(No Model.)

W. M. MATHISEN.

METALLIC ARCH FOR FURNACE FRONTS.

No. 576,872. Patented Feb. 9, 1897.

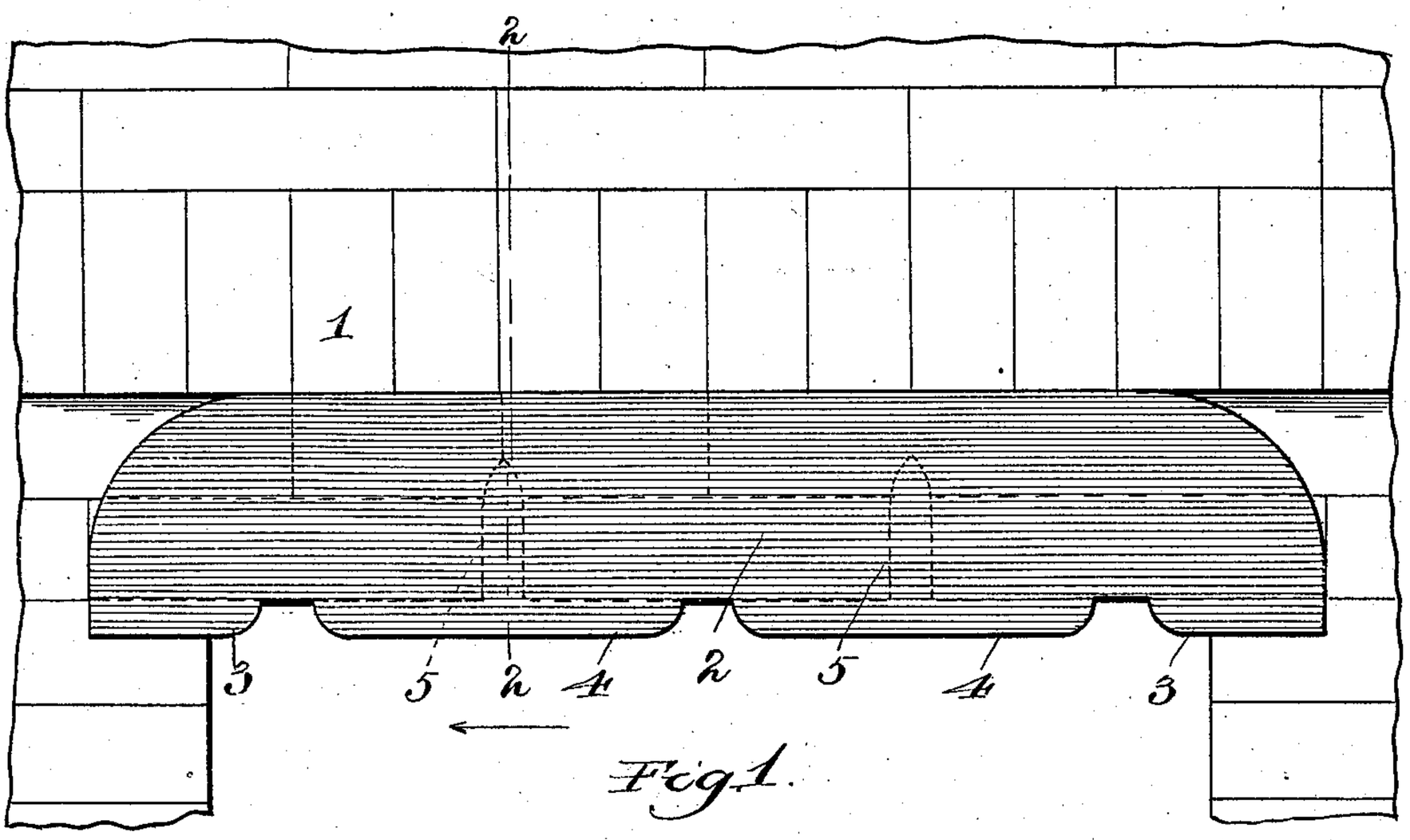

Fig. 1.

