May 8, 1923. 1,454,292

M. LIPTAK

BEAM HANGER

Filed July 2, 1920

FIG. 1

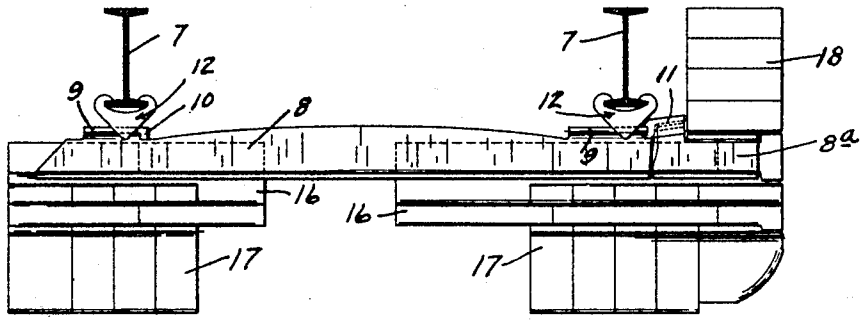


FIG. 6

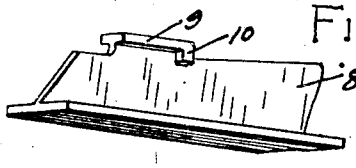


FIG. 2

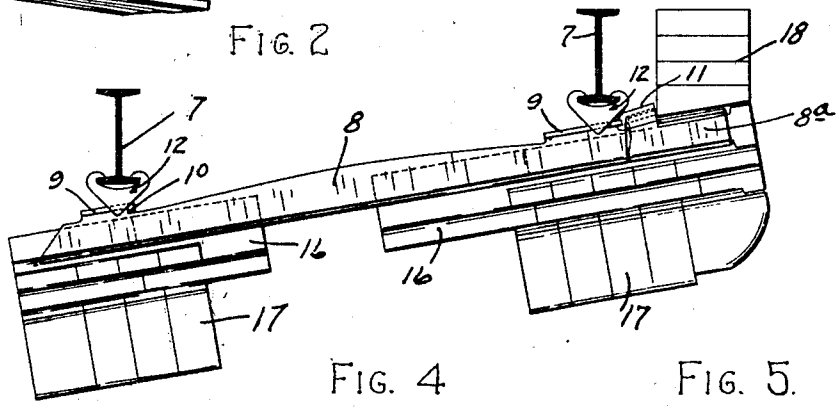
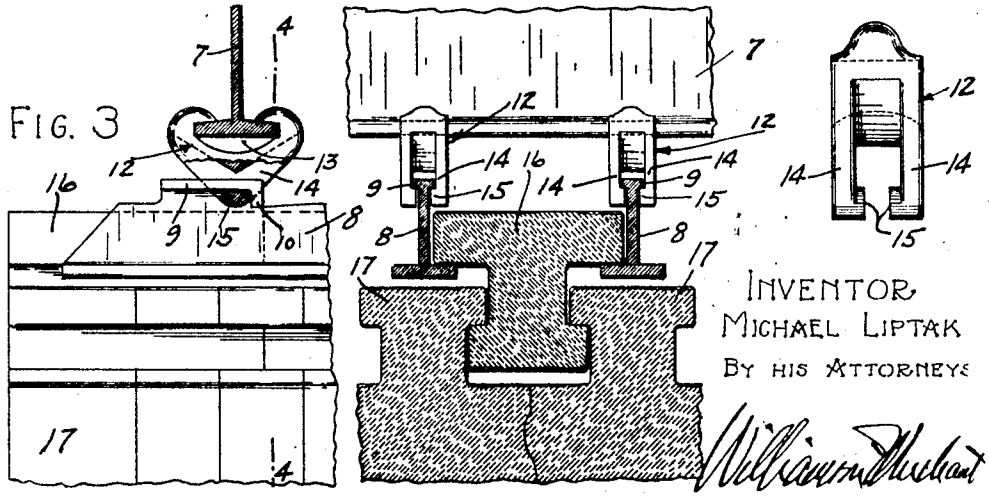


FIG. 4

FIG. 5

FIG. 3



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UNITED STATES PATENT OFFICE.

MICHAEL LIPTAK, OF ST. PAUL, MINNESOTA, ASSIGNOR TO LIPTAK FIRE BRICK ARCH CO., OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

BEAM HANGER.

Application filed July 2, 1920. Serial No. 393,711.

To all whom it may concern:

Be it known that I, MICHAEL LIPTAK, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Beam Hangers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to furnace arches, more particularly, to that type disclosed and broadly claimed in my prior Patent No. 1,326,753, of date, December 30, 1919, and the invention is directed to an improved means for suspending supplemental beams for overhead main beams in such manner that the said supplemental beams may be hung either horizontally or longitudinally inclined. Generally stated, the invention consists of the novel construction and combination of parts hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a side elevation showing the supplemental beams hung from the main beam in accordance with my invention and showing also some of the blocks of the arch, the said supplemental beams being horizontally disposed;

Fig. 2 is a view corresponding to Fig. 1, but showing the supplemental beams obliquely applied;

Fig. 3 is a detail partly in section and partly in elevation, showing on a larger scale than in the other views, the novel connection between the beam hangers and beams;

Fig. 4 is a section taken approximately on the line 4—4 of Fig. 3 some parts being left in full elevation;

Fig. 5 is an edge elevation of one of the beam hangers showing the same removed from working position; and

Fig. 6 is a fragmentary perspective showing the end portion of one of the supplemental beams.

