

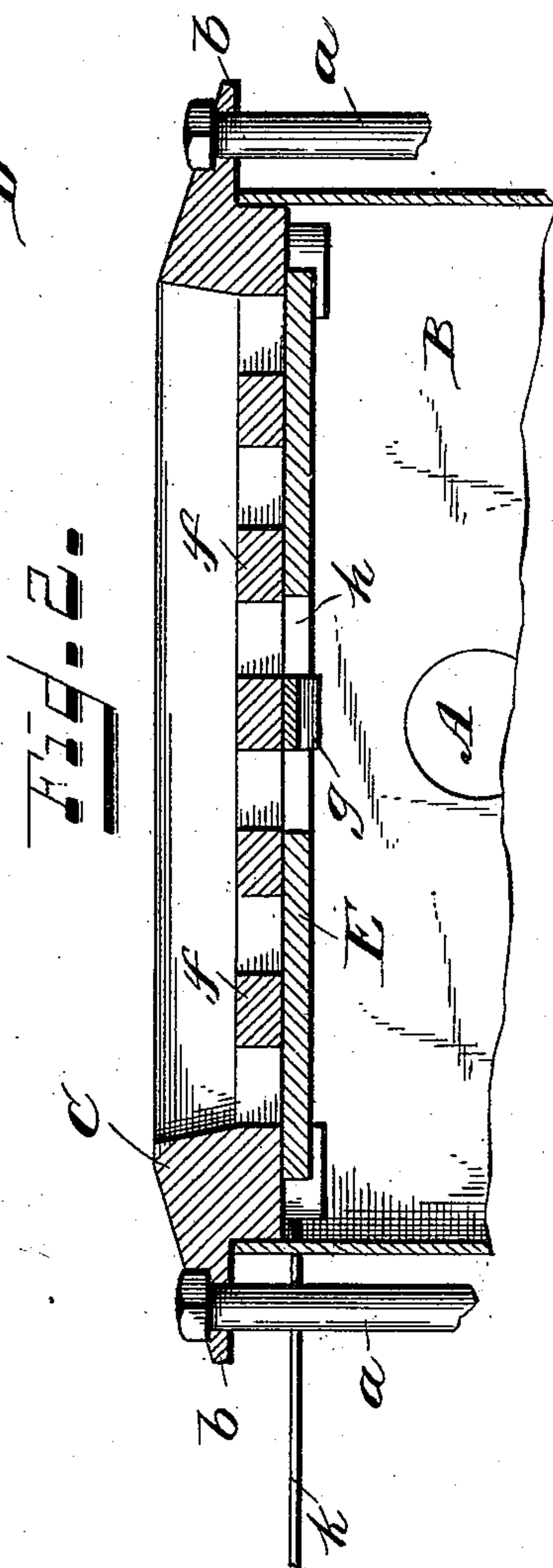
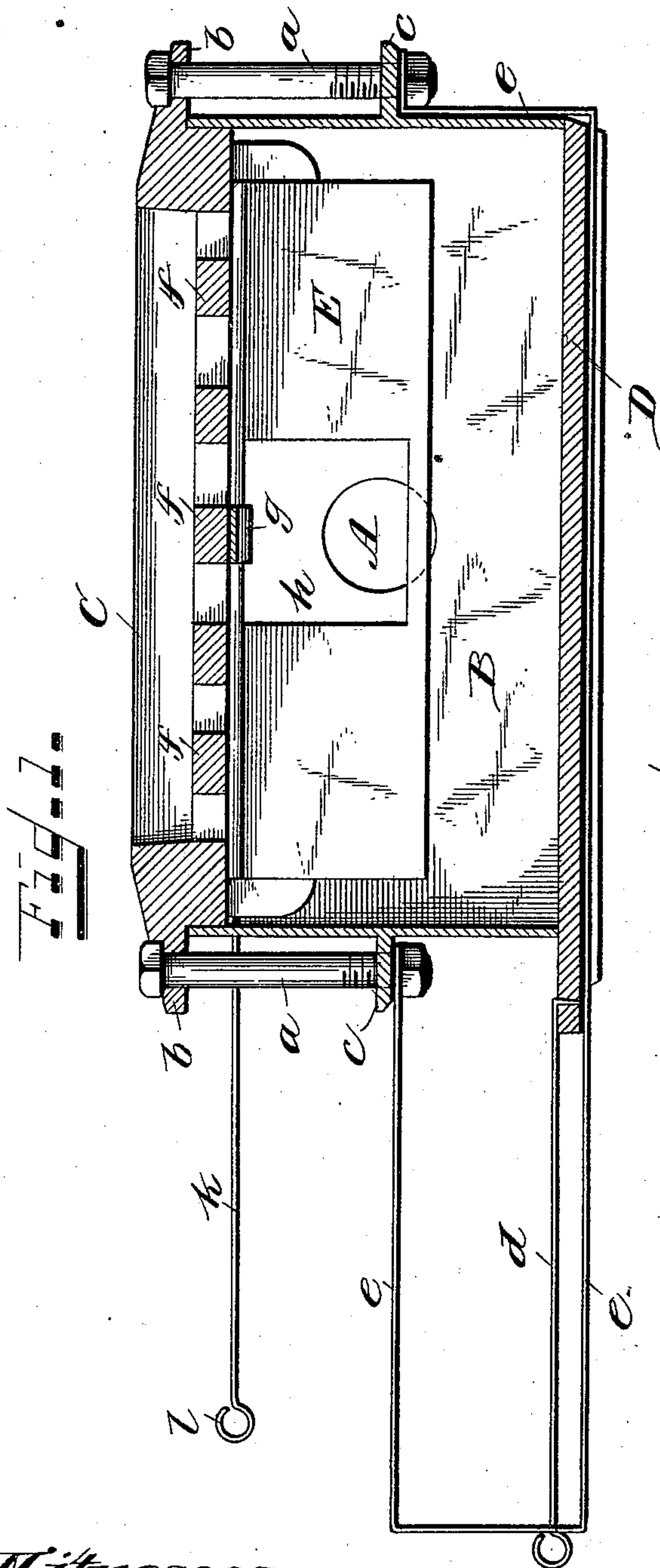
(No Model.)