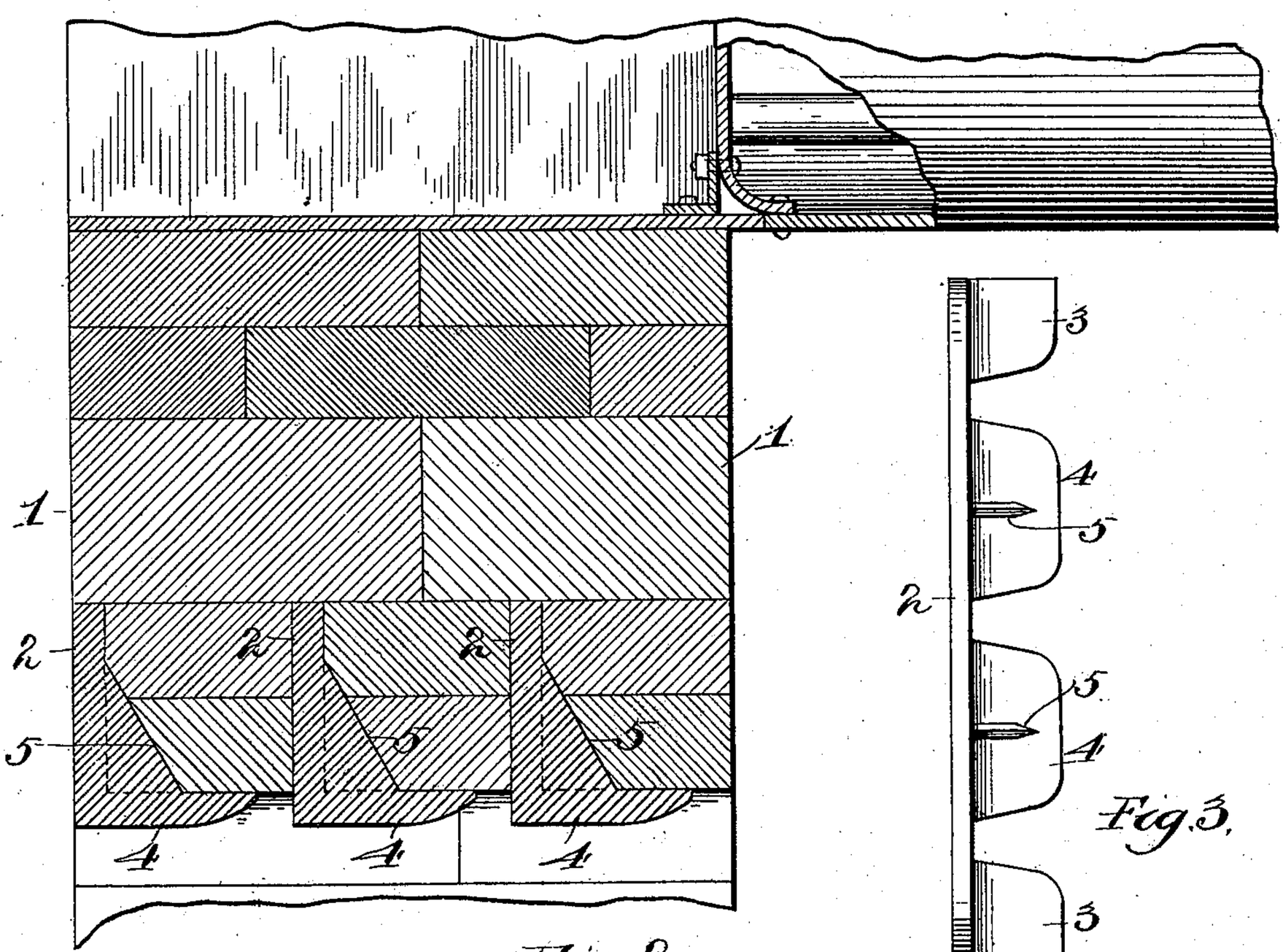

Fig. 2.

