(No Model.)

L. HALL.

ROCKING GRATE.

No. 493,085. Patented Mar. 7, 1893.

Fig. I.

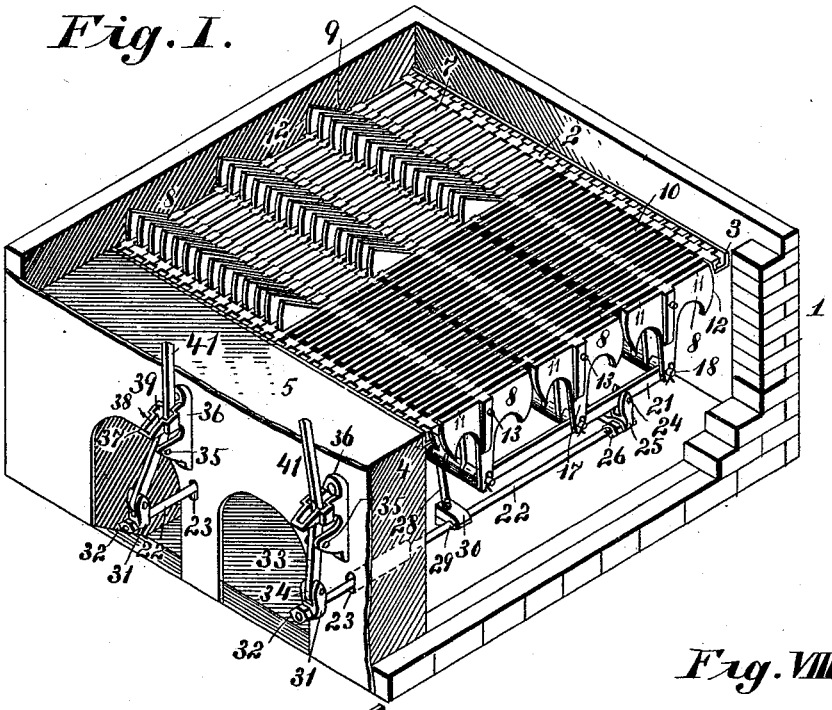


Fig. VIII.

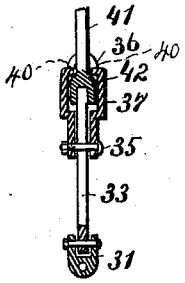


Fig. II.

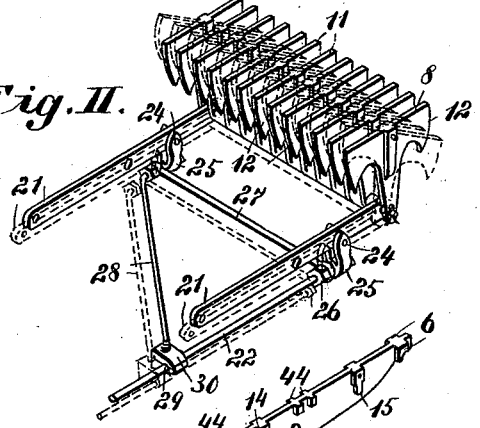


Fig. III.

Fig. VII.

Fig. IV.

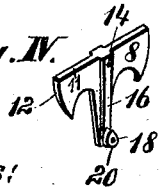


Fig. V.

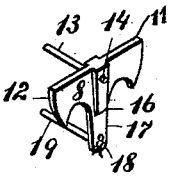
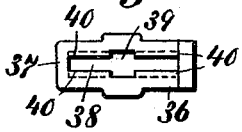


Fig. VI.



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UNITED STATES PATENT OFFICE.

LESTER HALL, OF KANSAS CITY, KANSAS.

ROCKING GRATE.

SPECIFICATION forming part of Letters Patent No. 493,085, dated March 7, 1893.

Application filed February 16, 1892. Serial No. 421,733. (No model.)

To all whom it may concern:

Be it known that I, LESTER HALL, of Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Rocking Grates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the peculiar construction of a rocking grate, so as to afford a great amount of air space, to enable the operator to thoroughly agitate the surface of the grates, and for discharging the ash without wasting the live fuel; and my invention consists in certain features of novelty hereinafter described and pointed out in the claims.

Figure I, is a detail perspective view of a furnace with my improvements located therein. Fig. II, is an enlarged detail perspective view of a section of the grate showing the means for agitating or rocking the same. Fig. III, is an enlarged perspective view of one of the fixed bars. Fig. IV, is a perspective view of one of the rocking grates. Fig. V, is a perspective view of the adjoining rocking grate. Fig. VI, is a top view of the bracket into which the rocking lever may be inserted. Fig. VII, is an enlarged detail perspective view of the rocking lever. Fig. VIII, is a vertical transverse section of the rocking lever, bracket and bar which are situated at the forward end of the furnace.

Referring to the drawings, 1, represents the lower portion of a double furnace to which my improvements are attached.

2, represents a series of horizontal independent bars or slabs, said bars resting at their rear ends on an angle iron 3, and at their forward ends on an angle iron 4, there being a front plate 5, interposed between the forward ends of the bars and the front of the furnace. The bars 2, are provided with lateral end projections 6, which keep the same equi distant from each other, leaving a series of spaces 7, between said bars.

8, represents a series of pivoted grates formed in divisions. See Fig. I.

In the drawings I have shown two divisions of the series, as shown at 9, 10, one division for each side of the furnace. These divisions may be increased or diminished, or the numbers in the series increased or diminished without departing from the spirit of my invention.