2 Sheets—Sheet 1.

J. CLARK.
TUYERE IRON FOR FORGES.

No. 534,250.

Patented Feb. 19, 1895.



Witnesses.

Thomson Cross.
George Heidman

Inventor:

John Clark
by Steu & Allen
Attorneys.

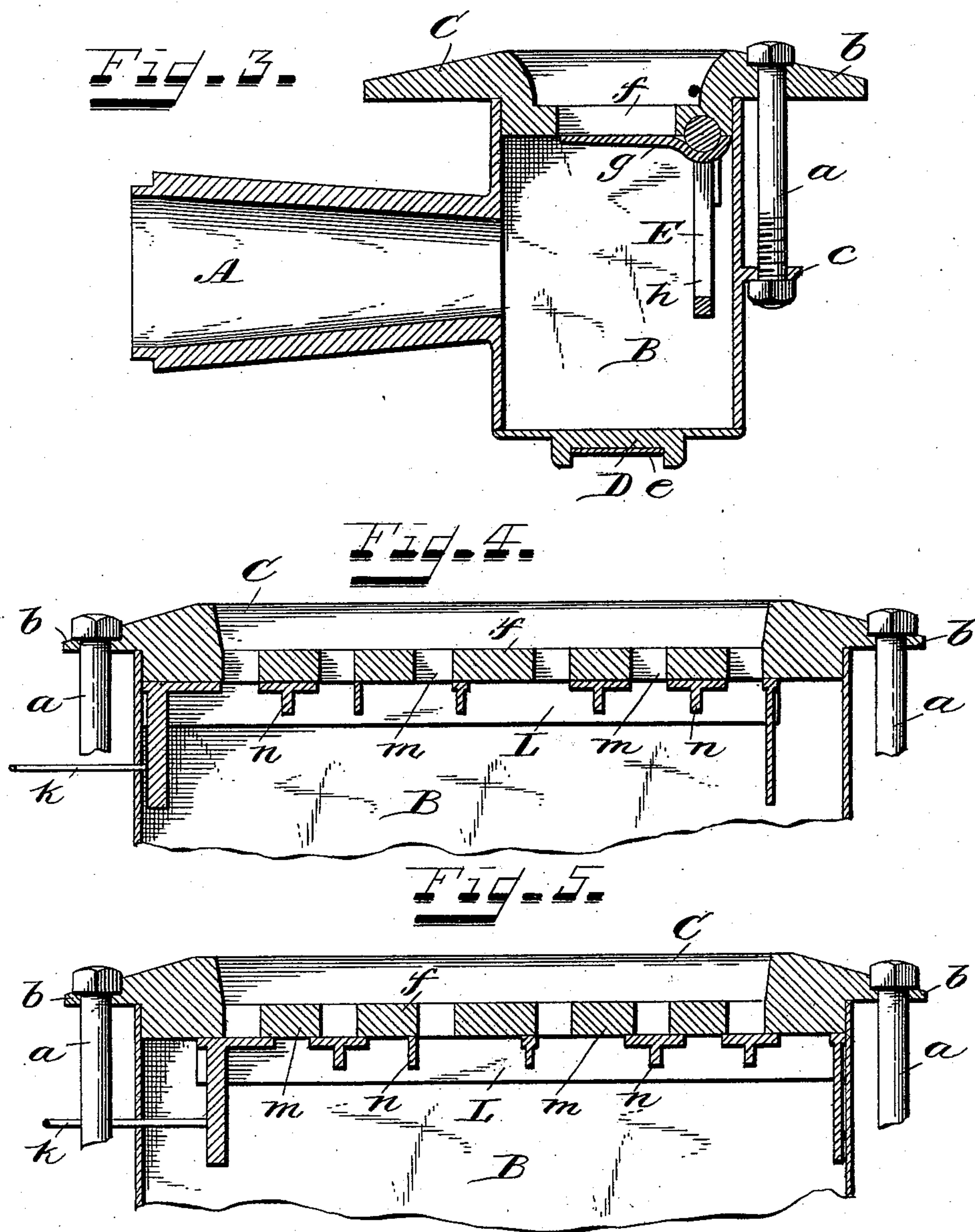
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UNITED STATES PATENT OFFICE.

