

J. B. LARKIN.

Grates.

No. 158,719.

Patented Jan. 12, 1875.

Fig. 1

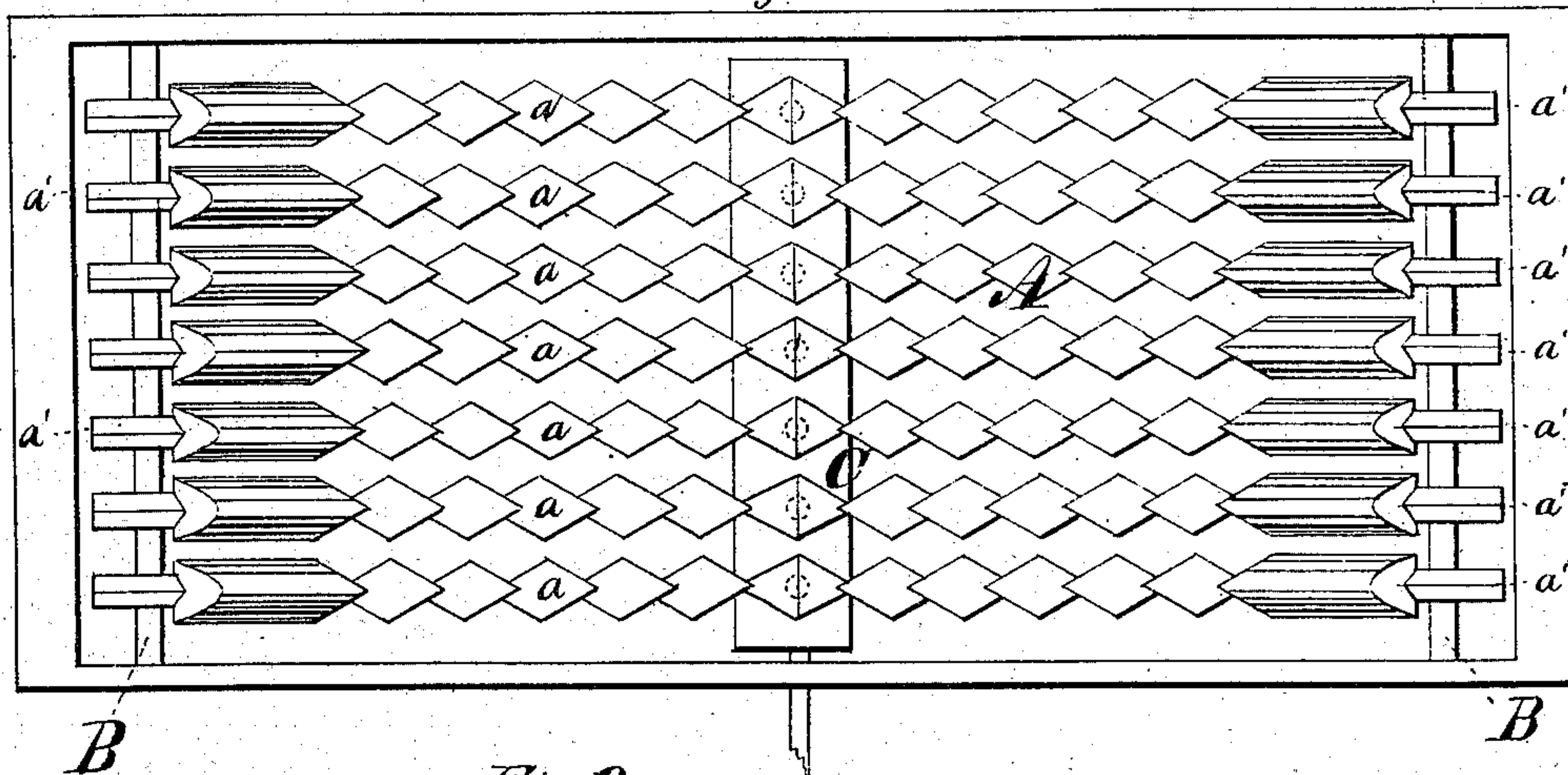


Fig. 2

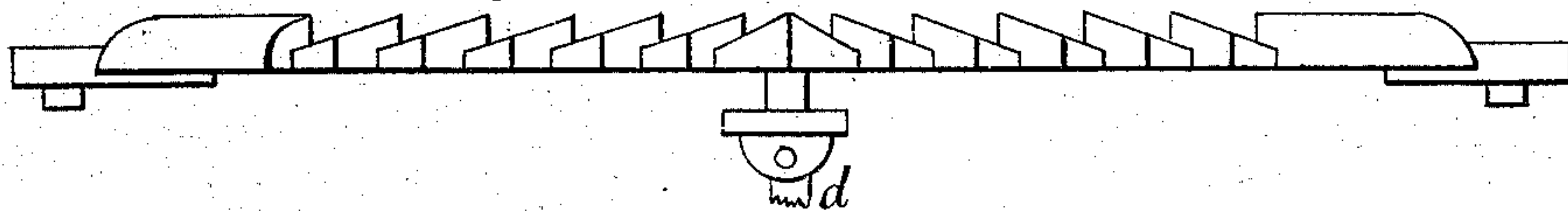


Fig. 3.

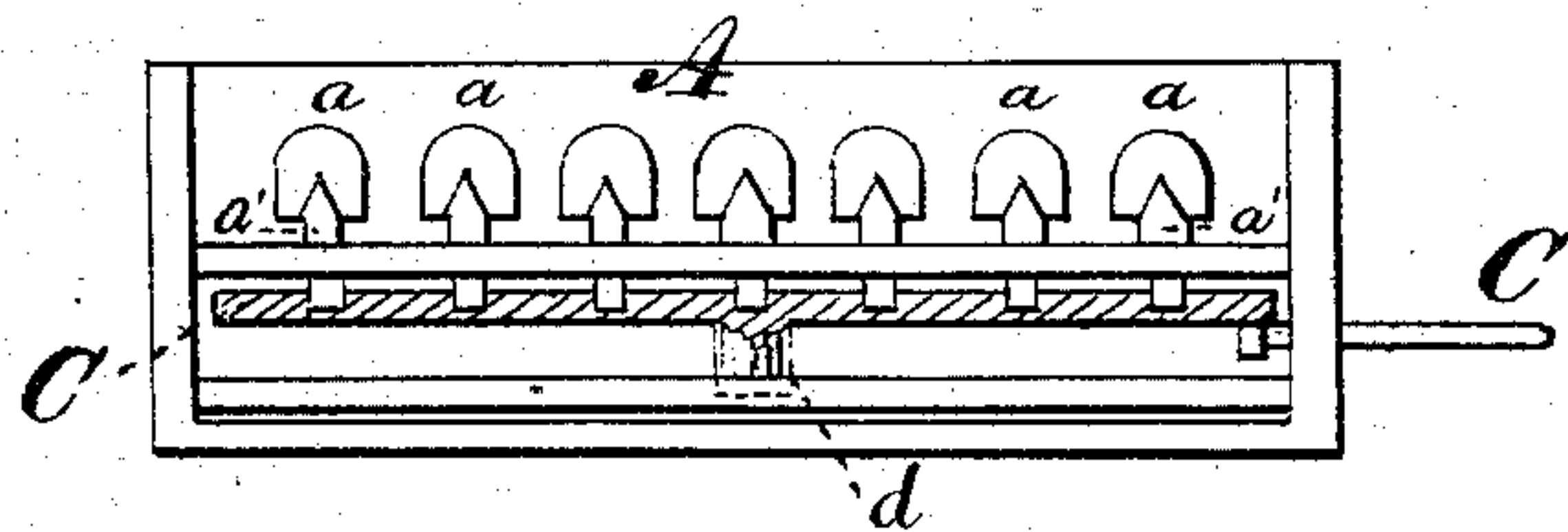


