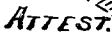


958,379.

2 SHEETS—SHEET 1.



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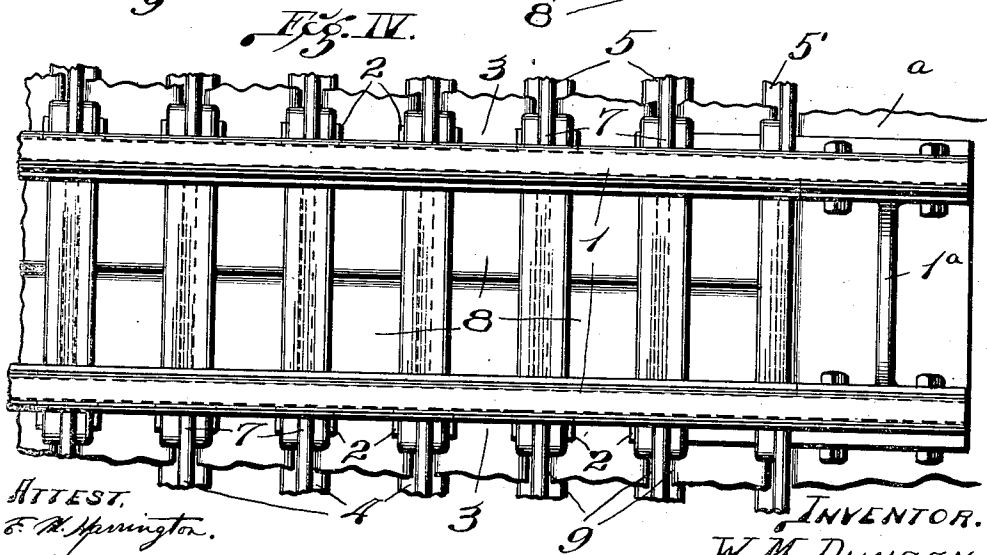
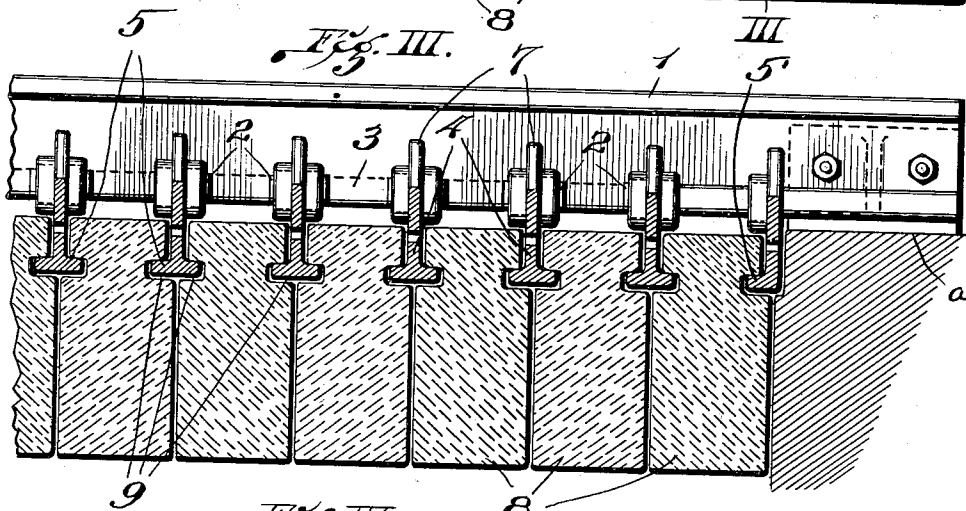
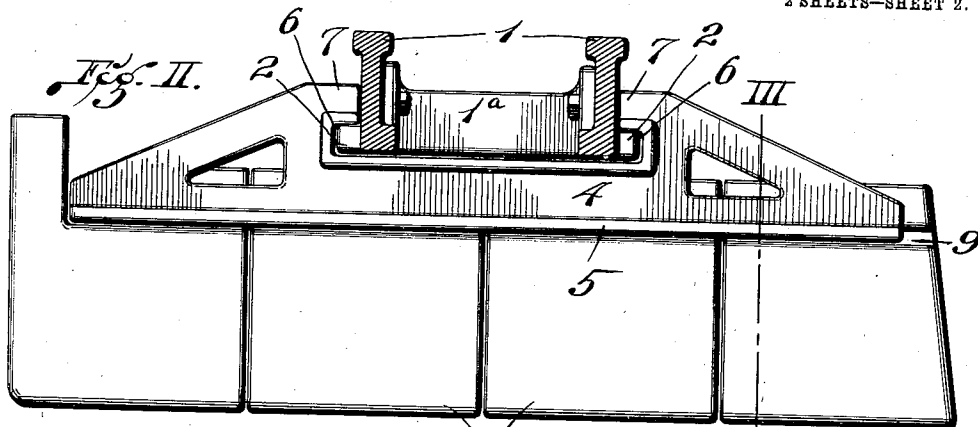
By E. J. Kramer
ATTY

