(No Model.) 2 Sheets—Sheet 1.

W. J. OGDEN.

FURNACE GRATE.

No. 421,963. Patented Feb. 25, 1890.

FIG. 1.

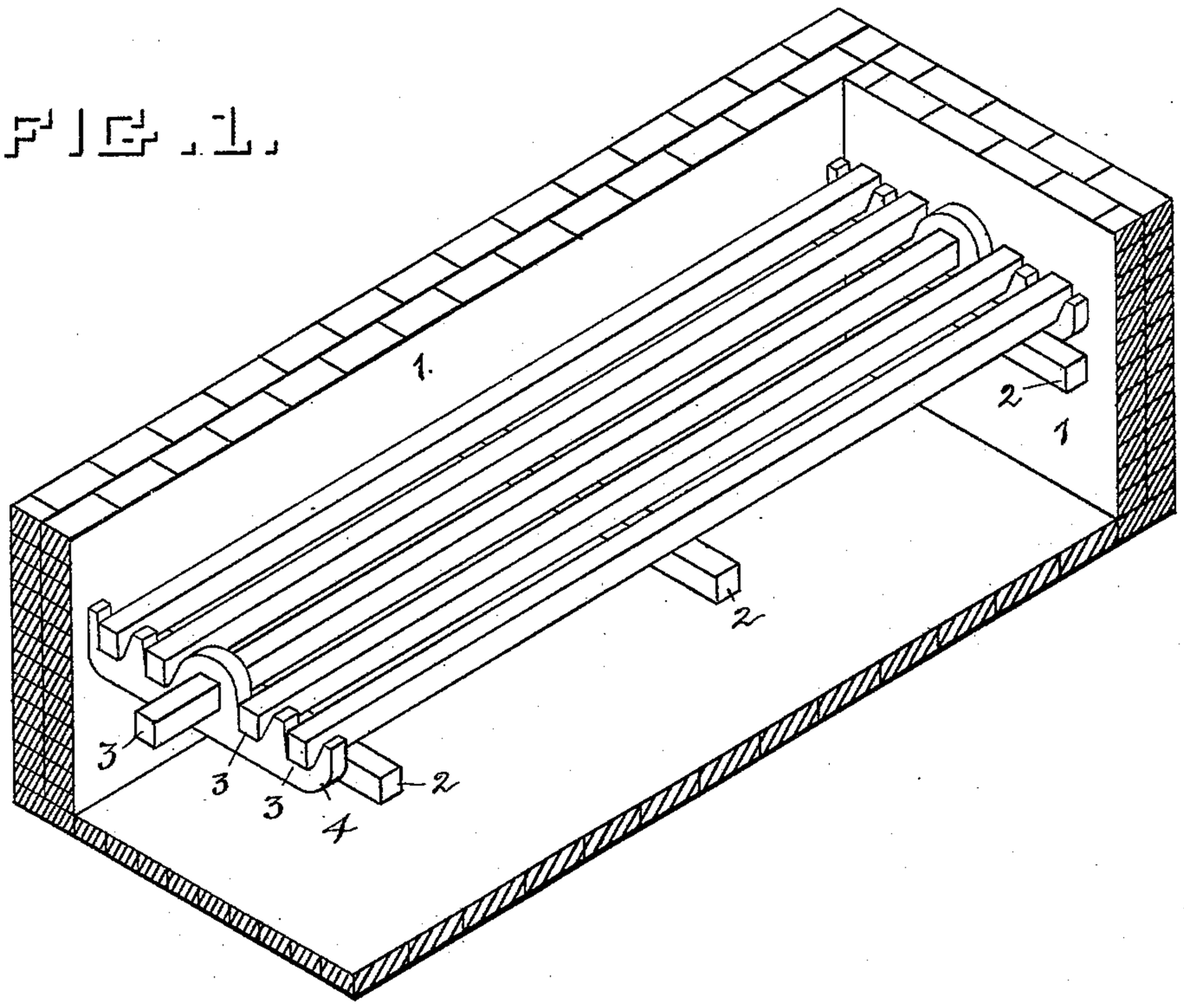


FIG. 2.

