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HENRY HARTWIG.

Improvement in Grate Bars.

No. 122,460.

Patented Jan. 2, 1872.

Fig. 1

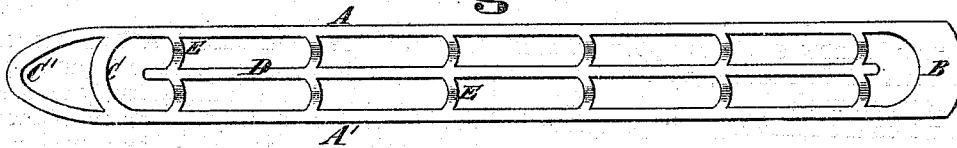


Fig. 2

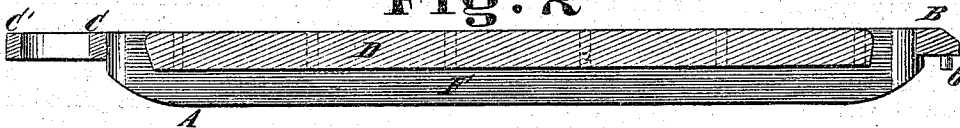


Fig. 3

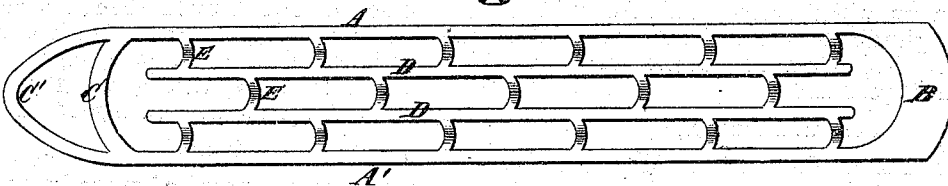


Fig. 4

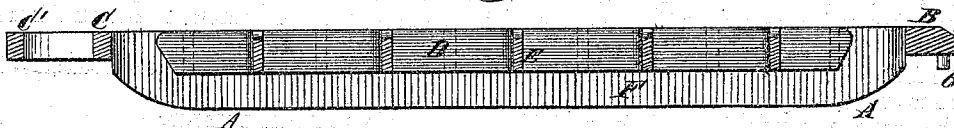
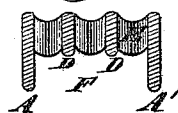


Fig. 5



Attest

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UNITED STATES PATENT OFFICE.

HENRY HARTWIG, OF COVINGTON, KENTUCKY.

IMPROVEMENT IN GRATE-BARS.

Specification forming part of Letters Patent No. 122,460, dated January 2, 1872.

I, HENRY HARTWIG, of Covington, Kenton county, State of Kentucky, have invented a certain new and useful Improvement in Grate-Bars, of which the following is a specification:

Nature and Objects of Invention.

My invention consists of a grate-bar composed of three or more bars cast in one piece in such a way that all the bars are connected together laterally, and the central or intermediate ones are detached from the exterior bars longitudinally for the purpose of so locking the bars laterally as to prevent warping in that direction, and providing perfectly for the unequal longitudinal expansion and contraction.

Description of the Accompanying Drawing.

Figure 1 is a plan of my improved grate-bar when composed or cast with three longitudinal bars. Fig. 2 is a longitudinal section of the same. Fig. 3 is a plan of my improved grate-bar when cast with four longitudinal bars. Fig. 4 is a longitudinal section of the bar exhibited in Fig. 3. Fig. 5 is a cross-section of the bar shown in Figs. 3 and 4.

General Description.

The exterior or side bars A A' of my improved complete grate-bar are connected at the ends by the thin strips B C C', the strips B being adapted to rest upon, and being pivoted by pin *b* to the supporting cross-bar of the furnace. The strips C C' rest upon the fire-front of the boiler or other suitable support, and are of a shape as shown, adapted to afford the fireman convenience for shaking the grate-bars, each of which is sufficiently separated from the others in the furnace to permit of shaking. The central or intermediate bar or bars D are con-

nected to the outer bars A A' by short curved bridges E, but they are free to expand or contract longitudinally independently of the side bars by reason of their having no connection with the end pieces B C. The curved character of the bridges E assists in permitting the bar or bars D to expand or contract independently of the outer bars A A'.

I do not desire to confine myself to the exact construction of the bar or bars D shown in the drawing, as the same result may be attained by making the bar D in two lengths, separated at mid-length of the grate-bar, and either disconnected from or attached to the end pieces B C. So long as the bar D is not tied to both end pieces B C the effect is accomplished.

In order to give the bar great stiffness to resist the weight of the load in the furnace and yet provide for the introduction of cold currents of air to keep the bars so cold that clinkers cannot be formed upon them, I construct the outer bars A A' of great depth and the intermediate ones of but little depth. This leaves a channel, F, throughout the entire length of the bar for the passage of air.

Claim.

A grate-bar, composed of outer frame A A' B C and intermediate bar or bars D, the latter being connected to frame A A' by bridges E and disconnected from one or both of the ends B C, as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

HENRY HARTWIG.

Witnesses:

HENRY MILLWARD,
J. L. WARTMANN.

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