

(No Model.)

J. L. MASON.  
FURNACE GRATE.

No. 480,952.

Patented Aug. 16, 1892.

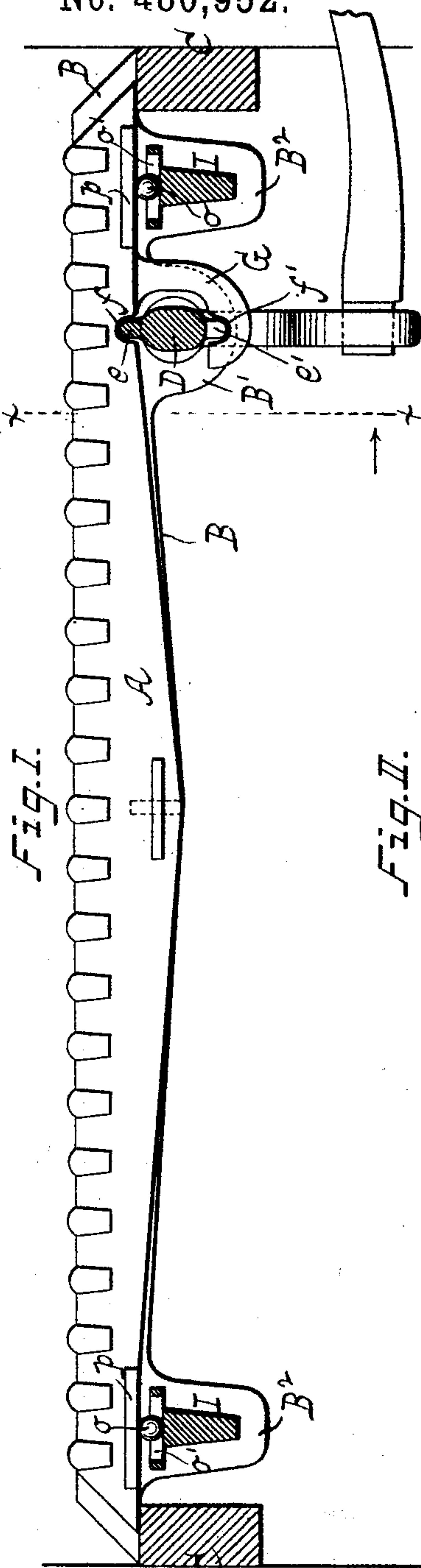
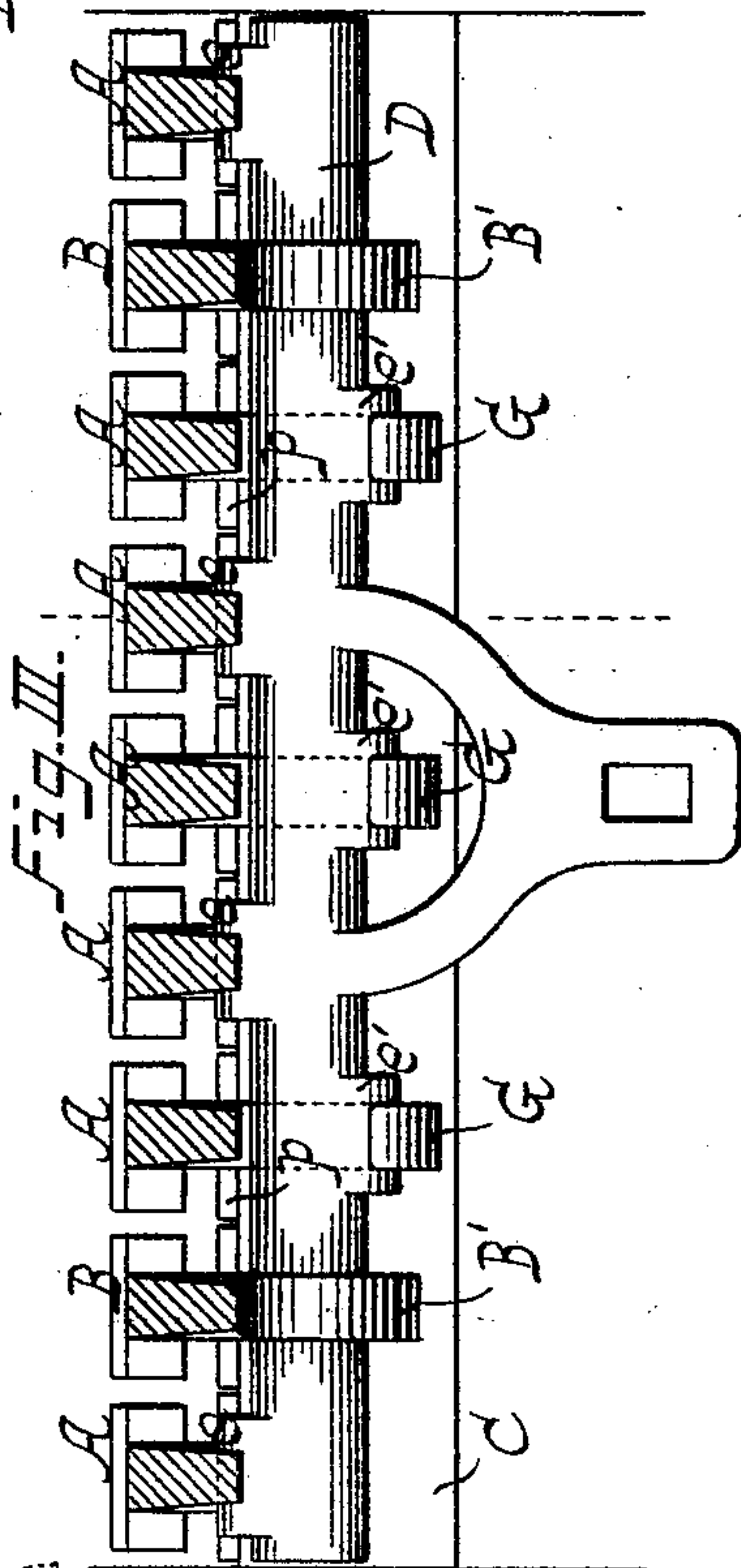
