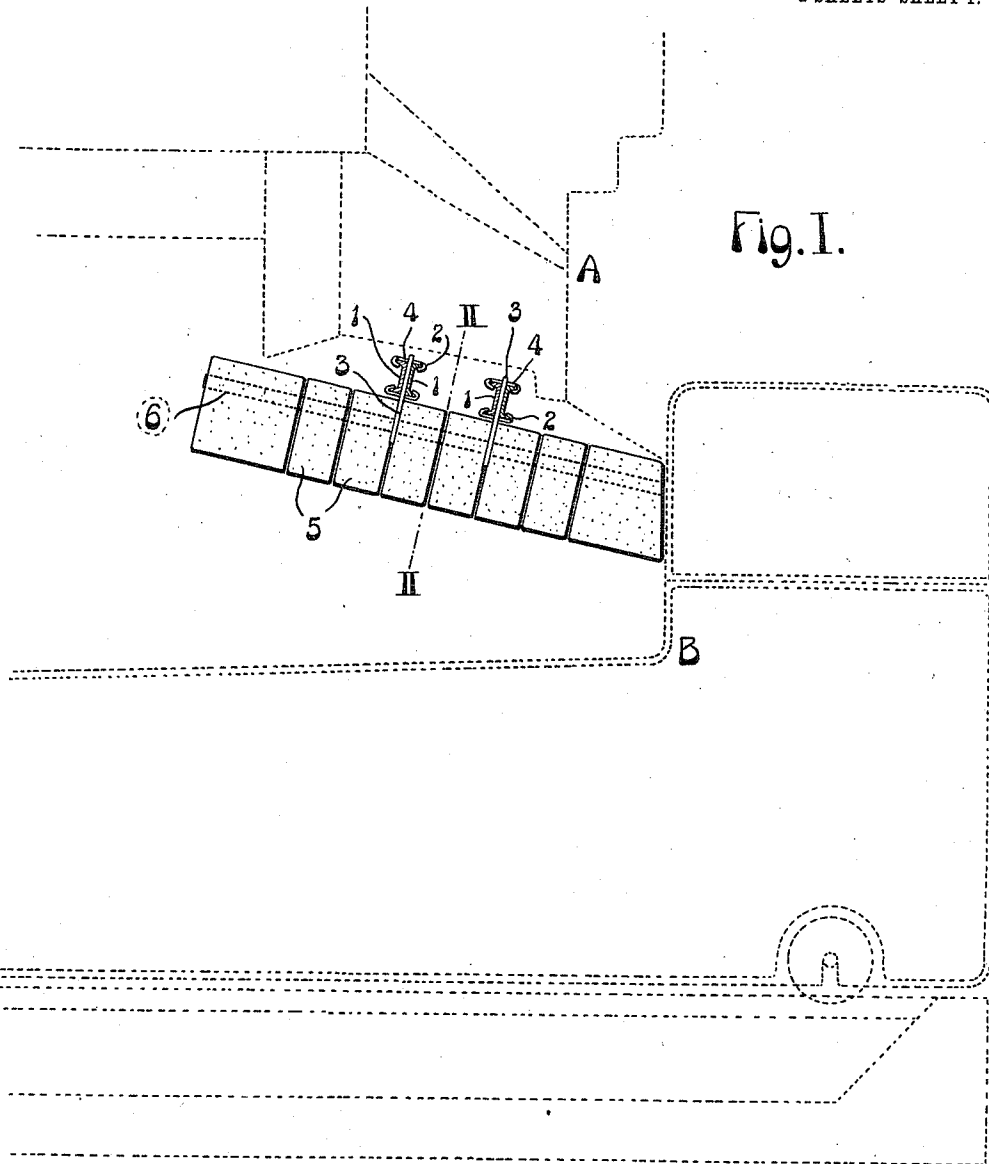


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IGNITION ARCH FOR FURNACES.
APPLICATION FILED JULY 8, 1911.

1,006,368.

Patented Oct. 17, 1911.

2 SHEETS—SHEET 1.



Attest

A. J. McCauley
E. B. Finn

Inventor:

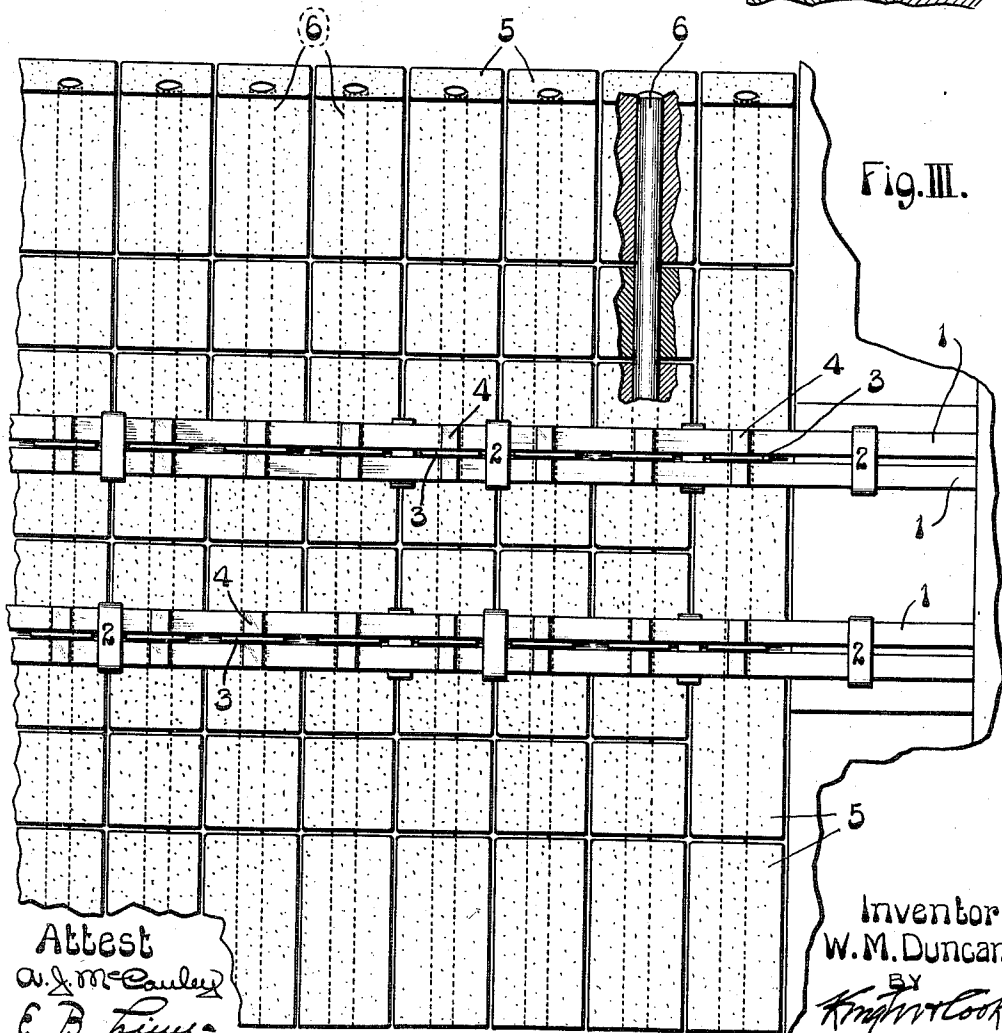
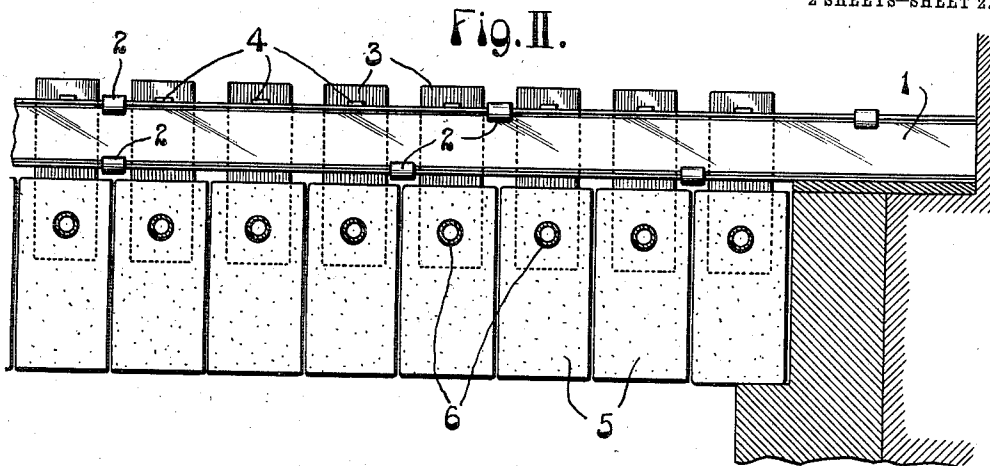
W. M. Duncan
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Attest
W. M. Duncan
E. B. Linn

Inventor:
W. M. Duncan
BY
K. M. Cook
ATT'YS.

UNITED STATES PATENT OFFICE.

WILLIAM MILLEN DUNCAN, OF ALTON, ILLINOIS.

IGNITION-ARCH FOR FURNACES.

1,006,368.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed July 8, 1911. Serial No. 637,485.

