

W. McMonnies,

Grate Bars,

N^o 99,582.

Patented Feb. 8, 1870.

Fig. 1

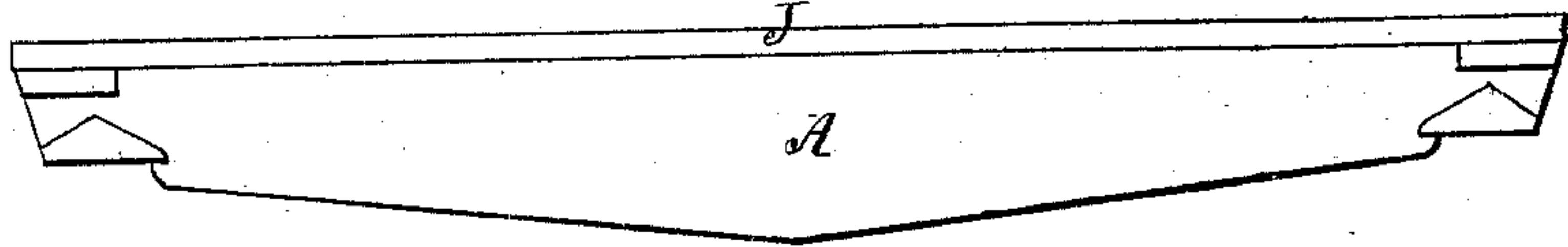


Fig. 2

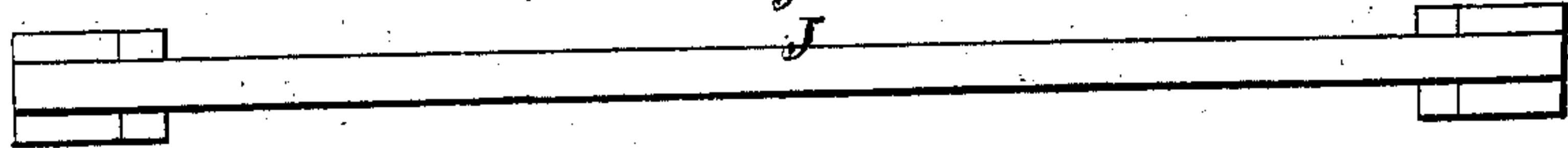


Fig. 3.

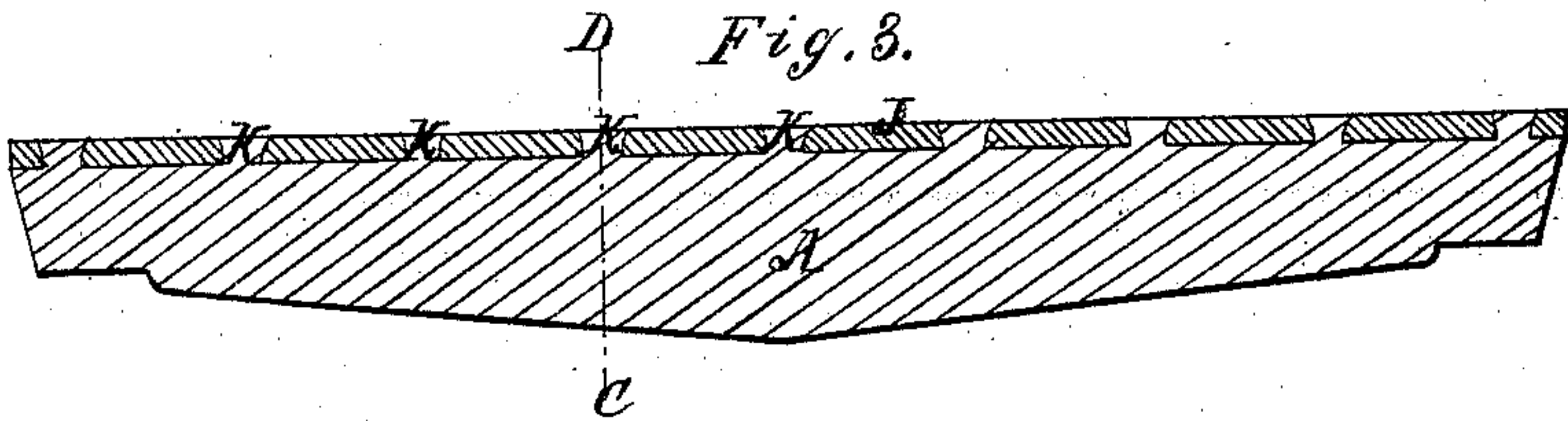


Fig. 4.