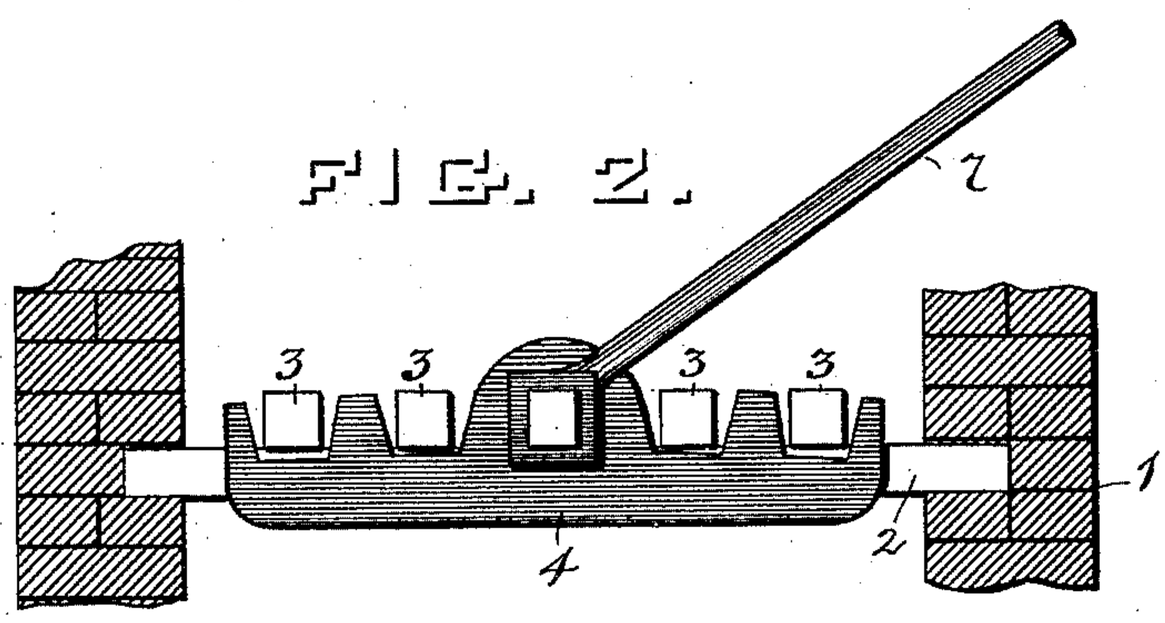
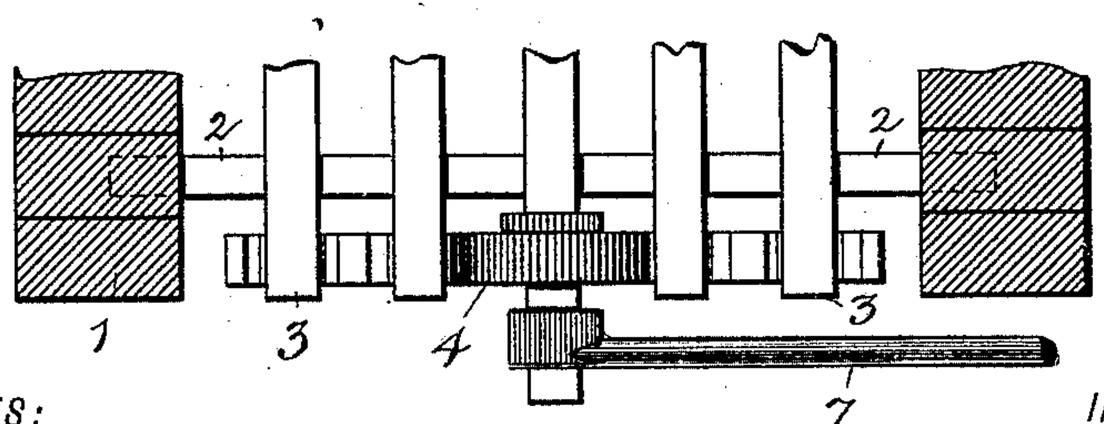


FIG. 3.