JOHN CLARK, OF LIBERTY, INDIANA, ASSIGNOR OF ONE-HALF TO SQUIRE B. RUDE, OF SAME PLACE.

TUYERE-IRON FOR FORGES.

SPECIFICATION forming part of Letters Patent No. 534,250, dated February 19, 1895.

Application filed March 15, 1894. Serial No. 503,702. (No model.)

To all whom it may concern:

Be it known that I, JOHN CLARK, a citizen of the United States, residing at Liberty, in the county of Union and State of Indiana, have invented a certain new and useful Improvement in Tuyere-Irons for Forges, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The invention relates to an improved construction and organization of the parts of tuyeres for forges.

My object is greatly to economize in the cost of their production, render the device exceedingly durable and at the same time have its main parts readily separable and replaceable for cleaning and for repair should accident or inadvertence necessitate the same, and also to enhance the general utility and manipulation of the tuyere.

In the drawings:—Figure 1, is a central longitudinal section of my improved tuyere with the cut off valve open. Fig. 2, is a similar section, in part, with the cut off valve closed. Fig. 3 is a central cross-section of the tuyere, as shown in Fig. 1. Figs. 4 and 5, are longitudinal sections of same showing a modified form of cut off valve, open and closed.

A, is the nozzle of the tuyere, opening into an oblong box or receptacle, B.

C, is the grate fitting over the top of the box and held in place by the bolts *a, a*, which pass through lugs *b, b*, on the ends of the grate and similar lugs *c, c*, on the ends of the box.

The bottom D, of the box B, is removable and slides on guides at the base of the sides of the box, and *d*, is a rod attached to the bottom so that as ashes and dirt falling through the grate, accumulate in the bottom of the box, the bottom may be slid out by drawing on the rod and the ashes will fall into the ash pit below.

e, is a metallic frame work upon which the bottom slides and through the end of which the rod *d*, passes, thus serving as a guide for the rod. This frame work is attached on the same bolts *a, a*, which fasten the grate C, to the box, as shown in Fig. 1.

The grate C, is made up of grate bars *f*, and the extent of grate surface is preferably three

or four times as long as it is broad. Pivoted by a clip *g*, secured to the central grate bar at the center of the grate C, is a plate or valve E, in which a rectangular opening *h*, is cut and secured to this valve is a rod *k*, by means of which the valve may be rotated on the hinge connection *g*, to a position parallel with the grate C, as shown in Fig. 2. In this position the valve E, will close all of the grate openings except the central ones, while, when the valve is open, all the grate openings will be subjected to the air blast through the tuyere. When the valve is closed, I fasten it in that position at the handle *l*, in any suitable way, as otherwise the weight of the plate would cause the valve to open.

Instead of a rotating plate valve to shorten or lengthen the fire opening, a slide valve can be employed as illustrated in Figs. 4 and 5, although the form illustrated in Figs. 1 and 2, I believe to be preferable. This slide valve consists of a plate L sliding in ways on the sides of the box, a series of rectangular openings *m, m*, being formed therein leaving the cross bars *n, n*. The central openings in this valve are much wider than the end openings so that when the valve is pushed inward to the position shown in Fig. 5, the cross piece *n*, will cover and close the end openings in the grate, but the central openings will still remain open. When the slide is drawn out, then all the openings in the slide will register with the grate openings, and the air blast can reach the entire grate surface.

In the drawings I have illustrated the central portion of the grate as the part always open to the air blast. It will be understood however, that substantially the same result can be obtained by arranging the valve opening at any other part of its surface so that the constant opening will be at either end or at some other portion of the grate.

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

1. A tuyere comprising a box or casing having lugs, a grate provided with lugs, bolts connecting these lugs for securing the grate and box together, a frame constructed to pass beneath the box so as to support and guide a movable bottom and to be secured in place by

said bolts, the said movable bottom, and a valve adapted to close a part of the grate to vary the extent of the fire, substantially as described.

- 5 2. In a tuyere, the combination of a box or casing having lugs, a grate provided with lugs, bolts connecting these lugs for securing the box and grate together, a frame constructed

to pass beneath the box so as to support and guide a movable bottom and to be secured in place by the aforesaid bolts, and the said movable bottom substantially as described. 10

JOHN CLARK.

Witnesses:

THOS. D. EVANS,
R. P. RIFENBRINCK.