To all whom it may concern:

Be it known that I, WILLIAM M. DUNCAN, a citizen of the United States, residing in Alton, county of Madison, and State of Illinois, have invented certain new and useful Improvements in Ignition-Arches for Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an ignition arch for promoting the combustion of fuel in furnaces, and it has for its objects the production of an arch of this kind that is of great simplicity, of inexpensive structure, and one in which the arch supporting members are not liable to become impaired by heat during their service; while at the same time permitting the replacement of impaired parts at a slight expenditure of cost and labor when such parts become unfit for further service after long continued use.

Figure I is a view showing a part of a furnace and a mechanical stoker in dotted outline, and also showing a side elevation of one row of the tiles in my fire arch, and a cross section of the tile supports. Fig. II is an enlarged vertical cross section taken on line II—II, Fig. I. Fig. III is a top or plan view of my arch with certain of the tiles broken out to expose the supporting member extending therethrough.

In the accompanying drawings: A designates a fragment of a front wall of a furnace and B a portion of the mechanical stoker, these parts being shown in dotted outline merely for the purpose of indicating the location of my ignition arch.

The ignition arch is sustained above the grate in the furnace, such as that ordinarily supplied in mechanical stokers, the means of support being two pairs of cross beams 1 that extend transversely of the furnace. The pairs of cross beams are separated sufficiently to provide for each pair of beams serving to perform its arch supporting function in the proper manner according to the length of the ignition arch longitudinally of the furnace and the beams in each pair are preferably held in close assemblage by clips 2 embracing the top and bottom edges of the beams. The beams in each pair are separated from each other to a sufficient degree to permit of the presence between them of suspension bars 3 that extend above the top edges of the beams and are separated by

keys 4 extending transversely through the suspension bars and resting upon the top edges of the beams. The hanger bars 3 have legs extending considerably beneath the cross beams or main supports 1, and these legs are apertured.

5 designates heat radiating blocks made of fire clay, or other suitable material, such as that ordinarily entering into the heat radiating blocks of ignition arches. These blocks are perforated intermediate of their top and bottom ends, and they are arranged in rows extending longitudinally of the furnace and transversely of the cross beams or main supports 1.

6 are hanger rods by which the heat radiating blocks 5 in the various rows of blocks extending longitudinally of the furnace are supported. These rods are mounted in the legs of the suspension bars 3 by the simple act of passing them through the perforations in such legs and the heat radiating blocks are threaded onto the hanger rods so that they occupy positions beneath and between the vertical lines occupied by the cross beams or main supporting beams 1 and positioned in front of and at the rear of said beams.

It will be appreciated that an ignition arch made as herein described may be very quickly mounted, due to its simplicity, inasmuch as the only labor involved after the main supporting beams have been put in place is that incident to the proper mounting of the suspension bars 3 so that they will be supported by the cross beams 1, the disposition of the hanger rods 6 in the suspension bars and the threading of the heat radiating blocks onto said hanger rods. In this connection, it is obvious that the hanger rods may be threaded through the suspension bars by degrees when the heat radiating blocks that are to be present between the vertical lines occupied by the cross beams 1 are being put in place, and that the other blocks may be readily mounted on the hanger rods when said rods are in the normal positions they are to occupy during the use of the ignition arch. This being understood, it will be clear that when there is occasion for replacement of any of the heat radiating blocks, such replacement may be effected by the simple act of withdrawing the blocks from the hanger rods and, where necessary, partially withdrawing the hanger rods from the suspension bars in order that

the used blocks may be withdrawn therefrom and new blocks substituted in their stead.

The hanger rods 6 are preferably made tubular to permit circulation of air there-through, in order that these rods will be subjected to as high degree of heat as they would if of solid structure, and with the consequent result of avoiding burning out of the rods, which would be liable to take place if the rods were of solid structure.

I claim:

1. An ignition arch comprising a support, suspension members depending from said support, hanger rods mounted in said suspension members, and heat radiating blocks having perforations extending therethrough and through which said hanger rods extend to support said blocks.

2. An ignition arch comprising a support, suspension members depending from said support, hanger rods loosely mounted in said suspension members, and heat radiating blocks having perforations extending there-through and through which said hanger rods extend to support said blocks.

3. An ignition arch comprising a support, suspension members located within said

support, keys extending through said suspension members and resting on said support, hanger rods mounted in said suspension members, and heat radiating blocks having perforations extending therethrough and through which said hanger rods extend to support said blocks.

4. An ignition arch comprising a pair of supporting beams, suspension members located between said beams, keys extending through said suspension members and resting on said beams, hanger rods mounted in said suspension members, and heat radiating blocks having perforations extending therethrough and through which said hanger rods extend to support said blocks.

5. An ignition arch comprising a support, suspension members suspended from said support, tubular hanger rods mounted on said suspension members, and heat radiating blocks having perforations extending therethrough and through which said hanger rods extend to support said blocks.

WILLIAM MILLEN DUNCAN.

In the presence of—

A. B. STUTTON,
G. D. DUNCAN.