W. M. DUNCAN.
IGNITION ARCH FOR FURNACES.
APPLICATION FILED MAY 6, 1909.

958,379.

Patented May 17, 1910.

2 SHEETS—SHEET 2.



ATTEST.
E. A. Harrington.
J. B. Cook

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BY *[Signature]*

UNITED STATES PATENT OFFICE.

WILLIAM MILLEN DUNCAN, OF ALTON, ILLINOIS.

IGNITION-ARCH FOR FURNACES.

958,379.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed May 6, 1909. Serial No. 494,342.

To all whom it may concern:

Be it known that I, WILLIAM M. DUNCAN, a citizen of the United States of America, residing at 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 part of this specification.

My invention relates to an ignition arch for use in furnaces, and more particularly intended for use in furnaces supplied with mechanical stokers, the invention having for its object the production of an ignition arch and supports therefor that may be readily and quickly mounted and which will remain in place after mounting without the employment of fastening means, thereby also permitting of the fireproof sections of the ignition arch being readily separated from their hangers and replaced by new fireproof sections, in the event of their becoming impaired by service.

Figure I is in part a longitudinal vertical section through portions of a furnace and my ignition arch, and in part a side elevation of a mechanical stoker preferably employed in the furnace in which my ignition arch is used. Fig. II is a side elevation of my ignition arch. Fig. III is a vertical longitudinal section through my ignition arch on line III—III, Fig. II. Fig. IV is a top or plan view of a portion of the ignition arch.

In the accompanying drawings:—A designates the front wall of a furnace beneath which my ignition arch to be hereinafter described is located. B is the frame of a mechanical stoker having at its front end a hopper C. The stoker frame is preferably mounted upon rails D that are operable upon a track E, thereby allowing of the stoker being moved outwardly and inwardly relative to the fire chamber of the furnace.

1 designates beams preferably having their upper portions seated in the front wall of the furnace and their ends mounted upon an arch a , (see Figs. III and IV,) at the interior of the furnace next to the side walls of the fire chamber. The supporting beams are held separated from each other to a desired degree by distance pieces 1^a located between the end portions of said beams, (as seen in Figs. II and IV.) Each supporting beam 1 is provided at its outer side and near

its lower edge with lugs or seats 2 separated from each other to provide gaps 3 between them, and which are adapted to receive hangers to be next referred to.

4 designates a series of hangers that are supported by the supporting beams 1 and extend transversely beneath the supporting beams. Each hanger 4, with the exception of the hangers at the ends of the ignition arch, is provided at its bottom with double flanges 5, (as seen in Figs. II to IV, inclusive.) The side hangers are provided with single flanges 5', (see Fig. III.) Each hanger is provided with arms 7 which form pockets 6 in its upper portion. In mounting the hangers 4 upon the supporting beams 1, the hangers are placed beneath the supporting beams and then moved upwardly so that the arms 7 are passed through gaps 3 between adjacent lugs or seats of the supporting beams, after which the hangers are shifted laterally with the result of carrying the arms 7 into positions above lugs or seats 2 in order that they may rest thereon without attachment to the supporting beams, and act to support the hangers. The act of mounting the hangers is, therefore, rendered a very simple one, and it is obvious that they may be dismounted with the same ease as they are mounted.

8 designates a plurality of heat radiating blocks that are suspended from the hangers 4, these blocks being preferably of fireclay or other material that will stand the action of heat in a furnace fire chamber and will serve to radiate the heat received thereby. These heat radiating blocks are provided near their upper ends with side grooves 9 located opposite to each other in each block, whereby the blocks are furnished with T-heads that rest upon the flanges 5 and 5' of the hangers due to the entrance of these flanges into the grooves in the blocks.

