(No Model.)

W. D. CRONIN.

GRATE BAR.

No. 377,740. Patented Feb. 14, 1888.

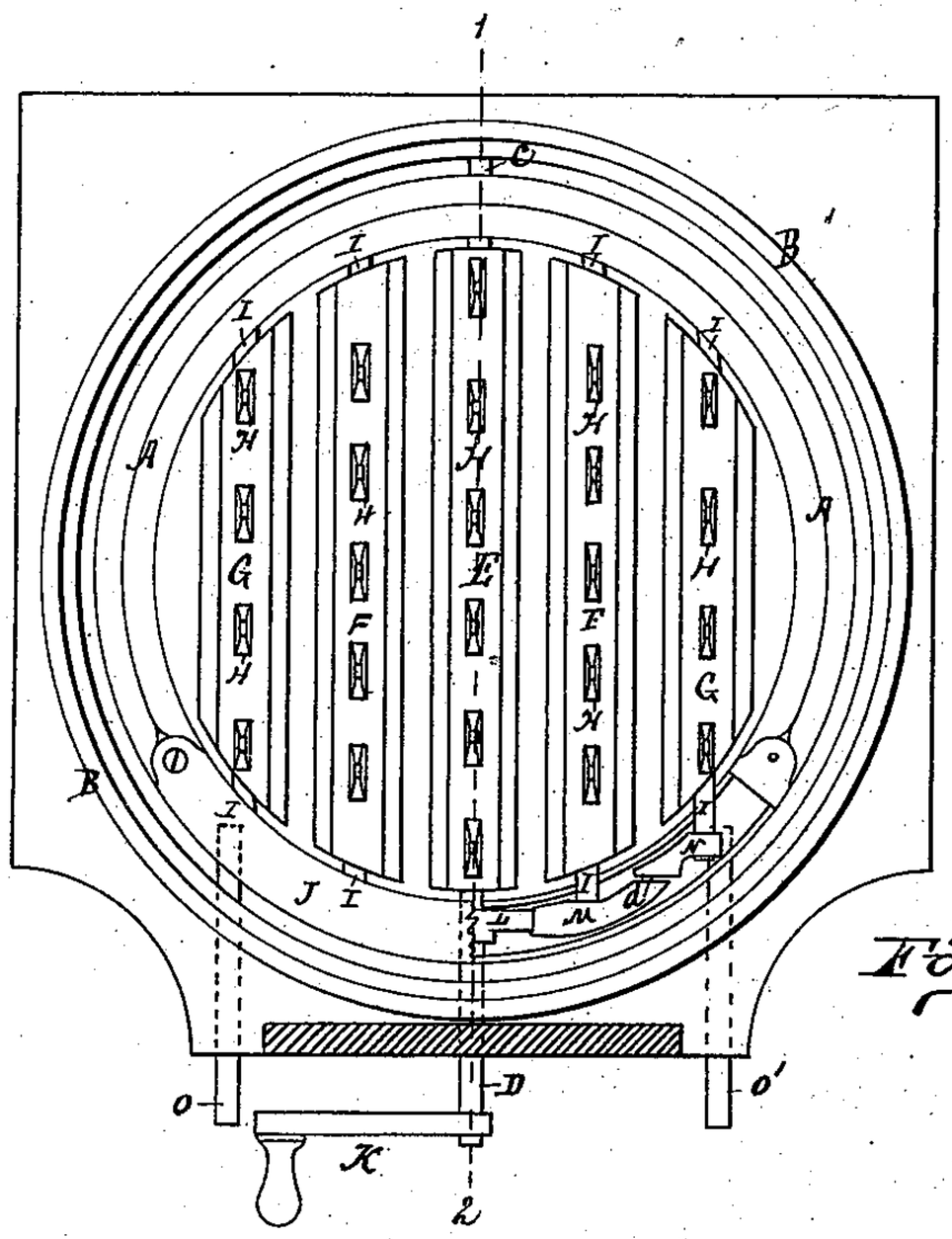

Fig. 1.