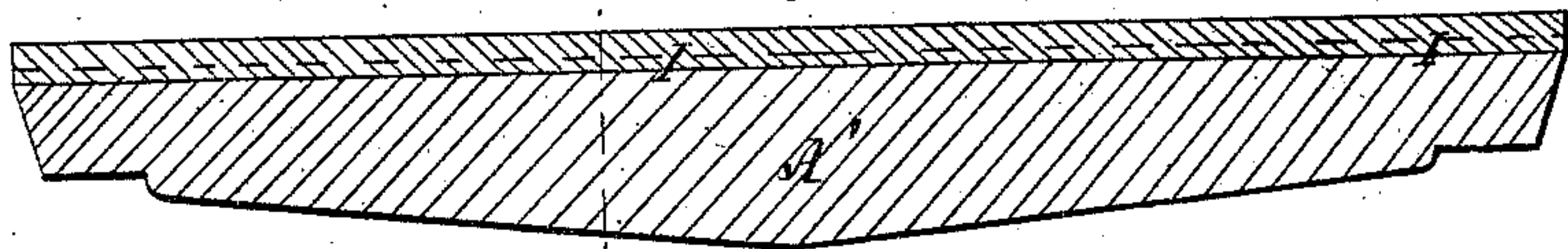


Fig. 5

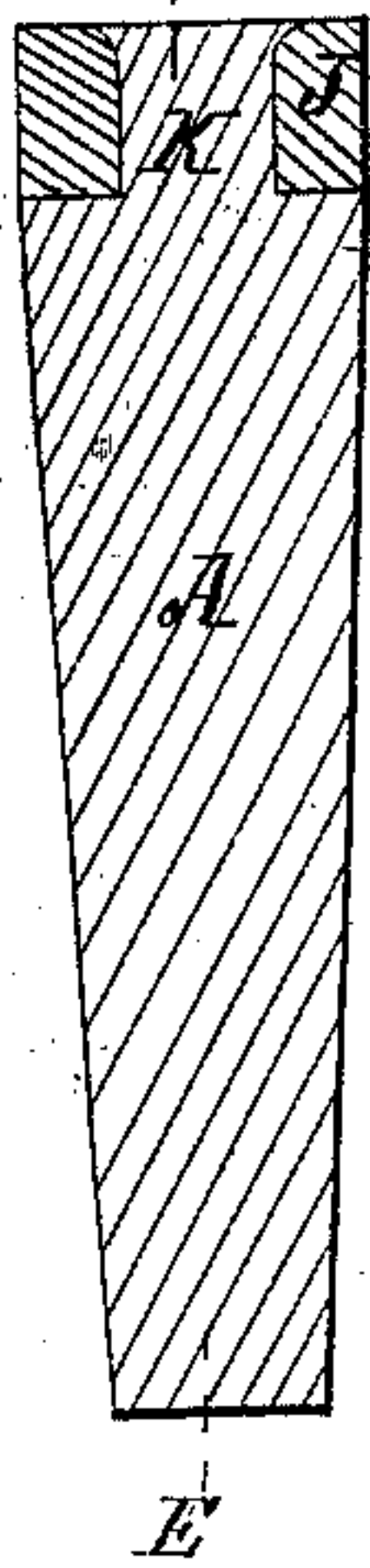
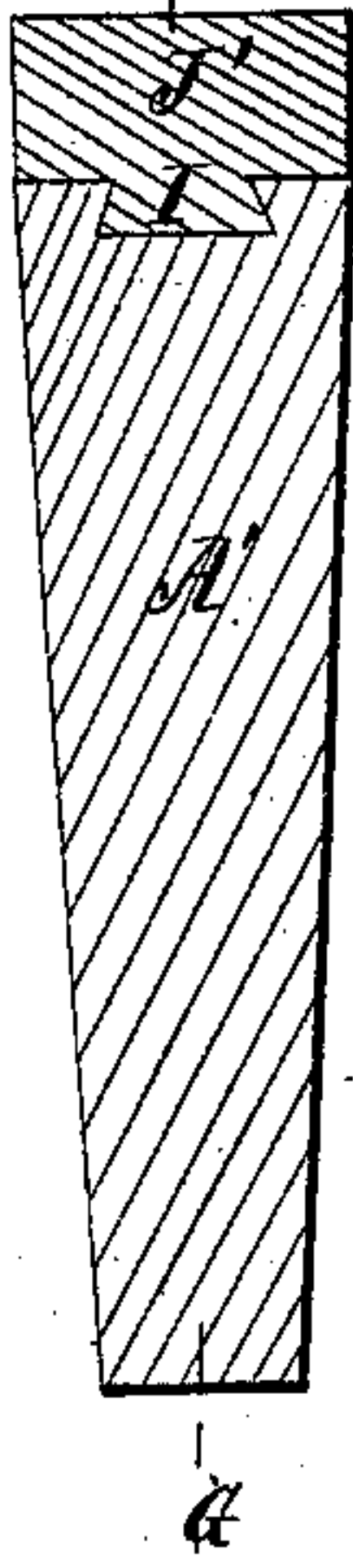