As will be seen on reference to Fig. I, the hangers 4 extend longitudinally of the furnace and inasmuch as there is a series of these hangers extending entirely across the width of the fire chamber, said hangers provide supports for several rows of radiating blocks 8 extending longitudinally of the furnace, and also a plurality of rows of blocks extending in a direction transversely of the furnace.

To provide for the mounting of my ignition arch, the supporting beams 1 are first mounted in the furnace and spaced apart in

the manner hereinbefore described. One of the side hangers 4 is first put in place so that its arm 7 will rest upon lugs or seats 2 at a side of the furnace fire chamber, a suitable support being placed at the side of the furnace fire chamber. The heat radiating blocks 8 that are to be in part suspended from the side hanger that has been mounted are placed upon said support so that side grooves therein will be received by the flange 5' of the hanger. The hanger 4 that is to occupy a position next adjacent to the side hanger is then put in place so that its supporting arm 7 will rest upon the lugs or seats of the supporting beams provided to receive said arms, and this hanger is shifted horizontally so that its flange 5 facing the flange 5' of the side hanger 4 will enter into the grooves in the sides of the previously positioned heat radiating blocks. A second row of heat radiating blocks is then placed upon the support for the blocks and moved horizontally until they are positioned against the first row of heat radiating blocks and received by the flange of the second hanger, to be supported thereby, after the temporary support beneath them has been removed. This process is continued until all of the hangers and heat radiating blocks have been put in place after which the temporary support is removed.

It will be seen that by carrying out the method of mounting which has been described, it is possible to arrange the heat radiating blocks in close assemblage inasmuch as the hangers are shiftable toward each other on the supporting seats of the beams 1, and that consequently the combined assembled heat radiating blocks constitute practically a solid arch body without objectionable interstices between the blocks. It is obvious that if the blocks to be introduced to comprise the last row of blocks in the arch are of a thickness that will not permit of their being readily inserted when the remainder of the members of the arch have been put in place, the blocks to be mounted in this row may be chipped to the necessary degree to permit of their introduction.

In the event of any one or more of the radiating blocks becoming impaired so as to render it unserviceable in the ignition arch, said block, or blocks, may be readily removed from the hanger by which it is supported by the simple act of slipping it from the hanger, it being evident that if the block, or blocks, in front of the impaired one remain serviceable, it or they may be replaced in former position after a new block has been substituted upon the hanger

for the one that has been removed due to impairment thereof.

I claim:

1. In an ignition arch for furnaces, a support having seats projecting from opposite sides thereof, said seats being spaced apart, a hanger susceptible of being passed upwardly through the space between said seats and then moved laterally to a position of rest upon said seats, and heat radiating sections suspended from said hanger.

2. In an ignition arch for furnaces, a support having integral therewith and projecting horizontally therefrom at opposite sides, rigid seats spaced apart from each other to provide gaps between them, a hanger susceptible of being passed upwardly through said gaps and then moved laterally to a position of rest upon said seats, and a plurality of heat radiating sections suspended from said hanger.

3. In an ignition arch for furnaces, a support having integral therewith and projecting horizontally therefrom pairs of oppositely disposed seat lugs spaced apart from each other to provide gaps between them, a hanger susceptible of being passed upwardly between said gaps and then moved laterally to rest upon a pair of said seat lugs, the hanger being provided at its sides with flanges, and rows of heat radiating sections having grooves in which the flanges of said hanger are seated.

4. In an ignition arch for furnaces, a support having rigid seat lugs extending horizontally from each of its sides, said lugs being spaced apart to provide gaps between them, a hanger provided with arms each forming a pocket in the upper portion of said hanger, the arms being adapted to be moved upwardly through the gaps between said lugs and to be positioned on the lugs, and heat radiating sections suspended from said hanger.

5. In an ignition arch for furnaces, a pair of supporting beams each having at its side farthest removed from the other beam a plurality of rigid seats extending horizontally from the beam and spaced apart to provide gaps between them, hangers susceptible of being moved upwardly beneath said beams and having portions adapted to rest upon said seats for the suspension of the hangers, and heat radiating sections suspended from said hangers.

WILLIAM MILLEN DUNCAN.

In the presence of—

J. N. CRAWFORD,

WALTER L. JUTTEMEYER.