

R. A. Hutchinson,

Furnace Grate Bar.

No. 107,780.

Patented Sept. 27, 1870.

Fig. 1.



Fig. 2.

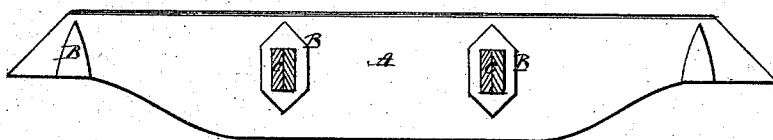


Fig. 3.

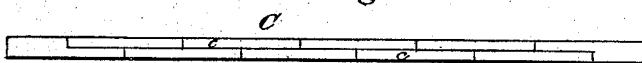


Fig. 4.



Witnesses.

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REUBEN A. HUTCHINSON, OF BERGEN, NEW JERSEY.

Letters Patent No. 107,780, dated September 27, 1870.

IMPROVEMENT IN GRATES FOR FURNACES.

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, REUBEN A. HUTCHINSON, of Bergen, in the county of Hudson and in the State of New Jersey, have invented certain new and useful Improvements in Grate-Bars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of the upper side of my improved grate-bars, as secured in relative position;

Figure 2 is a vertical longitudinal section of the same, on the line $x x$ of fig. 1;

Figure 3 is a top view of the sectional rod employed in connecting together the bars; and

Figure 4 is a side elevation of a washer, for use upon said rod and between said bars.

Letters of like name and kind refer to like parts in each of the figures.

My invention is an improvement in the means employed for connecting together grate-bars; and

It consists, principally, in securing grate-bars in their proper relative positions, by means of one or more rods, passing horizontally and transversely through suitable openings within the same, substantially as hereinafter set forth.

It also consists in the peculiar construction of the rod, employed for connecting together the bars, by means of which the length of said rod may be varied in accordance with the number of bars used, as hereinafter shown.

It finally consists in securing the desired lateral adjustment of the bars, with relation to each other, by means of washers, interposed between the same, and supported by the connecting-rods, substantially as and for the purpose specified.

In the annexed drawing—

A and A represent a series of grate-bars, having the usual form, and each provided with two or more bosses, B, projecting horizontally outward from opposite sides thereof, with their vertical faces parallel with the sides of said bars.

As seen in fig. 2, the sides of the bosses B are vertical and parallel, until within about one-fourth their length from the upper and lower ends thereof, from whence said sides extend inward, at an angle of about forty-five degrees, and, meeting, furnish a double incline, the object of which is to throw to either side the ashes falling between said bars, and thus prevent any from lodging so as to obstruct the free passage of air through the grate.

Passing horizontally and transversely through each

boss, is a rectangular opening, having its longest axis faced vertically, which receives a corresponding metal bar C, that, passing through the entire set of bars, confines them in their proper relative positions, and prevents displacement from the action of the fire or from accident.

Although the rod C may be formed of one piece, if desired, it has been found advantageous to construct it of a series of short bars, c , having a length equal to the distance between the centers of the outer of three bars, and a thickness equal to one-half that of said rod C, so that, when placed in position, within said bars, with the sections "breaking-joints," as shown in fig. 3, each section shall have a bearing within three bars.

The end sections c are the full thickness of the bar C, from their outer ends inward, one-half their length, and, from thence to their inner ends, are tenoned out so as to receive the end of one of the sections c .

As thus constructed, the rod C may be adjusted to position or removed, or any one of the grate-bars taken out, without interfering with and requiring the removal of the entire grate, in addition to which the cost of repairs to said rod is materially lessened, as, when any portion becomes warped or burned out, it can be replaced at a comparatively small expense.

For use in different furnaces, it being required that the grate-bars should be capable of a relatively lateral adjustment, so as to vary the width of the air-passages between the same, the lugs upon the sides of the bars are constructed of such a thickness as to enable said bars to be placed as closely together as is ever required, while, in order to increase the space between the same, and insure their relative lateral positions, one or more washers, D, having the general form of said lugs, are placed upon each connecting-rod and between each grate-bar, as shown in fig. 1.

Having thus fully set forth the nature and merits of my invention,

What I claim as new is—

1. The rod C, composed of the overlapping sections c and c' , substantially as and for the purpose specified.

2. In combination with the grate-bars A and the rod C, the washers D, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing, I have hereunto set my hand this day of June, 1870.

REUBEN A. HUTCHINSON.

Witnesses:

J. M. KEEP,

W. A. NICHOLS.