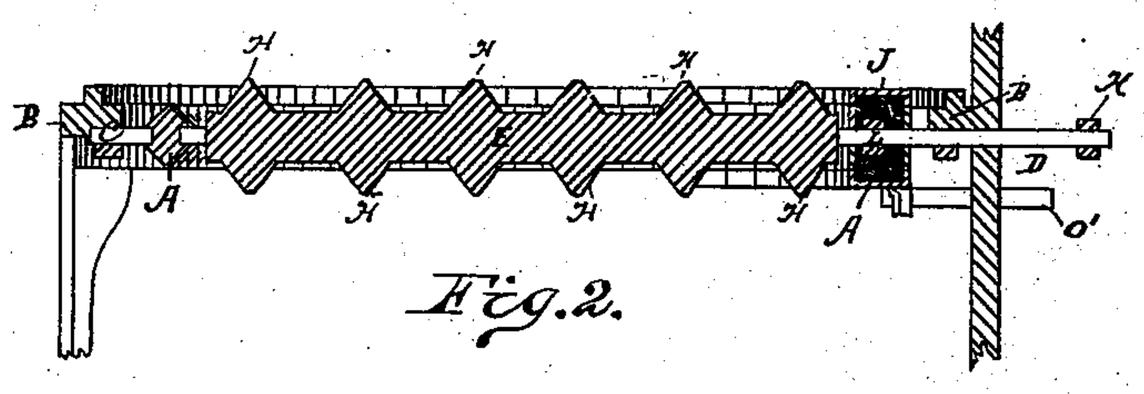

Fig. 2.

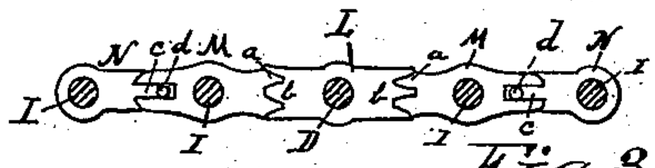

Fig. 3.

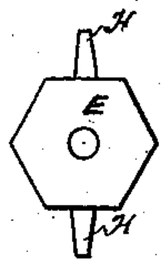

Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM D. CRONIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO F. W. DETWILER, OF SAME PLACE.

GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 377,740, dated February 14, 1888.

Application filed January 22, 1887. Serial No. 225,096. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. CRONIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Grate-Bars, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in shaking and dumping grates; and the object of my invention is to provide a shaking and dumping grate which, when the bars become warped by the heat, may be turned completely over, so that the under side of the grate may become the upper side, and the bars again be made straight by the action of the heat upon them; and, further, to rock the bars and reverse the grate by means of the same handle.

In the drawings, Figure 1 is a plan, partly in section, of my grate; Fig. 2, a section of Fig. 1 on line 1 2; Fig. 3, an end view of the mechanism for rocking the grate-bars, and Fig. 4 an end view of a grate-bar.

A is a cast-iron ring which is pivoted to the frame or bed-plate B by pivots C D. Within the ring A are the grate-bars E F G. These bars are provided with teeth H upon their top and bottom sides, and are pivoted to the ring A by pivots I, as shown in Figs. 1 and 2. The front end of the ring A is hollow and contains the gearing for rocking the grate-bars. This hollow space is covered by a plate or cover, J, and in Fig. 1 one-half of this plate or cover is broken away to show the gearing. The pivot D, upon which the forward part of the ring A is hung, extends from the bar E through the ring A and passes outside of the grate, and is furnished with a crank or handle, K.

Upon the pivot D is a toothed arm, L, Figs. 1 and 3, which gears into an arm, M, on the pivot I of bar F. One end of arm M is furnished with teeth *a*, which gear into teeth *b* on arm L, and the other end is furnished with a slot, *c*, in which a pin, *d*, works. This pin *d* is carried on an arm, N, which is carried on pivot I of bar G. By rocking the handle K the bar E is rocked, and through the gearing described the bars F and G are also rocked. The teeth H on the bars E F G agitate the coal, and the ashes fall between the bars to the ash-pit.

O O′ are pins which pass under the ring A and keep the grate in position. When it is desired to dump the fire, one of these pins is drawn out and the handle K is turned, causing the ring A and bars E F G to be turned over and the fire and ashes to be dumped into the ash-pit. By means of the two pins O O′ the grate may be dumped either to the right or left.

After the grate has been used for some time the bars become more or less warped, owing to their being subjected to a much greater heat upon their tops than upon their bottoms. When this warping takes place, both pins O O′ are drawn out, and the grate is turned completely over, so that its bottom side becomes its top side. The pins O O′ are again pushed in to hold the grate in place, and the heat, being greater upon the side which is now its top, will straighten the bars again. This process of reversing the sides of the grate may be repeated until the grate is worn out. The same crank or handle which is used to rock the grate-bars is also used to turn the grate over. The gearing which operates the bars is so arranged that it can be only turned a certain distance in either direction. After the gearing has come to the end of its movement and the pins O O′ are withdrawn, a further turning of the handle K will cause the grate to be completely turned over.

Having thus described my invention, I claim—

The combination of the ring A with pivots C D, bars E, F, and G, pins O O′, bed-plate B, handle K, toothed arm I, arms M, with slots *c*, and pin *d*, carried on pivot of bar G, all arranged and operating substantially as and for the purposes set forth.

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

WILLIAM D. CRONIN.

Witnesses:

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N. H. LONGABURGH.