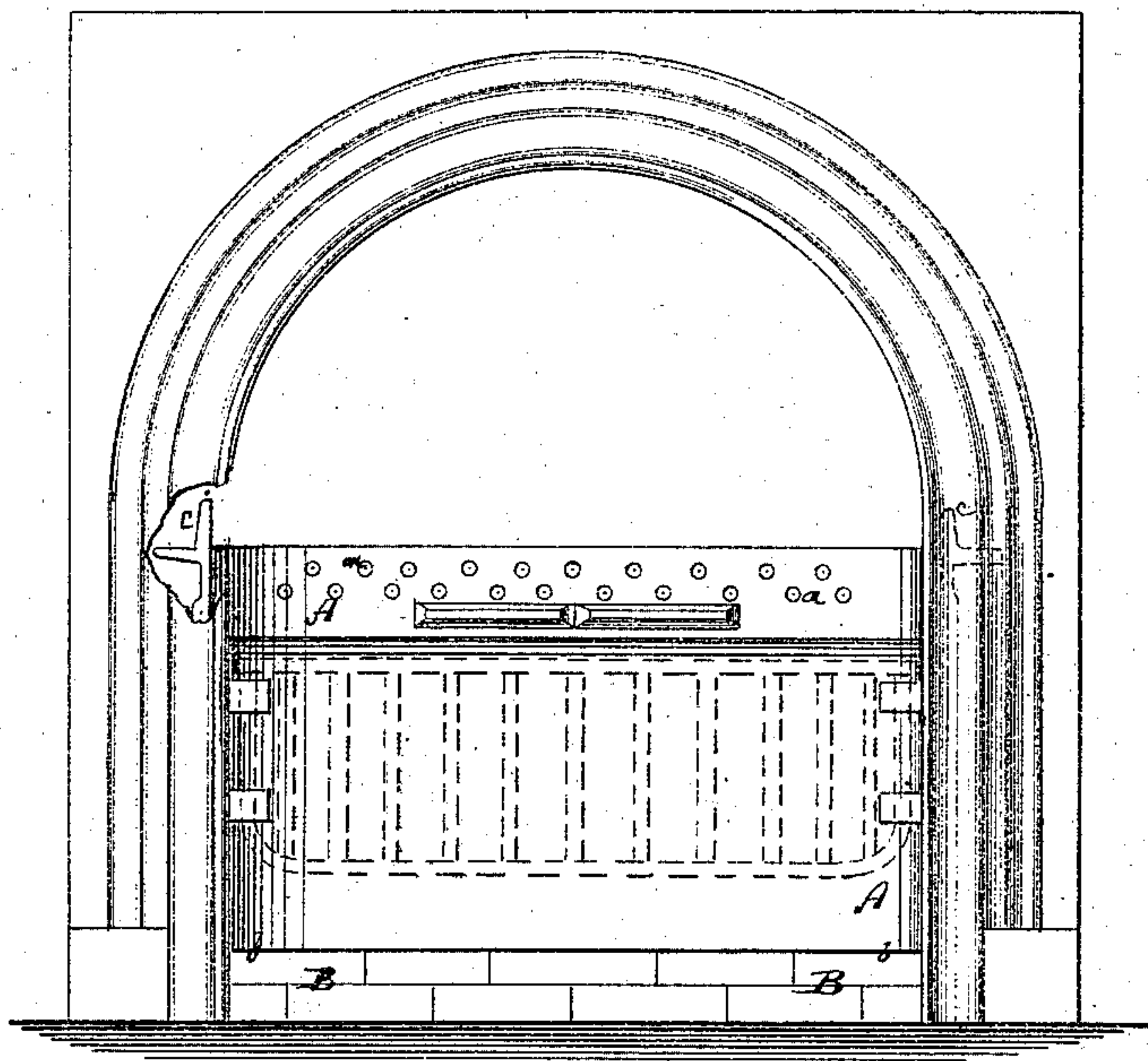


# *J. Hackett, Fire-Back for Grates.*

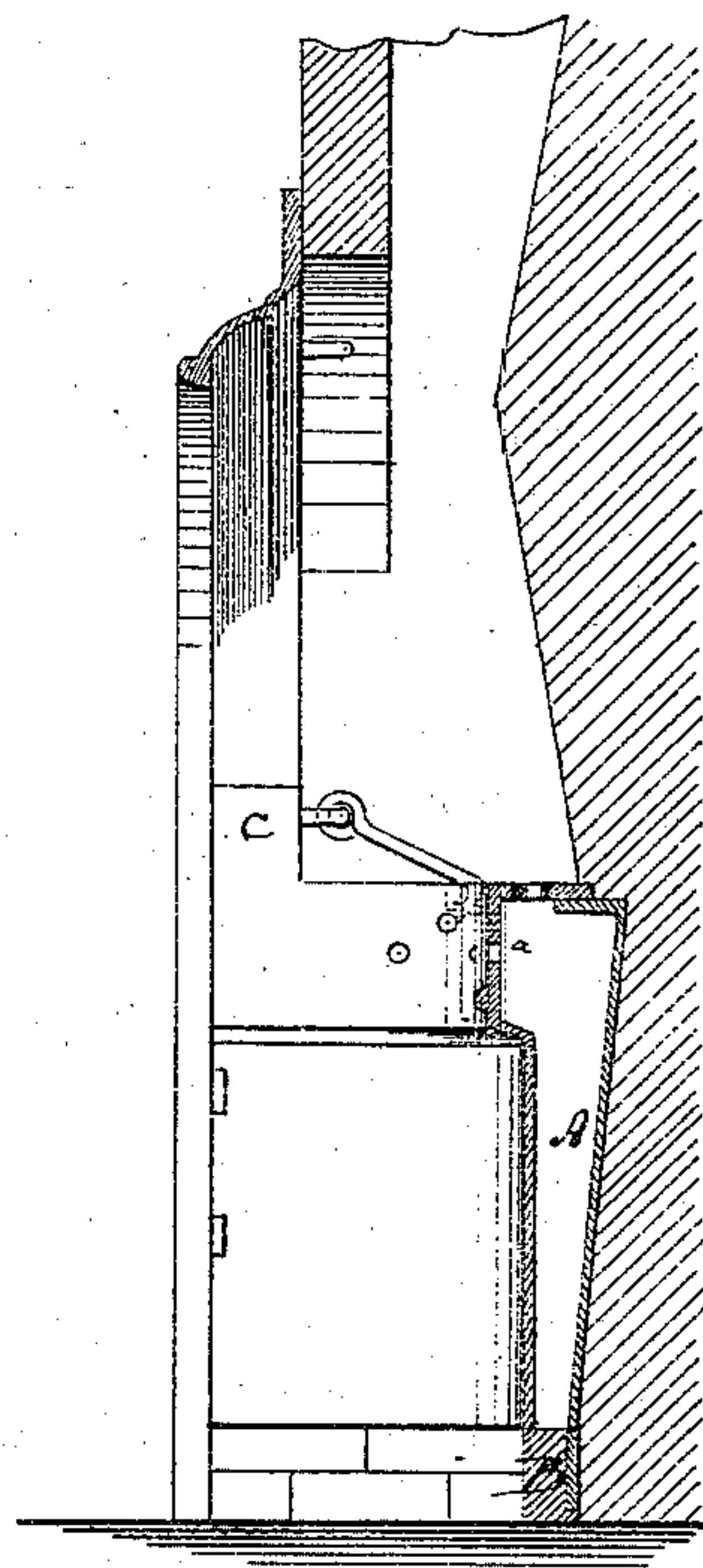
