P. W. PRATT.

DEVICE FOR OPERATING GRATE-BARS.

No. 182,223. Patented Sept. 12, 1876.

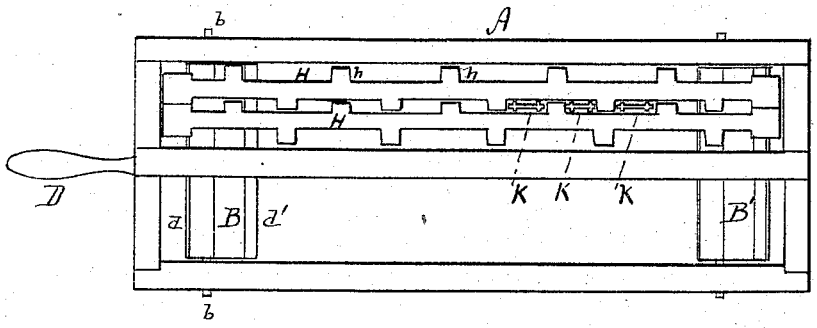

Fig. 1.

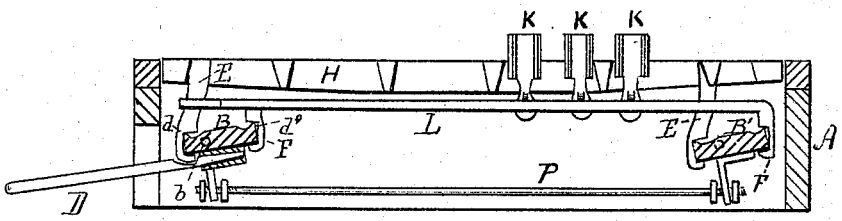

Fig. 2

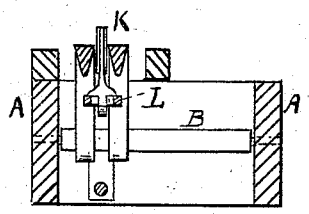

Fig. 3.

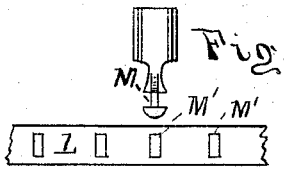

Fig. 4

Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

PHILIP W. PRATT, OF ABINGTON, MASSACHUSETTS.

IMPROVEMENT IN DEVICES FOR OPERATING GRATE-BARS.

Specification forming part of Letters Patent No. **182,223**, dated September 12, 1876; application filed December 13, 1875.

To all whom it may concern:

Be it known that I, PHILIP W. PRATT, of Abington, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Grate-Bars, of which the following is a specification:

The nature of my invention consists in the peculiar construction and method of supporting grate-bars, the arrangement being such that two sets of bars, forming a single fuel-surface, have an alternating vertical movement—that is, one set may be moving upward while the other is moving downward, the motion being communicated by the action of a lever or some other suitable device worked by the fireman.

Figure 1 is a plan showing two long bars of one set, and a few short bars or projecting pieces of the other set. Fig. 2 is a vertical section of the same lengthwise of the grate. Fig. 3 is a cross vertical section of the same. Fig. 4 shows in elevation one of the short bars or projectors. Fig. 5 is a plan of a part of a long plate that serves to hold the lower ends of the short bars or projectors.

Let A represent the walls of a furnace. B, Figs. 1, 2, and 3, is a flat cross-bar pivoted at *b b*, as shown in Figs. 1 and 2, so that it may have a rocking motion, the rocking motion being imparted to it by the lever D, Figs. 1 and 2. As the pivots *b* are nearer to edge *d* than the edge *d'*, it is evident that when the cross-bar B is rocked the motion of the edge *d* will be less than the motion of the edge *d'*. The same may be said of the rear cross-bar B'. The grate-bar H is provided with small projections *h h*, as shown. These bars H H are connected loosely to the rocking cross-bars B B' by the arms E, Fig. 2, so that when the cross-bars B and B' are rocked the grate-bars H H move up and down vertically. L, Figs. 2, 3, and 5, is one of a series of longitudinal plates placed under the grate-bars, as shown. These plates are attached to the rocking bars B and B' by the arms F, Fig. 2. The arms F connect the plate L to the edge *d'* of the rockers B and B', so that the motion of L is greater than the motion of the grate-bars H, when the rockers B and B' are moved. Between each set of grate-bars H H I place a series of projectors, K K K, Figs. 1, 2, 3, and 4. These may be made in the shape shown in Fig. 4, or in any other suitable form. The lower end of these projectors is made with a neck, M, above and below which the parts are enlarged, the enlargement at the extreme lower end being made oblong, so that when the projector is turned in one direction this oblong enlargement can pass through the hole M' in the plate L, Fig. 5, the parts being so arranged that when the lower end of the projector is passed through the plate L, and the said projector turned a quarter, it will be locked into the plate L, as shown in Figs. 2 and 3. As the projectors K are attached to the plate L, it is evident that they will move whenever the rockers B and B' are moved, the arrangement being such that when the projectors K K are going down the grate-bars H will be going up, and vice versa. The form and style of these bars may be varied to suit the requirements of different kinds of fuel. If desirable, a set of long bars may take the place of the projectors K, or the long bars H may be omitted, and a series of projectors substituted for them. The two rocking plates B and B' are connected together by the rods P, as shown in Fig. 2.

I claim as my invention—

1. The combination of the rocking plates B B' and the rod P with the arms E E' and bars H, all operating together substantially as described, and for the purpose set forth.

2. The combination of the rocking plates B B' and the rod P with the plate L, arms F, and projections K K, all operating together substantially as described, and for the purpose set forth.

PHILIP W. PRATT.

Witnesses:
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