools. It is liable from these causes to become warped and broken. The manner of attachment forms a considerable  
40 safeguard against warping, as the top is held down upon the upper edge of the body in four places by the locking-lugs 4 and 5.

1<sup>a</sup> is a horizontal flange, which, when the body is set in place, is covered with clay, preferably fire-clay.

7 is the blast-nozzle.

8 is a slide-valve or damper working against the inner side of the wall 9 and in front of the blast-aperture 10 and adapted to partly or wholly close such aperture.

11 are damper-guides.

12 is a stop limiting the movement of the damper. The damper has a handle 13, by which it is moved.

The chamber or body 1 has at bottom an aperture 14, through which any ashes, &c., collecting in the chamber may be discharged. This aperture is closed by an upwardly-shutting gate 15, hinged to the body at 16<sup>a</sup> and having a heavy handle or counter-weight 16, which  
55 normally keeps the gate closed. When, however, it is desired to clear out the chamber, the handle may be raised. The weight of the handle will be sufficient to keep the gate closed.

I claim as my invention—

1. The tuyere-iron for forges, having the slide-valve 8 and gate 15, with weighted handle, substantially as and for the purpose set forth.

2. The tuyere-iron for forges, having the removable top 2, secured to the body by means of the lugs 4 and angle-lugs 5, substantially as set forth.

3. The tuyere-iron for forges, having the removable top 2, secured to the body 1 by lugs 4 and 5, the slide-valve 8 and gate 15, with weighted handle or counter-balance 16, all substantially as set forth.

FRANK G. KOEHLER.

Witnesses:

SAML. KNIGHT.

THOMAS KNIGHT.