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(No Model.) 2 Sheets—Sheet 2.

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FURNACE GRATE.

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FIG. 4.

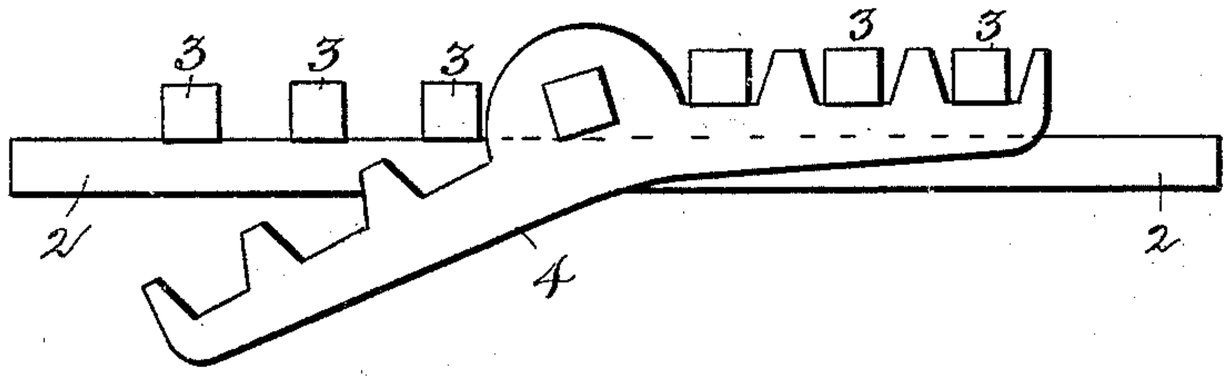


FIG. 5.

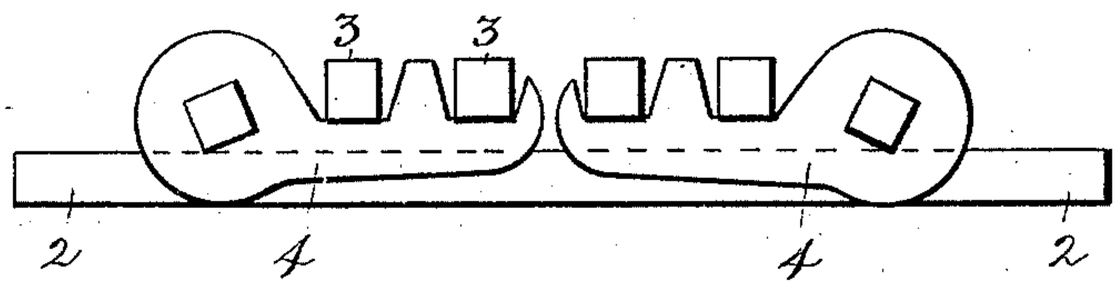


FIG. 3.

