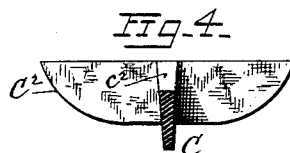
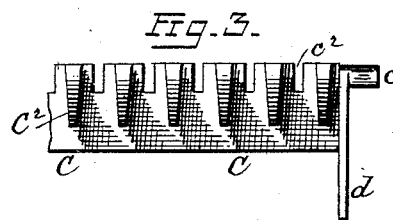
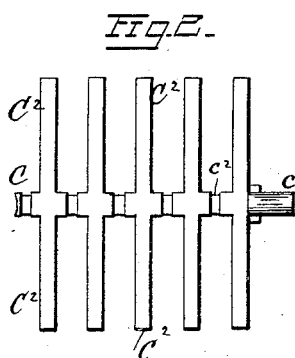
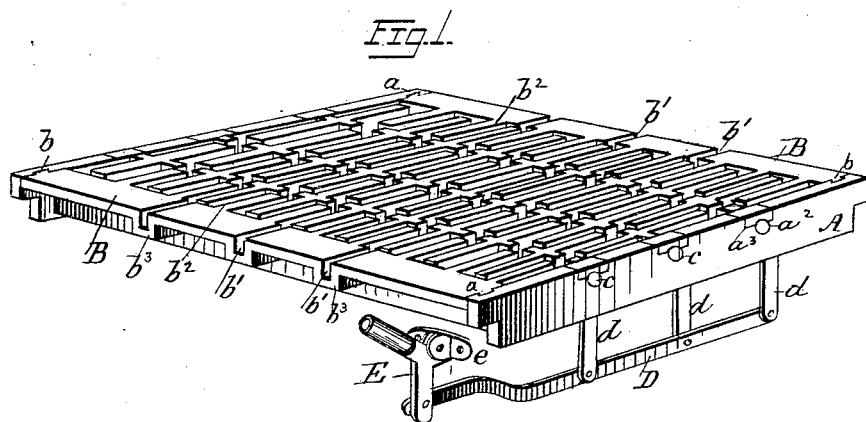


(No Model.)

M. MAHONY.
FURNACE GRATE.

No. 346,115.

Patented July 27, 1886.



Witnesses:

E. C. Wurdeman.

W. B. Masson.

Inventor:

Michael Mahony

by E. E. Masson
att'y.

UNITED STATES PATENT OFFICE.

MICHAEL MAHONY, OF TROY, NEW YORK.

FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 346,115, dated July 27, 1886.

Application filed August 31, 1885. Serial No. 175,749. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL MAHONY, a citizen of the United States, residing at Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in furnace-grates, in which the grate-bars are pivoted to a frame and capable of vertical oscillation, the arms of each grate-bar interlocking with the arms of the adjacent grate-bar to shake the ashes and grind the clinkers produced by the combustion of coal, and the objects of my improvements are to produce a grate-bar supporting-frame capable of some expansion without buckling, and also to produce grate-bars capable of interlocking with similar series, and presenting a close surface to carry small coal, and having said surface to transversely cut so that it can expand without buckling. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a series of grate-bars connected together and pivoted to a frame constructed in accordance with my invention. Fig. 2 is a top view of a portion of one of the grate-bars. Fig. 3 is a side view of a portion of the same. Fig. 4 is a vertical section through one of the grate-bars.

Similar letters refer to similar parts throughout the several views.

The grate-frame is composed of two side bars, A, and two end bars, B. The side bars have vertical dovetailed grooves *a* in their inner face, and adjoining their ends to receive the dovetailed tenons *b*, formed on the ends of the bars B. The side bars, A, have journal-bearings *a'* to receive the journaled ends *c* of the grate-bars C, and caps *a''* to retain said journaled ends. The end bars, B, have in their upper face transverse grooves *b'* of sufficient depth to allow the top or hottest portion of a grate to expand without buckling up out of shape, and ribs *b''* surrounding said grooves to strengthen the bars at these points. Projecting from the inner face of the bars B are a se-

ries of fingers, *b''*, to interlock with the arms *C'* of the grate-bars.

To permit the central rib C of the grate-bars to expand without distortion, its upper face has grooves *c'* cut transversely across it while also retaining a portion of the metal on each side of the arms *C'* and of the grooves *c'* to give to the grate as even a face as possible and prevent the lodgement of coal in the interstices, each sectional grate-bar having thus the form of a cross with two long arms and two short ones. To one end of each grate-bar C is a pendent arm, *d*, and the lower end of each arm is pivoted to a horizontal rod, D, to operate all the grate-bars simultaneously. One end of the rod D is in this instance pivoted to one of the branches of a bell-crank lever E, pivoted to a bearing, *e*, secured to the frame of the furnace. The opposite branch of the bell-crank lever is tubular and adapted to receive one end of a shaker-rod to oscillate all the grate-bars.

Having now fully described my invention, I claim—

1. In a furnace-grate, the combination of the side bars, A, provided with journal bearings *a'*, the end bars, B, provided with slotted pendent ribs *b'*, fingers *b''*, and transverse grooves *b'* cut in said ribs and between said fingers, with pivoted grate bars having long straight arms *C'*, and horizontal grooves *c'* between said arms, substantially as and for the purpose described.

2. The combination, in a furnace-grate, of the side bars, A, provided with journal bearings *a'*, the end bars, B, provided with transverse grooves *b'*, having surrounding ribs *b''*, and fingers *b''*, with the series of interlocked pivoted grate-bars having long straight arms *C'*, and horizontal grooves *c'* between said arms and pendent arms *d* integral with said grate-bars, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL MAHONY.

Witnesses:

E. W. GREENMAN,

WILLIAM H. MORRISON.