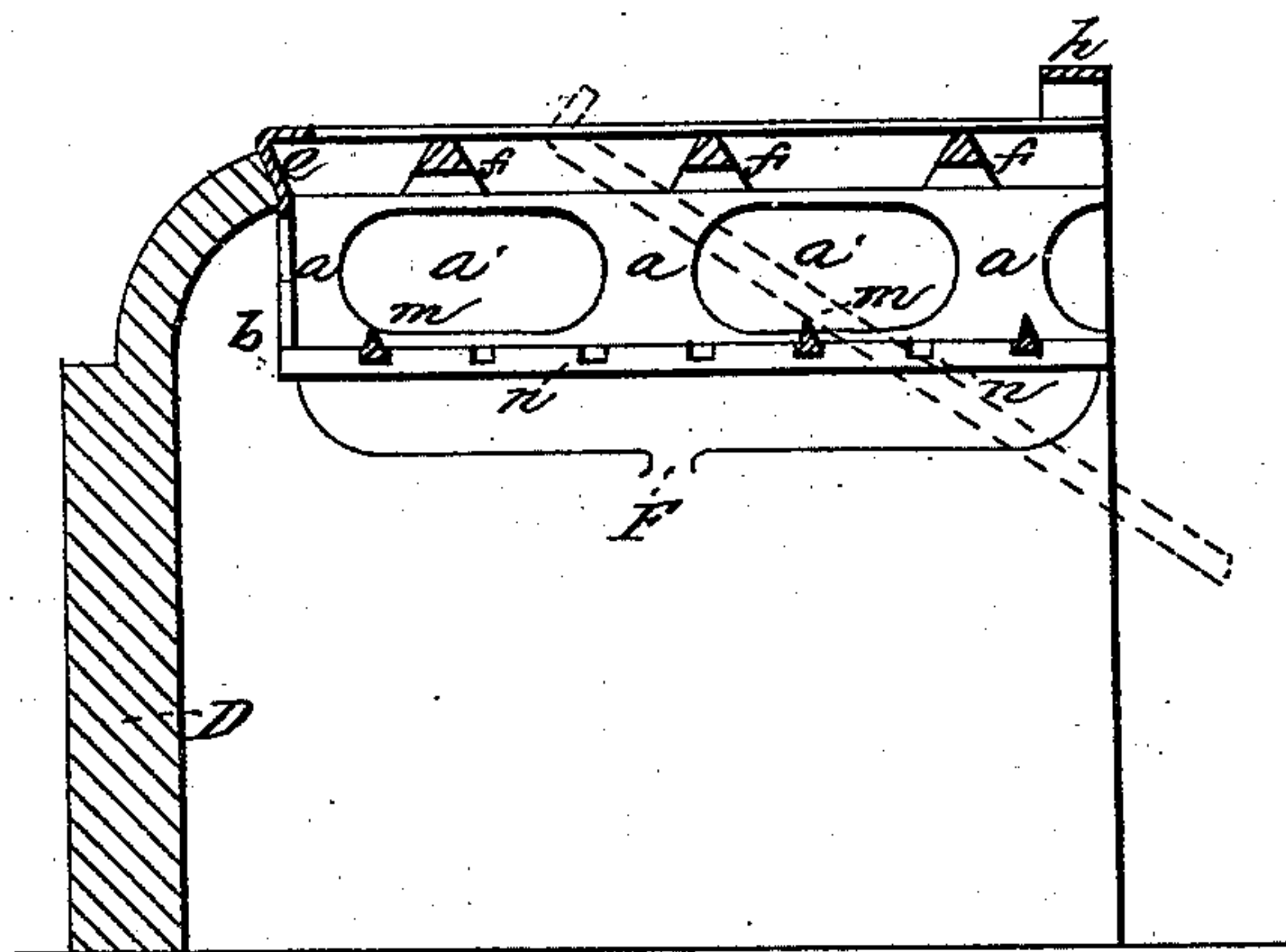