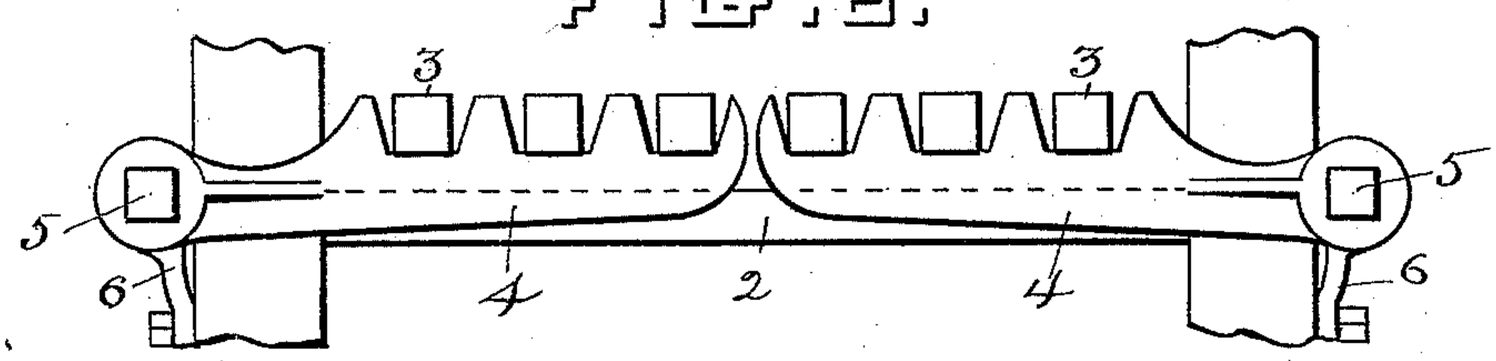
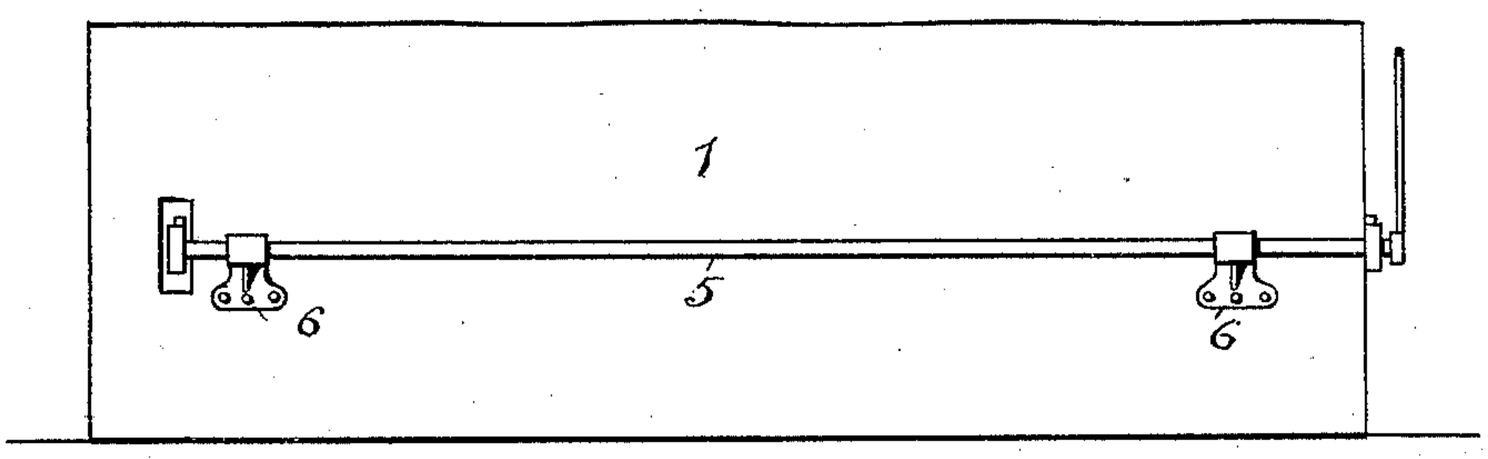


FIG. 7.



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WILLIAM J. OGDEN, OF BALTIMORE, MARYLAND.

FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 421,963, dated February 25, 1890.