Fig. 4.

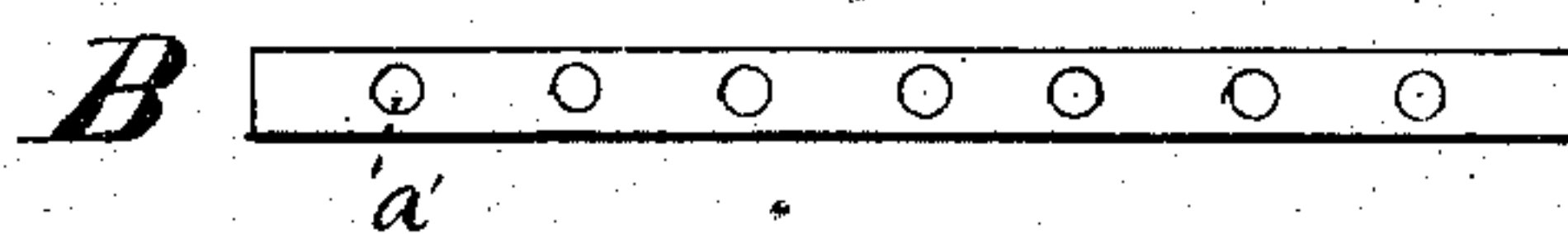


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN B. LARKIN, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN GRATES.

