(No Model.) 2 Sheets—Sheet 1.

J. R. REED.

ROCKING GRATE FOR FURNACES.

No. 469,978. Patented Mar. 1, 1892.

Fig. 1.

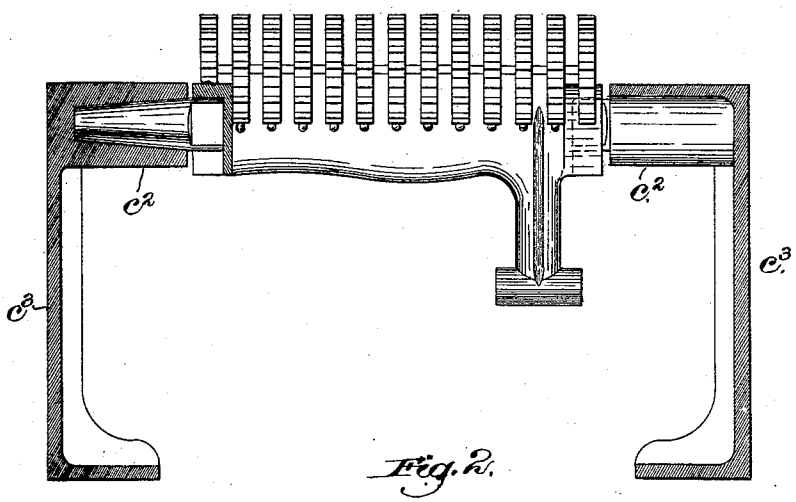
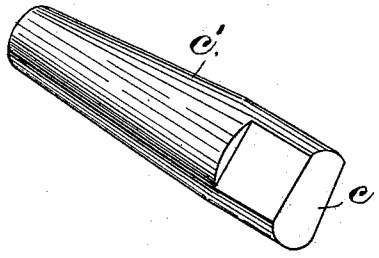


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

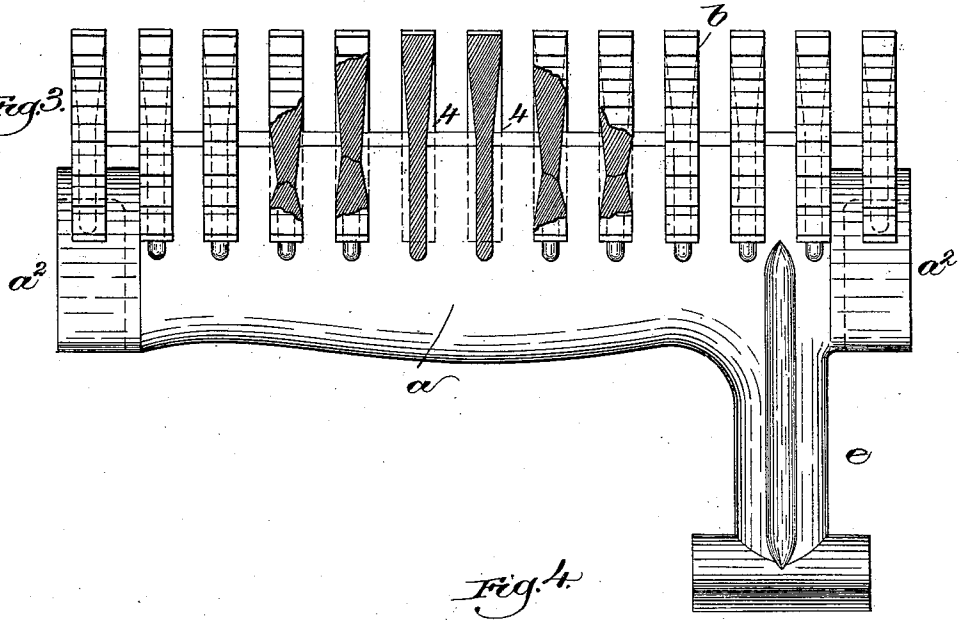
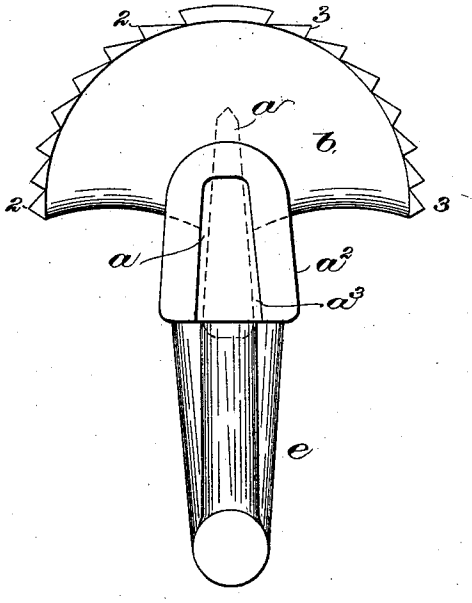