Application filed October 14, 1889. Serial No. 326,991. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. OGDEN, a citizen of the United States, and a resident of the city of Baltimore, and State of Maryland, have invented certain new and useful Improvements in Furnace-Grates, of which the following is a full and complete specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved grate, showing the grate as located in a furnace, one side wall being removed. Fig. 2 is a front elevation of my grate; Fig. 3, a plan of the front shaking attachment; Fig. 4, a front elevation of my grate, showing front shaking attachment. Fig. 5 is a front elevation of grate, showing modified form of shaking device. Fig. 6 is a front elevation showing still another modification. Fig. 7 is a side elevation of furnace-wall, showing attachment for operating the rear shaker when the form shown in Fig. 6 is used.

In the drawings similar figures of reference indicate similar parts.

My invention relates to that class of furnace-grates which are used principally for gas-generators for making fuel and illuminating gas, and which consist of bars of metal, generally straight square bars, extending the length of the furnace and resting upon bearing-bars. These grates have generally heretofore been shaken by being tipped or rapped with a poker or slice-bar, or twisted by a wrench placed on the front end of each bar. I shake my grate in a much more satisfactory manner by attaching to the end of one of the grate-bars a lifting-arm, which extends beneath the other bars of the grate on either side of it. The lifting-arm, when rocked with its bar by a wrench placed on the end of the bar, will raise the bars on either side of it alternately and drop them again and shake the fire.

In the drawings, 1 1 are the furnace-walls.

2 2 2 are the bearing-bars of the grate, which extend across the furnace and have bearings in the walls on either side.

3 3 3 are the grate-bars, made in some cases of square bars of iron. These grate-bars, as a general rule, are supported upon bearing-bars without any attachment or guiding device.

4 4 are my improved shaking attachments, which, as shown in Fig. 1, are attached to the center bar, one at the front end and one at the rear end of the grate, so that the bars will be moved in the same manner from both ends at once. The bar upon which the lifting-arm is placed is generally made somewhat longer than the other, so as to enable this bar to be turned with a long-handled wrench 7. The lifting-arm 4 consists of a piece of iron with a square hole in the center and laterally-extending arms on either side, or, as shown in Figs. 4 and 5, a pair of such pieces with only one arm, each arm extending from the exterior toward the center of the grate. The arms of the shaking attachment may be made parallel, and when so made will do good work in shaking a grate; but if it is desirable to shake the grate very evenly, so that the fire may be kept at approximately an equal temperature throughout, I have devised the structures shown in Figs. 2, 4, 5, and 6 for this purpose, in which the arms are inclined downward, as in Figs. 2 and 4, so that when rocked the bars on either side of the center will be raised an equal distance, those at the extremities of the arms the same as those nearer the center. This result may be accomplished in the manner shown in Fig. 5, when a lifting-arm is placed upon the end of each of the outside bars of the grate and the center ones raised while the outside ones are but turned.

In the form shown in Fig. 6 a perfectly-equal shaking of the grate is accomplished by pivoting the shaking-arms on bars 5 5, supported on bracket 6 6 outside of the furnace, and raising all of the bars to the same level. When this structure is used, the rear end of the bars are raised by an arm similar to the front one, which passes through a hole in the furnace-wall constructed to admit it.

What I claim as new is—

1. In a grate, the combination of the bearing-bars 2, the grate-bars 3, resting loosely thereon, the rock-shaft, and the lifting-arms 4, rigidly secured to said rock-shaft and provided with open bearings, said lifting-arms

being located beneath the grate-bars, whereby the grate-bars are lifted when the rock-shaft is rocked, substantially as described.

2. In a grate, the combination of the bearing-bars 2, the grate-bars 3, resting loosely thereon, and lifting-arms 4 4, rigidly secured near each end of one of the grate-bars and provided with open bearings, and said lifting-arms being located beneath the grate-bars adjacent to the one carrying the lifting-arms, whereby the adjacent grate-bars are lifted when the grate-bar carrying the lifting-arms is rocked, substantially as described.

WILLIAM J. OGDEN.

Witnesses:
IDA LINTHICUM,
MAGGIE TURNER.