Specification forming part of Letters Patent No. **158,719**, dated January 12, 1875; application filed December 8, 1874.

To all whom it may concern:

Be it known that I, JOHN B. LARKIN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Grate-Bars and Supports; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a plan view. Fig. 3 is an end elevation, partly sectional. Fig. 2 is a side elevation of a grate-bar and support. Fig. 4 is a modification of the support. Fig. 5 is a modification of the support.

My invention relates to the construction of end supports for sliding or canting grate-bars, and is designed as an improvement in my Letters Patent No. 151,706, to more especially adapt the same to application to house-grates; and consists in supporting the ends of the grate-bars, placed either laterally, longitudinally, or diagonally upon a cross-bar, which has tongues, grooves, or ridges running in the direction of the grate-bars, and forming, as it were, continuations of the same; or it may consist of a bar grooved, ridged, or honeycombed in the direction of the grate-bars, so as to allow the ends of the latter to move in and out in a manner equivalent to that mentioned; or the bars may be hollow and the tongues slide inside them.

In order to permit the agitating or canting of movable grate-bars, space must be left between their ends and the walls of the grate, and through this space quantities of unconsumed fuel pass and are wasted, while the opening may at any time become clogged with clinkers or large cinders.

To obviate this I use my construction, which, more particularly, is as follows, reference being had to the accompanying drawings.

A designates a grate-bed composed of a series of movable bars, *a*, of any shape or form, placed longitudinally, laterally, or diagonally. Under each end of the bars, and supporting the same, are tongues *a'*, or their suggested equivalent, extending out on one or both sides

of the cross-bars B, so that in the oscillating or vibrating of the grate-bars the tongues *a'* will form continuations of the bars respectively, and effectually prevent coal, cinders, or other substances from passing through into the ash-pit during the movement of the grate-bars, while at the same time the tongues, or equivalent, form a guide and support for the bars.

The alternate rocking or canting in opposite directions of the bars *a*, I accomplish by placing a pivoted rocking-bar, C, at the middle or at one end of and crosswise under the grate-bars, and attaching it to the latter by pins or pegs entering recesses in the grate-bars, and so arranged, loosely, that by vibrating the end of the rocking-bar its two ends pass each on a different side of the transverse line, and thus produce an alternate and reciprocating motion in the bars, which move both in the direction of their length, for the purpose of working out the ashes, and laterally for regulating the admission of air to the fire. The rocking-bar C is pivoted at or near its middle point by a pin or peg, *d*, which may serve also as a support.

The operation is as follows: Suppose the grate-bars are all in place with their ends on a line parallel with the ends or sides of the grate A; then the rocking bar or handle thereof projects at a right angle. By vibrating it to the right, one-half the grate-bars are shifted to the right and one-half to the left, their ends being all in the same oblique line parallel with the new line of position taken by the rocking bar. By vibrating the rocking bar to the left the bars are thrown into the reverse position. Now, during this operation, the ends of the grate-bars are alternately withdrawn from and approach to the walls of the grate, leaving a space, which I fill with the supporting-tongues *a'*, for they do not move, but form a support and guide for the grate-bars while acting as their virtual substitutes, and thus prevent the passage of coal, cinders, or other substances.

As before mentioned, the principle involves several modifications.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination with the grate-frame A and the longitudinally-reciprocating grate-bars *a*, the supplementary transverse bars or bridges B supporting the bars *a* at their ends, said grate-bars and bridges being correspondingly grooved, or recessed and ridged, substantially as and for the purpose described.

2. In combination with the longitudinally-vibrating grate-bars *a*, the simple lever C connected to each separately, and having an in-

dependent fulcrum, *d*, below, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of December, 1874.

JOHN B. LARKIN.

Witnesses:

T. J. McTIGH,

PETER KRUETER.