The individual rocking bars or grates 8, are formed in substantially a T shape, having a flat surface 11, on their tops, and a convex face 12, on their sides. The object in making the side faces adjoining or meeting each other on the rocking grates convex, is to make them conform to each other while being rocked, in order that the space between the same shall always remain approximately the same, without at any time increasing the opening between the meeting ends of the same, and thus preventing the waste of the live fuel. For instance, as one series of the rocking grate is moved from its vertical position to an inclined one one end of the T will be forced downward, while the adjoining end of the T in the next series will be forced upward, (see Fig. I) the space between the ends always remaining practically the same.

The grate bars 8, are pivoted to the stationary bars 2, by means of rods 13, which pass through each member of the rocking grates 8, and stationary bars 2, as shown at 14, thus pivoting them at their upper ends, the bar 2, being reinforced at the openings by bosses 15, extending downward from the top of the same, and the rocking grates 8, being reinforced throughout their vertical length by means of bosses 16. The rocking grates 8, are provided with pendent lugs 17, through which are holes 18, through which pass rods 19, connecting the same at their lower ends, each alternate section of the rocking grate 8, being provided with a boss 20, in order to keep the legs of said grates equi distant from each other. The legs of the rocking grates forming a division are connected to each other by horizontal bars 21, through which the rods 19, pass.

22, represents a rod having its forward end extending out through the front of the furnace, as shown at 23, for the purpose of rocking the movable grates, said rod 22, being connected with the bars 21, as shown at 24, by means of a clevis 25, to which it is connected by jam nuts 26.

27, represents a cross rod connecting the

rod 22 with the clevis 25, on the adjoining bar 21; and 28, represents a brace rod extending from the inner clevis 25, to the rod 22, at a point 29, it being secured to said rod by means of a clamp 30, thus as the strain is thrown on the rod 22, in order to move the bars 21, and rock the grates 8, force will be conveyed to each of the bars 21, by the connection described, the diagonal brace rod 28, preventing strain or wrenching of the device. The outer end of the rod 22, is connected by means of a clevis 31, and nut 32, to the lower end of the rocking bar 33, as shown at 34. The bar 33, is pivoted, as shown at 35, to a bracket 36, said bracket being secured to the front end of the furnace. The bracket 36, is provided with an extension 37, in which is an elongated opening 38, a portion of which is enlarged, as shown at 39, flanges 40, on the same contracting the opening each side of the center. The bar 33, terminates below the flanges 40, in the extension 37.

41, represents a movable lever having an enlarged lower end 42, in which is an opening 43. In operation, when it is desired to rock the grates the lever 41, is inserted in the opening 39, the opening 43 in said lever fitting over the upper end of the bar 33, and the elongated opening 38, permitting said lever to be forced forward and backward, and thus through the intermediate connections rocking the grate bars 8, it being impossible to withdraw the lever 41, at any other point than at the center of the extension 37, so that the enlarged head or boss 42, may pass through the enlarged opening 39. This is in order to compel the operator to always return the rocking grates to a level position before withdrawing the lever, as at this point the grates will present a level surface.

44, represents lugs situated on either side of the stationary bars 2, said lugs being for the purpose of guiding the rocking grates 8, and preventing them from warping or otherwise being displaced.

I claim as my invention—

1. The combination of a series of independent fixed bars extending the full length of the grate surfaces; a series of rocking grates placed intermediate of said fixed bars and rods extending therethrough and through the fixed bars by which they are pivoted thereto, said rocking grates having downwardly extending legs, and rods for connecting the same; substantially as and for the purpose set forth.

2. The combination of a series of independent fixed bars extending the full length of the grate surfaces; a series of rocking grates placed intermediate of said bars, downwardly extending legs on said rocking grates; rods extending through the fixed bars and through the rocking grates; rods for connecting the legs of each series to each other, and bars through which said rods pass for connecting the series; substantially as and for the purpose set forth.

3. The combination of the independent fixed bars 2 extending the full length of the grate surfaces, the rocking grates 8, placed intermediate of the same, and rods by which they are pivoted thereto, and lugs 44, on said bars 2, intermediate of the rods for guiding said rocking grates; substantially as and for the purpose set forth.

4. The combination of the fixed bars 2, a series of rocking grates, the individual members forming one of a series of said grates, being connected by rods 19; rods 13 by which the rocking grates are pivoted to the fixed bars, bars 21 for connecting the series, and a rod 22, connected with one of said bars 21, for oscillating the same in order to rock said grates; substantially as and for the purpose set forth.

5. The combination of the fixed bars 2, rocking bars or grates 8, placed intermediate of the same and pivoted thereto; rods 19, and bars 21 connecting said grates, rods 27, and 28, forming a brace, and connecting bars 21, with the rod 22, and means for oscillating said bars; substantially as set forth.

6. The combination of a series of rocking grates suitably pivoted; bars 21, connected with the same; a rod 22 secured to clevis 25; a rod 27, connecting rod 22, with clevis 25, of the adjoining bar 21, an angling brace rod 28, connecting the inner clevis 25, with the rod 22, by means of a clamp 30; and means for oscillating the rod 22; substantially as and for the purpose set forth.

7. The combination of the independent fixed grate-bars 2 having spaces 7 between them extending the whole length thereof, the series of rocking bars 8 having T-heads normally occupying the spaces, and pendent lugs 17, the rods 13 passed through the T-heads of each series and through the fixed grate-bars by which the rocking bars are pivoted, the rods 19 by which the lugs of each series are connected, the horizontal bar 21 connecting the series of rocking bars, the operating rod 22 and the clevis 25 by which the horizontal bar and the operating bar are connected; substantially as described.

8. The combination, with the operating rod 22; of the bracket 36, provided with an extension 37 having an elongated opening 38, enlargement 39, and flanges 40, the lever 33 pivoted to the bracket, the clevis 31 by which the lower end of the lever is connected with the operating rod, and the removable lever 41 having an enlarged lower end 42 provided with an opening 43 fitting the upper end of the lever; substantially as described.

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