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN R. REED, OF WESTFIELD, MASSACHUSETTS.

ROCKING GRATE FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 469,978, dated March 1, 1892.

Application filed April 21, 1891. Serial No. 389,823. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. REED, of Westfield, county of Hampden, State of Massachusetts, have invented an Improvement in Rocking Grates for Furnaces, Boilers, &c., of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention is intended as an improvement on that class of grate shown in United States Patent No. 354,230, dated December 14, 1886, my present invention illustrating the said segmental-toothed projections of the grate-bar so shaped as to permit pieces of coal, &c., small enough to enter between adjacent segments to escape near the web of the grate-bar. The web of the grate-bar has an open slotted hub shaped to fit a square or other than round end of a loose journal-pin, which enters bearings in or forming part of the frame surrounding the grate.

In this my present invention a strong deep web has cast integral with it a series of segmental projections provided with teeth, the said projections being thicker at their toothed edges than at their junction with the web, such construction not only making the grate-bar lighter, but also affording ample clearance for ashes, &c. The ends of the web are enlarged to form a hub provided with an open slot to thus enable the said hub to be saddled upon the journals.

In the manufacture of my improved grate-bar from cast metal the pattern has to be made in two parts, one-half of each bar being on each half of the pattern, and cores have to be made and used in the mold to afford the inclined or tapering surfaces for the sides of the segments.

Figure 1, in elevation and section, shows a rocking grate-bar embodying my invention, together with part of the supporting-frame. Fig. 2 shows one of the journals detached; Fig. 3, an enlarged side elevation of a bar, with some of its toothed segments in section to better show their novel construction; and Fig. 4 shows an end view of the bar shown in Fig. 3.

My improved grate-bar consists of a deep web *a*, the shape of which at or near its center is best shown by dotted lines, Fig. 4, and extended from the upper part of this web at right angles to its length are a series of segmental projections *b*, provided with teeth 2 3, the teeth 2 pointing in a direction opposite the teeth 3. The segments are made thick and strong at their outer edges and are separated one from the other sufficiently to allow for draft and keep the coal from falling through. The sides of the segments from near their periphery or the base of the teeth are concaved or inclined, as at 4, leaving the spaces between the segments wider toward the junction of the periphery with the web. This construction enables the bar to be made light, so that it may be more readily operated, the arching shape given to the sides of the segments also making them stronger and less liable to break than if of uniform thickness, and the ashes have ample clearance. A grate-bar composed of segments concaved at their sides and cast about a thin deep web makes a stronger bar than when the web is round and the segments of equal thickness or vertical-sided. The ends of the web are shown enlarged to form hubs a^2, having slots a^3 to saddle upon the ends *c* of the journal-pins *c'*, set loosely in sockets or bearings c^2 of the frame c^3, the heads of the said pins being other than round, or so shaped as to present a flat face to be engaged by a part of the hub, so that the rocking of the web will rock the pin with it. This is the preferable construction, as thereby the bearing for the grate-bar is very long and ashes cannot get below the rocking surface to grind out the bearing. Each web of the series of grate-bars used will have a rocker-arm *e*, to be connected with suitable actuating-bars, as provided for in my said patent.

Having described my invention, I claim—

1. A grate-bar composed of a web having a series of projections, the said web having hubs provided with downwardly-extended open slots, to operate substantially as described.

2. A grate-bar composed of a web having a

series of projections, the said web having enlarged hubs provided with downwardly-extended open slots, combined with a frame having bearings, and the bearing-pins mounted therein loosely and having heads saddled by the slots in the said hubs, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN R. REED.

Witnesses:
HENRY W. ELY,
ARTHUR S. KNEIL.