J. C. KILGORE.

Gang Grate-Bars.

No. 152,386. Patented June 23, 1874.

Fig. 1

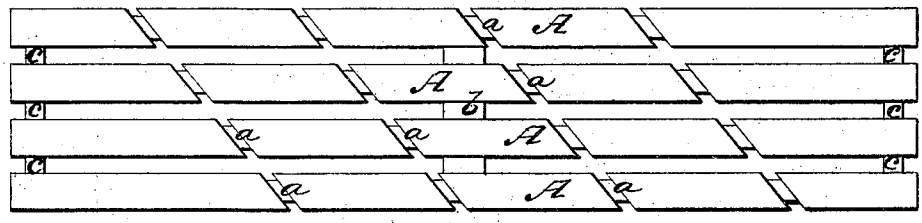


Fig. 2

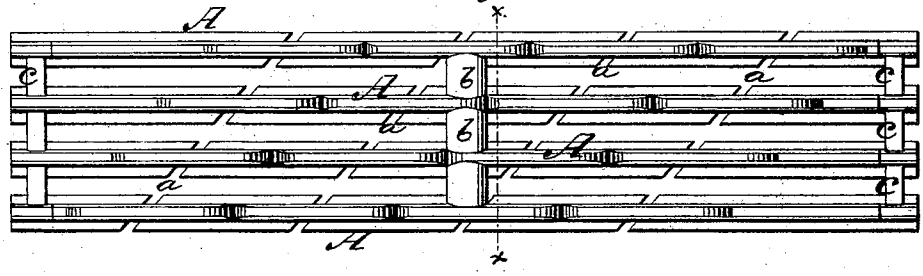


Fig. 3

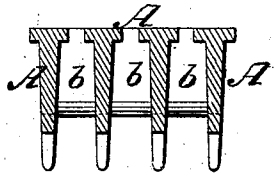
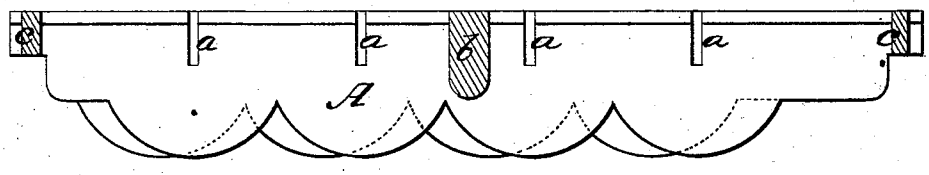


Fig. 4



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN C. KILGORE, OF SHARPSBURG, PENNSYLVANIA, ASSIGNOR TO THE ECLIPSE STEAM MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN GANG GRATE-BARS.

Specification forming part of Letters Patent No. **152,386**, dated June 23, 1874; application filed April 18, 1874.

To all whom it may concern:

Be it known that I, JOHN C. KILGORE, of Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and valuable Improvement in Gang Grate-Bars; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a top view of my grate, and Fig. 2 is a bottom view of the same. Fig. 3 is a cross-section, and Fig. 4 is a longitudinal vertical sectional view.

This invention has relation to grate-bars which are cast in gangs or sections composed of several parallel bars; and it consists in the combination of fragile connecting-bars at the ends of the grate-bars with heavy intermediate bars, whereby the grate-bars will not crack in casting them, as will be hereinafter explained. It also consists in scalloping or waving the lower edges of grate-bars, which are grooved transversely upon their upper surfaces, for the purpose of allowing these bars to expand and contract lengthwise without liability to crack.

In the annexed drawings, A A designate grate-bars, which, in cross-section, are T-shaped, and which have downwardly-tapered webs and scalloped lower edges. The drawing represents a section of grate composed of four parallel bars, A; but these sections or gangs may be composed of a greater or a less number of bars. The grate-bars A have cross-bars or spacing portions *b c c* cast between them. The intermediate or middle portions *b* are heavy and strong, and are not designed to crack while casting the grate; but the end bars or portions *c c* are made comparatively light and fragile, and many of them will crack while casting the grate. It is necessary to have the bars *c c* between the ends of the grate for the purpose of keeping the latter at proper distances apart; but heretofore the bars or spacing portions were made so large and strong that frequently the ends of the grate-bars would crack in casting the grate, owing to unequal expansion or contraction of the parts. I obviate this difficulty by allowing the portions *c* to crack or give way and thus relieve the grate-bars. The top of each grate-bar has a number of grooves, *a*, running diagonally across it, which grooves prevent the bars from cracking while casting them, and also when they are subjected to expansion and contraction in a furnace. The lower edge of each grate-bar is scalloped or waved, which renders it less liable to crack when subjected to extremes of heat and cold.

Prior to my invention grooves have been made across the tops of grate-bars, at right angles to the length of the bars, for the purpose above named; but such grooves are very objectionable for the reason that they do not allow the "hoe" or scraper to be drawn freely over the bars while clearing them of lodged cinders. The diagonal grooves not only allow the hoe to be freely moved over the grate, but they operate with a shearing or draw-cutting action to break up the cinders when the hoe is used.

By scalloping the lower edges of the bars, as shown, I obtain equal weight of metal all over the bar, which prevents cracks from shrinkage and secures equal strength.

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

1. In a gang-grate, the connecting-bars *c*, in combination with the middle bar *b*, the former being made comparatively fragile, so that they will crack and relieve the grate-bars, substantially as described.

2. A grate-bar having its lower edge scalloped or waved and its upper surface grooved transversely, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN C. KILGORE.

Witnesses:

GEORGE E. UPHAM,

ROBERT EVERETT.