(No Model.) 3 Sheets—Sheet 1.

J. H. JOHNS.

ROCKING GRATE.

No. 495,092. Patented Apr. 11, 1893.

Fig. I.

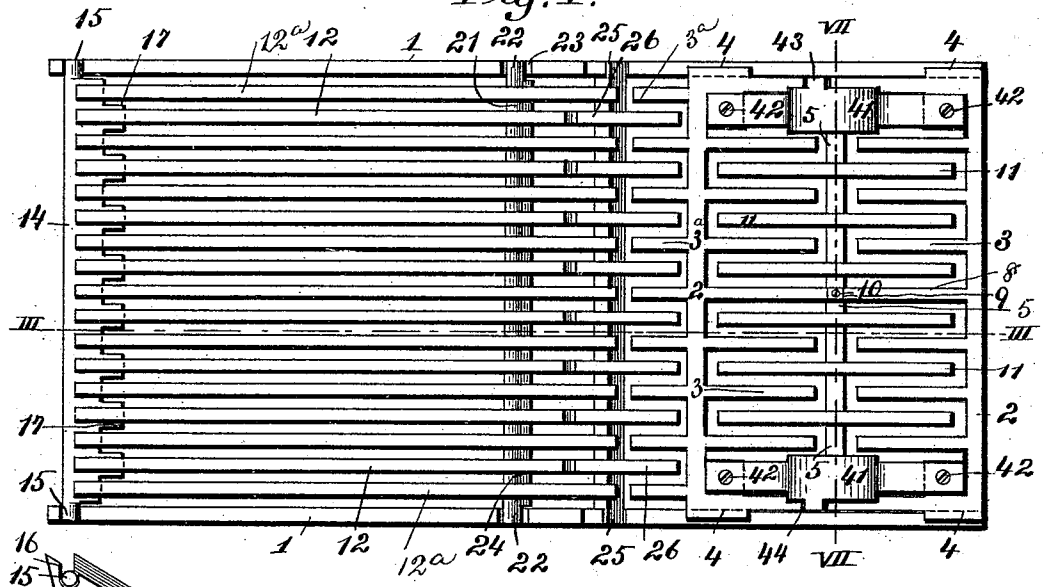


Fig. II.

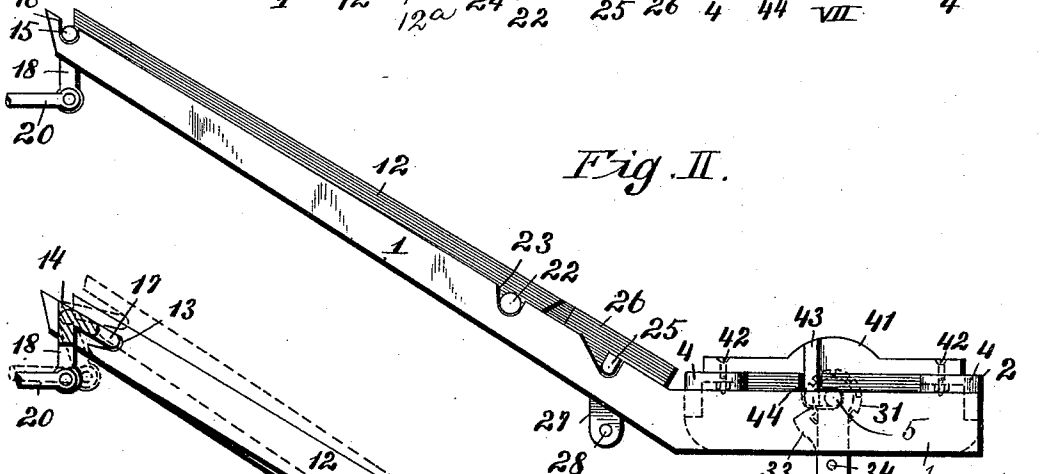
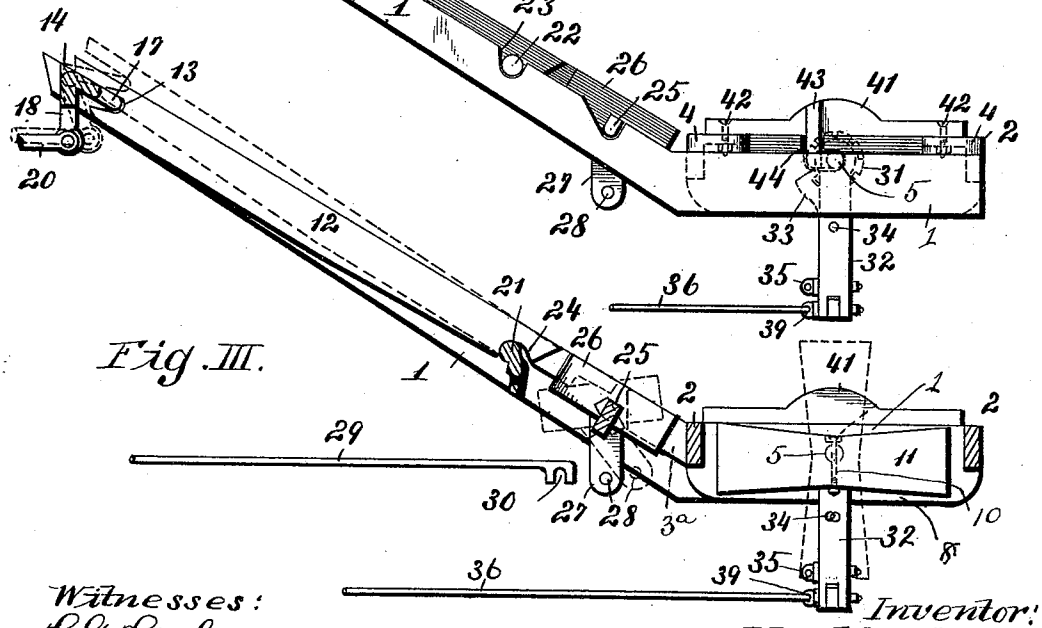