Fig. 6.



Witnesses

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WILLIAM McMONNIES, OF BROOKLYN, NEW YORK.

Letters Patent No. 99,582, dated February 8, 1870.

GRATE-BAR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM McMONNIES, of the city of Brooklyn, in the county of Kings, State of New York, have invented an Improvement in Grate-Bars; and I do hereby declare the following to be a full and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a view of the side of my improved grate-bar.

Figure 2 is a view of the top edge of the bar.

Figure 3 is a longitudinal section, taken centrally through the bar in a vertical plane.

Figure 4 is a similar section, taken through a bar having the top-piece united to it by a dovetail.

Figure 5 is an enlarged cross-section through the bar of figs. 1 and 2.

Figure 6 is an enlarged cross-section taken through the bar of fig. 4.

Similar letters of reference indicate like parts in all the figures.

This invention relates to an improvement on the construction of grate-bars for furnaces for steam-boilers and other purposes, and also for fire-places generally.

The nature of my invention consists in a combination of wrought-iron with cast-iron in the construction of grate-bars, in such manner that the wrought-metal, which has the greatest power of resisting intense heat, will be presented to the fire, and afford protection to the cast-metal, which latter constitutes the body of the bar, as will be hereafter explained.

I am aware that previous to my invention, grate-bars have been constructed entirely of wrought-metal, but owing to the expense of this metal, it has been found more economical to construct the bars of cast-iron. Cast-iron bars are very soon "burned out," when subjected to the intense heat of a "furnace fire," and to increase their durability, grate-bars have been

constructed with removable cast-iron top-pieces, which could be detached from the main portions of the bar, when "burned out," and new tops substituted in their stead. The objection to these removable top-pieces is mainly the difficulty of fitting them together, and preventing displacement of the parts by warping.

To enable others skilled in the art to understand my invention, I will describe two practical modes of carrying it into effect.

In the accompanying drawings, figs. 1, 2, 3, and 5, I have represented my invention applied to a grate-bar of a well-known form. The body or main portion A, of this bar, is of cast-iron, and the top, strip, or cap, J, is of wrought-metal, united to the top edge of the portion A during the process of casting this portion, by forming flaring holes into or through the cap J, at suitable distances apart, and arranging this cap in the mould in such a manner that the cast-metal will fill these places, as indicated at K K, and thus firmly and permanently uniting the cast-metal and wrought-metal.

Instead of holes made into or through the wrought-metal cap J, a dovetail tenon or rib, I, may be rolled on the caps, as shown in figs. 4 and 6, and the cast-metal body A united by casting, substantially as above described. In this instance the connection of the cap to the bar or body A, is effected by a dovetail coupling; that is to say, by the embedding of the tenon or rib into the upper edge of the bar A.

Having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The construction of grate-bars, for steam and other purposes, with wrought-iron caps and cast-iron bodies, substantially as shown and described.

WM. McMONNIES.

Witnesses:

WARREN E. HILL,
A. W. TAYLOR.