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM M. MATHISEN, OF CHICAGO, ILLINOIS.

METALLIC ARCH FOR FURNACE-FRONTS.

SPECIFICATION forming part of Letters Patent No. 576,872, dated February 9, 1897.

Application filed June 29, 1896. Serial No. 597,272. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. MATHISEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metallic Arches for Furnace-Fronts; 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 invention relates to a novel construction in a metallic arch for supporting the brick or tile furnace-fronts of boilers, the object being to provide a device of this description which will not warp or burn out and will support the wall over the fire-door.

My invention consists in the features of construction hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a front elevation of a furnace-front provided with a metallic arch constructed in accordance with my invention. Fig. 2 is a vertical section of the same, taken on the line 2 2 of Fig. 1. Fig. 3 is a top plan view of the arch.

Heretofore it has been customary to construct the front wall of the furnace of a boiler outside of the fire-brick lining 1 of brick or hollow tile. These are sometimes supported by an iron bar and sometimes by an arch formed by the tile. The intense heat to which the iron bar and the brick or tile are subjected usually results in causing the former to warp and the latter to crack, so that in a short time the wall becomes weak and must often be renewed. To overcome these difficulties, I provide a metallic arch comprising a plate 2, provided upon its lower edge with end flanges 3 and middle flanges 4, placed equidistant from each other. The extent of each of said flanges where subjected to the heat is insufficient to permit warping to any considerable degree, and in practice I find that the same do not warp. Said middle flanges 4 are preferably of greater width than said end flanges 3, and are further supported by braces 5 at their middle portions. Said end flanges 3 rest upon the wall at each side of the fire-door and thus support the arch. The outer face of the plate 2 is placed flush with the outer face of the wall and said flanges extend inwardly therefrom. The length of said flanges is slightly less than the width of a brick, so that a brick lying upon the same will extend beyond the inner edge of the same. The lower faces of said flanges are also beveled at their edges, so as to present no sharp projecting corners to the action of the heat. The height of the plate 2 is preferably equal to the height of three bricks.

In practice, after the wall of any desired thickness has been built to the height of the top of the fire-door an arch is placed thereon which will support the fire-brick lining. A second arch is placed in front of this to accommodate another width of brick, and another to accommodate a third, and so on, according to the thickness of the wall. The distance between the ribs 5 is equal to the length of one brick. After said arches have been placed in position the spaces between the same are filled with three courses of brick, or more or less, according to the height of the plate 2. These bricks serve to protect said plate 2 from the heat, but do not form any part of the front wall, as they carry no weight. After said spaces between said arches have been filled to the top, cross-courses of brick are laid so that their ends rest upon the tops of the plates 2 and the wall is then continued upwardly. In this manner the entire weight is carried by said plates 2, while at the same time they are protected from the heat, thus making warping impossible.

I claim as my invention—

1. A metallic arch for furnace-fronts comprising an upright plate provided upon its lower edge with a plurality of flanges at intervals.

2. A metallic arch for furnace-fronts comprising an upright plate provided upon its lower edge with end flanges and middle flanges, said end flanges being adapted to rest upon the wall at the sides of the fire-door, and said middle flanges being adapted to support bricks or tiles to protect said plate from the heat, and braces between said middle flanges and said plate.

3. A metallic arch for furnace-fronts comprising an upright plate provided upon its

lower edge with a series of flanges having beveled edges.

4. A metallic arch for furnace-fronts, comprising an upright plate provided upon its lower edge with end flanges and middle flanges having beveled edges, and braces between said middle flanges and said plate.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM M. MATHISEN.

Witnesses:
RUDOLPH WM. LOTZ,
E. J. BOILEAU.