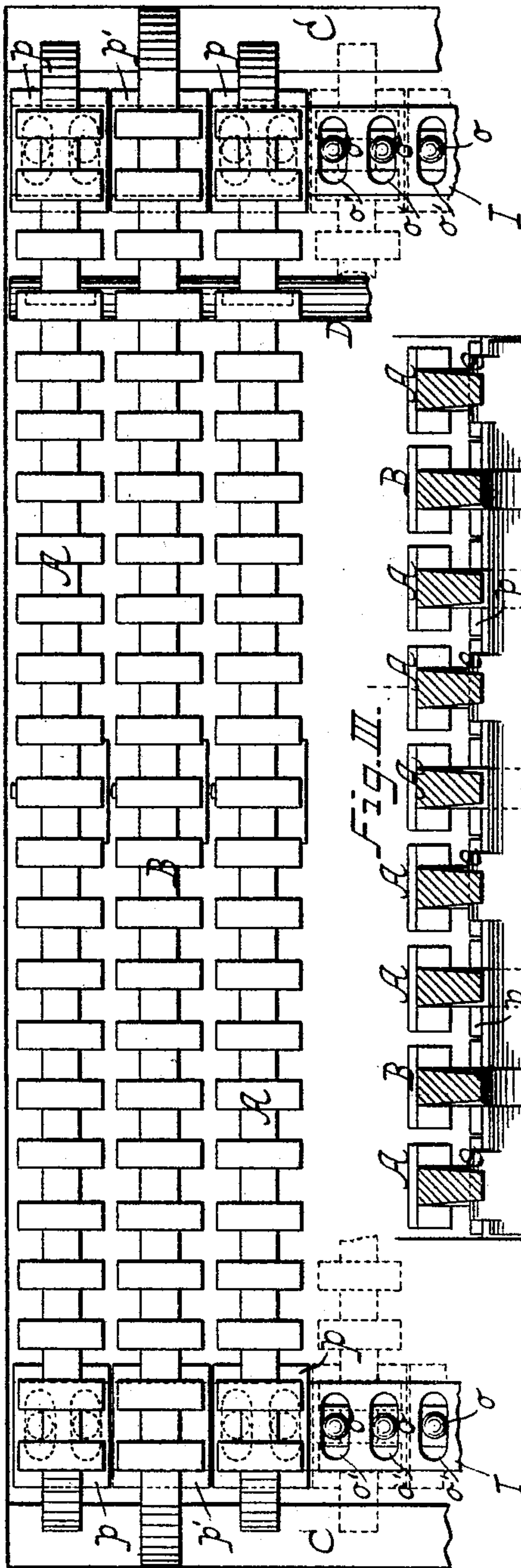


Fig. II.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN L. MASON, OF BROOKLYN, NEW YORK.

## FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 480,952, dated August 16, 1892.

Application filed August 7, 1891. Serial No. 401,965. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN L. MASON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a specification.

My invention relates especially to that class of furnace-grates incorporating longitudinally-movable grate-bars and a rocking cross-bar for operating the same; and it consists of certain novel features of construction for producing various advantageous results, as hereinafter fully described.

In the accompanying drawings, Figure I represents a vertical longitudinal section of a grate embodying my invention. Fig. II represents a plan or top view of a portion thereof. Fig. III represents a vertical cross-section thereof on the line *xx*, Fig. I.

Similar letters of reference indicate similar parts.

The letter A indicates the movable grate-bars, and B fixed grate-bars, usually two in number, resting on sills C at each end of the furnace, these sills also partly supporting the movable grate-bars.

The letter D indicates the rocking cross-bar, which is located below the grate-bars at one end of the furnace. This rocking bar D is fitted and supported in stirrups B', which are formed on the fixed grate-bars coincident to each other, and it engages each of the movable grate-bars A by means of lugs *e e'* as follows: Each of a portion of the series of movable grate-bars A is formed with a notch *f* in its lower edge to receive the lug *e*, which is on the upper edge of the rocking bar D, and each of another portion of the series of said movable bars alternating with the first-named portion thereof has an arm G, which is hook-shaped, projecting downwardly therefrom, in the upper edge of which arm is formed a notch *f'* to receive the lug *e'* on the lower edge of the rocking bar, so that when motion is imparted to the rocking bar it acts in one direction on those bars having the notch *f* and in the other direction on the bars having the arm with the notch *f'*, thereby imparting to the bars a reciprocating motion alternately in opposite directions. By this construction the operation of the movable

grate-bars may be effected by the direct action of the rocking bar D and without the use of any extraneous connections—such as links—for that purpose.

The letter I indicates two stationary cross-bars lying parallel to the rocking bar D at the opposite ends of the grate, each of which stationary bars is fitted and supported in stirrups B<sup>2</sup> of the stationary grate-bars and which jointly form the main support for the movable grate-bars through the medium of balls *o*. One of the balls *o* is fitted loosely in each of a series of grooves *o'*, which are formed in the upper part or surface of the stationary bars I transversely thereto, so as to extend parallel with the grate-bars, while each of the movable grate-bars A is formed with a base-plate *p*, resting on said balls, and by the ball-bearing thus obtained the movable grate-bars may operate without friction under the impulse of the rocking bar. The base-plates *p* of adjacent movable grate-bars A are laterally in contact, or nearly so, with each other, and the movable bars on opposite sides of the fixed grate-bars B are also laterally in contact with base-plates *p'* of said fixed bars, so that the assembled base-plates act as guides for the movable bars and also form shields to prevent access of ashes to the grooves *o'*, containing the balls.

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

1. In a furnace-grate, the combination of longitudinally-movable grate-bars having alternately a notch in the lower edge thereof and a pendent hook-shaped arm with a notch in its upper edge, the rocking cross-bar having upwardly and downwardly projecting lugs, the former engaging said notches of the grate-bars and the latter engaging said notches of the arms thereof, and the fixed grate-bars supporting said rocking bar, substantially as herein described.

2. In a furnace-grate, the combination of longitudinally-movable grate-bars, the rocking cross-bar connected with said movable bars for operating the same, the two stationary cross-bars, each having on its upper part the transverse grooves, the balls fitted loosely in said grooves of the stationary bars, the fixed grate-bars supporting the rocking cross-bar and also the stationary cross-bars, and the



laterally-contacting base-plates of the movable and fixed grate-bars, said plates of the movable grate-bars resting on said balls of the stationary cross-bars, substantially as  
5 herein described.

3. In a furnace-grate, the combination of longitudinally-movable grate-bars having alternately a notch in the lower edge thereof and a pendent hook-shaped arm with a notch  
10 in its upper edge, the rocking cross-bar having upwardly and downwardly projecting lugs, the former engaging said notches of the movable grate-bars and the latter engaging said notches of the arms thereof, the two sta-

tionary cross-bars, each having on its upper 15 part the transverse grooves, the balls fitted loosely in said grooves of the stationary bars, the fixed grate-bars supporting the rocking cross-bar and also the stationary cross-bars, and the laterally-contacting base-plates of the 20 movable and fixed grate-bars, said plates of the movable grate-bars resting on said balls of the stationary cross-bars, substantially as herein described.

JOHN L. MASON.

Witnesses:

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