The furnace arch will occupy the usual position in the furnace and may be either inclined or horizontal and it closes the space between the sides and front wall of the masonry and the lower portion of the boiler head. It will be hung from the customary transverse main arch beam 7, the ends of which may be embedded in the side walls of the masonry, not shown. Preferably, and as shown, these main beams are I-beams set with their webs in vertical parallel planes.

A multiplicity of laterally spaced supplemental beams are hung from the lower flanges of the main beams, and these supplemental beams 8 are preferably cast structures flanged at the lower edges of their webs. At places where the supplemental beams 8 underlie the main beam 7 they are formed with short and quite narrow flanges provided at one extremity with depending stop lugs 10. The flanges 9 are at the upper edges of the webs of the beam 8. At their rear or inner end extremities, the supplemental beams 8 are provided with detachable supplemental beam tips 8^a that are slidably engaged with sockets 11 shown as cast integral with the ends of said beams 8; but as this construction constitutes no part of the present invention and is more fully illustrated in my prior patent above identified, it need not be here further considered.

The laterally spaced supplemental beams 8 are hung from the main beams 7 by beam hangers 12, broadly of the character disclosed in my prior patent, but which involve highly important features of improvement. Each such beam hanger, as preferably designed, is formed with a top channel 13 that has overlying lugs that adapt said hangers to be slidably engaged with the lower flanges of the respective main beam 7. Each hanger, at its underside, is bifurcated or formed with laterally spaced depending flanges 14 provided at their lower extremities with spaced but inwardly projecting bearing lugs 15.

The flanges 9 and the webs of the beams 8 are adapted to be slid through a sort of T-shaped channel formed in the lower portions of the beam hangers 12, the said flanges 9 resting on the bearing lugs 15; and here it is of the utmost importance to note that these channels, thus formed in the lower portions of the hangers diverge upwardly in opposite directions from the bearing lugs 15 and have such ample clearance for the flanges 9 that the supplemental beams may be set either horizontally or at

a very considerable longitudinal inclination in either direction.

To facilitate these adjustments, the bearing lugs 15 are rounded on their upper surfaces so that they act a good deal like knife-edge fulcrums for supporting the supplemental beams.

To prevent the supplemental beams from sliding endwise too far through the beam hangers when set in inclinel positions, the flanges 9 are shown as provided with the stop lugs 10, already noted, and which will engage against the bearing lugs 15 to accomplish such function.

The importance of being able to thus install the supplemental beam, either in horizontal or inclined positions is too well understood by those familiar with this art to require any extended discussion. Obviously, the supplemental beam may be very quickly and easily applied in working position by the means above described.

So far as this invention is concerned, the brick work of the masonry portion of the arch may take various forms, but in the drawings I have shown hanger blocks 16 hung from the lower flanges of the supplemental beam 8, underfacing blocks 17 hung from the hanger blocks 16 and other blocks 18 supported by the beam tips.

What I claim is:

1. In a furnace arch, the combination with transverse beams and laterally spaced supplemental beams hung below said main beam, and beam hangers connecting said main and supplemental beam and permitting said supplemental beams to be rocked and hung either horizontally or longitudinally inclined, the said beam hangers having sliding interlocking engagement with said main and supplemental beams.

2. In a furnace arch, the combination with transverse beams and laterally spaced supplemental beams hung below said main beam, and beam hangers connecting said main and supplemental beam and permitting said supplemental beams to be rocked and hung either horizontally or longitudinally inclined, the said beam hangers having sliding engagement with said main and supplemental beams, the said supplemental beams having stops engageable with said hangers to limit the movements of said supplemental beams therethrough in any one direction.

3. In a furnace arch, the combination with transverse main beams having lower edge flanges, of beam hangers having sliding engagement with the flanges of said main beams and provided with depending laterally spaced flanges formed with inwardly projecting bearing lugs, and laterally spaced supplemental beams having flanges adapted to pass between the depending flanges of said beam hangers and to slidably rest upon the bearing lugs thereof with freedom for endwise rocking movements of said supplemental beams so that the latter may be set either horizontally or inclined.

4. In a furnace arch, the combination with transverse main beams having lower edge flanges, of beam hangers having sliding interlocking engagement with the flanges of said main beams and provided with depending laterally spaced flanges formed with inwardly projecting bearing lugs, and laterally spaced supplemental beams having flanges adapted to pass between the depending flanges of said beam hangers and to rest upon the bearing lugs thereof with freedom for endwise rocking movements of said supplemental beams so that the latter may be set either horizontally or inclined, the said supplemental beams having stops engageable with said beam hangers to limit the endwise movements of said beams through said hangers in one direction.

In testimony whereof I affix my signature.

MICHAEL LIPTAK.