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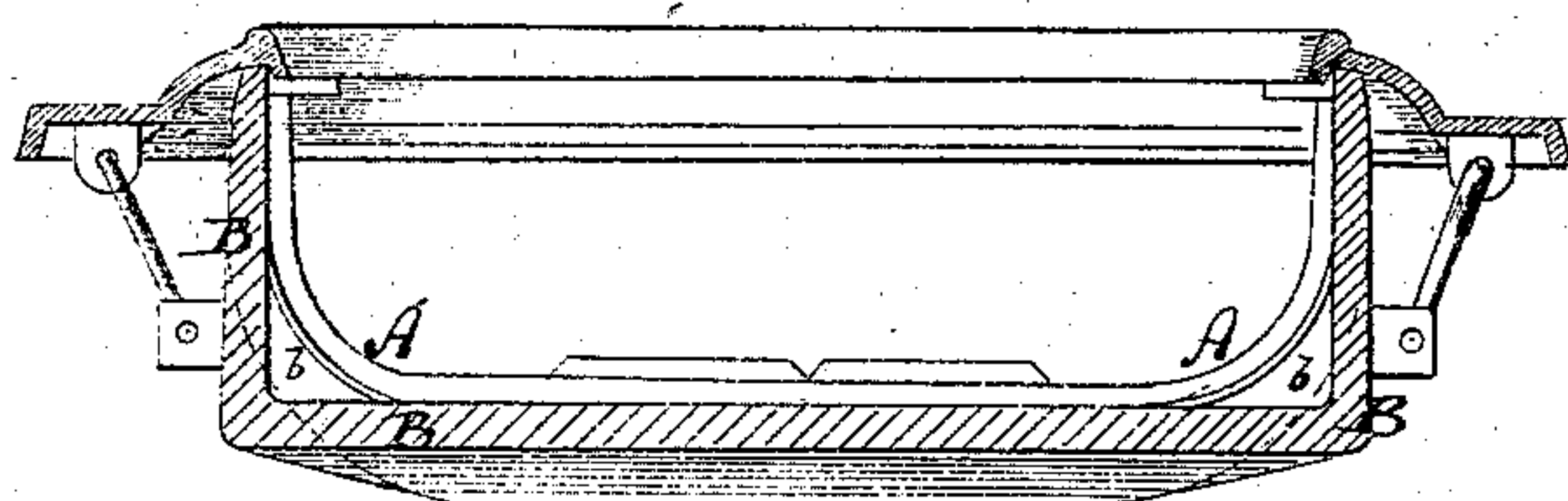
*Fig: 1*