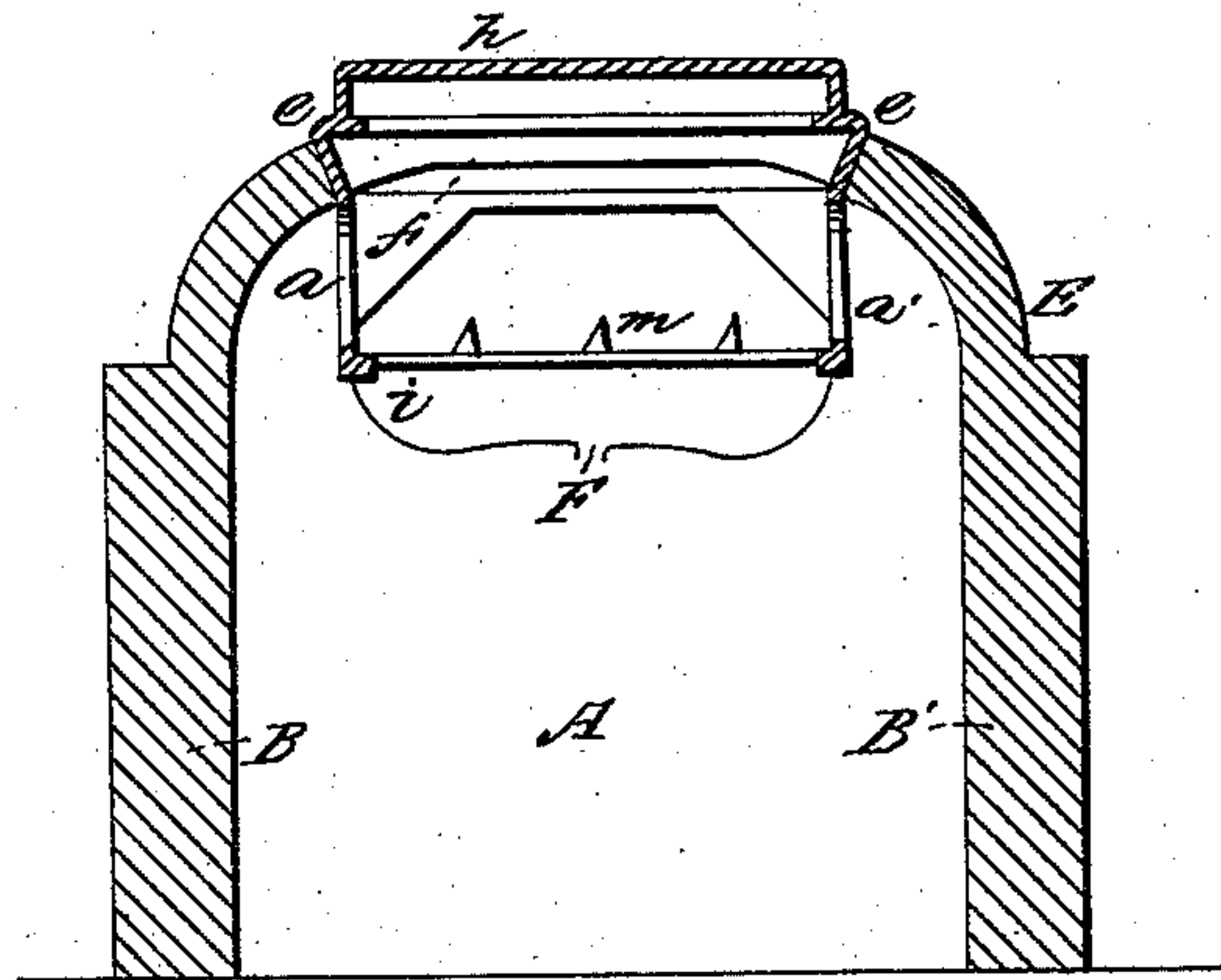


J. GREEN.
Steam-Boiler Furnace.

No. 70,200.

Patented Oct. 29, 1867.

FIG. 2



Wm. Albert Steel
S. H. Hossie Godwin.

INVENTOR.

Jacob Green
By his Atty
H. Howson

United States Patent Office.

JACOB GREEN, OF NORRISTOWN, PENNSYLVANIA.

Letters Patent No. 70,200, dated October 29, 1867.

IMPROVEMENT IN FURNACES FOR STEAM-BOILERS.

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, JACOB GREEN, of Norristown, Montgomery county, Pennsylvania, have invented an Improvement in Furnaces, Kilns, &c.; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention consists in arching the tops of ash-pits of fireplaces, of furnaces, kilns, &c., the arch being composed partly of brick, and partly of a cast-iron key, which serves to support the grate-bars, and affords a rest for certain movable cross-bars to be used as fulcrums in clearing the grate.

The main object of my invention is to obtain a wide ash-pit, to which access can be readily had when the grate has to be cleansed, and the grate-bars removed or replaced.

In order to enable others skilled in the art to make and apply my invention, I will now proceed to describe the manner of carrying it into effect. On reference to the accompanying drawing, which forms a part of this specification—

Figure 1 represents a vertical section of my improvement in furnaces, kilns, &c., and

Figure 2 a transverse vertical section.

A is the ash-pit beneath the fireplace of any furnace, such, for instance, as a furnace for melting glass or metals, or the furnace of a lime or other kiln, and B and B' are the two side walls, and D the rear wall. The top of the ash-pit consists of an arch composed partly of brick-work E, and partly of the cast-iron key F; and this key consists of the two side pieces, *a a*, having any suitable number of openings, *a'*, the end piece *b*, the upper bevelled portions *e e*, arranged to fit the brick-work and act as a key for the same, and any suitable number of transverse ribs, *f*, on which rest the grate-bars for supporting the fuel, the whole being, if desired, cast in one piece. A tie, *p*, at the front of the key F, may also extend from one side to the other of the same. At the lower edge of each side piece *a* of the key is a flange or rib, *i*, each rib having a number of notches, and into these the spiked cross-bars *m* fit loosely, so that they may be removed and replaced, and their position changed with facility.

Heretofore, in building the ash-pits of furnaces and kilns, it has been usual to support the grate by perpendicular walls, between which was situated the ash-pit, the latter being consequently so limited in width that access to the interior of the pit for the purpose of cleansing the grate and for other objects was a matter of difficulty. By arching the top of the ash-pit, and making the bearer which supports the bars a part of or a key for the arch, an ash-pit, of the desired increased width may be formed beneath the fire-grate. The cast-iron key F of the arch presents the additional advantage of affording rests for the spiked cross-bars, which serve as fulcrums in operating with the lever or rod, shown by red lines, fig. 1, used for clearing the grate.

Another advantage of my invention is the reduction of cost in building the furnace or kiln, by increasing the width of the ash-pit, which would otherwise be occupied by cumbrous and costly foundations.

It will be evident that the applicability of my invention is not confined to furnaces of any particular class. It may be used to equal advantage in glass or puddling-furnaces, or furnaces for reducing metals, as well as in constructing the fireplaces of lime, brick, or other kilns, or any fireplaces in which a grate is used, and where it is an object to gain ready access to the ash-pit beneath the grate. The purport of the holes in the sides *a a* of the cast-iron key is the free admission of steam to the grate-bars when steam is introduced into the ash-pit.

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

1. The ash-pit A, with its arched top, composed partly of brick and partly of a cast-iron key, when the latter is constructed to form a bearer for the grate-bars, all substantially as herein set forth.
2. The cast-iron key F, its side pieces *a a*, and notched ribs *i*, in combination with the movable bars *m*, for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

Witnesses:

JOHN WHITE,

W. J. R. DELANY.

JACOB GREEN.