*Fig: 2*



*Fig: 3.*



Witnesses:

*C. Raettig.*  
*Wm H. C. Smith.*

Inventor:

*J. Hackett.*

PER

*Mum Lo*  
Attorneys.



# UNITED STATES PATENT OFFICE.

JOSEPH HACKETT, OF LOUISVILLE, KENTUCKY.

## IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. 117,276, dated July 25, 1871.

*To all whom it may concern:*

Be it known that I, JOSEPH HACKETT, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and Improved Fire-Back for Grates; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a front view of a fire-place provided with my improved fire-back. Fig. 2 is a vertical transverse section of the same. Fig. 3 is an inverted plan view of the same.

Similar letters of reference indicate corresponding parts.

This invention has for its object to provide a hollow fire-back for grates, whereby a liberal supply of air will be carried from beneath the grate to the perforated back of the same to furnish oxygen to the first products of combustion and obtain a more perfect secondary combustion. The invention consists in the formation on the inner corners of the fire-back of lower air-entrances, which are above the ash-pan, and serve to convey air to the upper hollow perforated back of the fire-place. These air-entrances are produced by means of concave corners formed on the back above the square corners of its support, and do therefore not interfere with the grate nor take away any useful space behind the same. They extend down nearly but not quite to the ash-pan, so that the latter may be of rectangular form. The invention consists, also, in forming projecting ears at the front upper corners of the fire-back, which define the width of the throat to the flue and aid in keeping the tile in place.

A in the drawing represents the hollow fire-back, made of cast-iron or other suitable material, and of suitable height, width, and thickness. It is placed in a fire-place of ordinary or suitable construction to receive a grate. The fire-back is made hollow, and perforated at the upper part

of its front face. It usually extends down to the support B of masonry, whose upper edge is about on a level with the top of the ash-pan. The inner corners of the support B are rectangular, or nearly so; those of the fire-back rounded, as in Fig. 3. The corners of the fire-back project thus forwardly beyond those of B, and constitute triangular openings *b* for the entrance of air to its hollow body. These openings being just above the ash-pan receive cold air from the same, and convey it, through the apertures *a* in the front of the fire-back, to the fire. The ash-pan can be of rectangular form to fit the support B, and will not be in the way of nor crowded by the air-entrances to the fire-back. The air for aiding the combustion on the grate, being drawn from the ash-pan, is cold, and does not absorb heat from the grate-fire on its passage to the same, which it does in the devices now in use, where it is drawn in through openings behind the grate.

My form of fire-back is extremely simple, and can be cheaply produced and applied to all kinds of grate.

At the front upper corners of the fire-back are projecting ears *c c*, which define the width of the throat to the flue, and thus guide the grate-setter in making a uniform width of flue, instead of leaving the matter to his discretion. Frequent errors which the setters are apt to commit are thus prevented. The ears *c* form also shoulders for keeping the tile in place.

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

1. The ears *c c* formed at the front top corners of the fire-back for defining the width of flue and holding the tile in place, as set forth.

2. The hollow fire-back A provided with the concave inner corners, whereby air-passages *b* are formed between said corners and the masonry B, as shown and described.

JOSEPH HACKETT.

Witnesses:

W. J. ANDERSON,  
WHITE W. FORMAN.