Fig. III.



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(No Model.) 3 Sheets—Sheet 2.

J. H. JOHNS.

ROCKING GRATE.

No. 495,092. Patented Apr. 11, 1893.

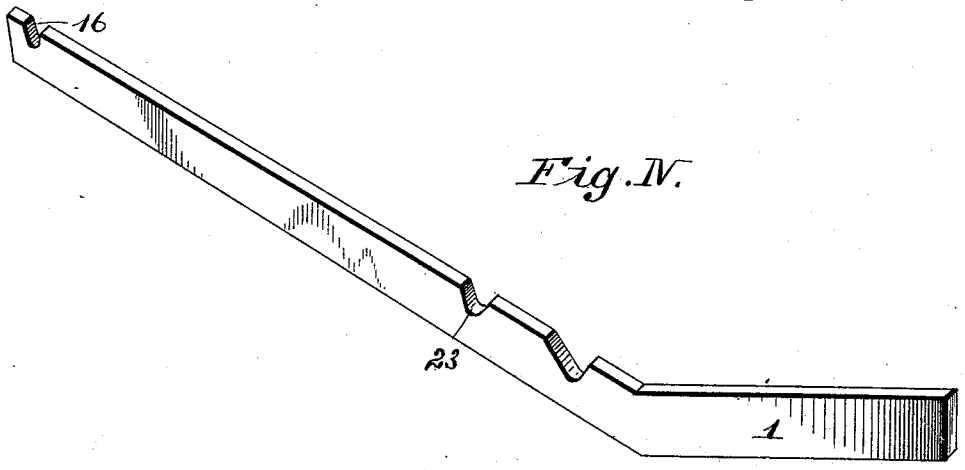


Fig. IV.

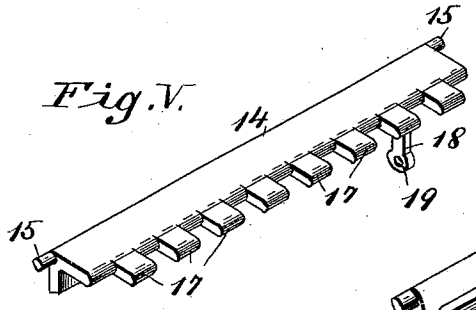


Fig. V.

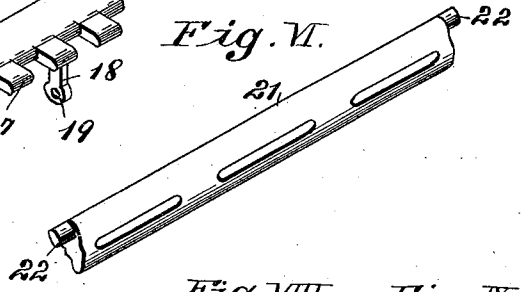


Fig. VI.

Fig. VII.

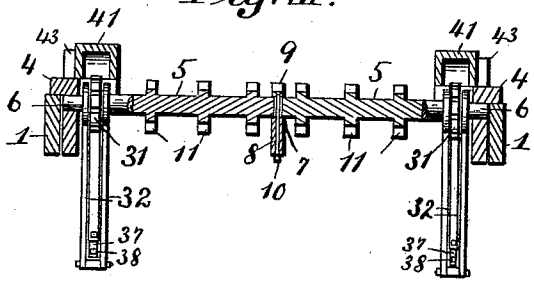
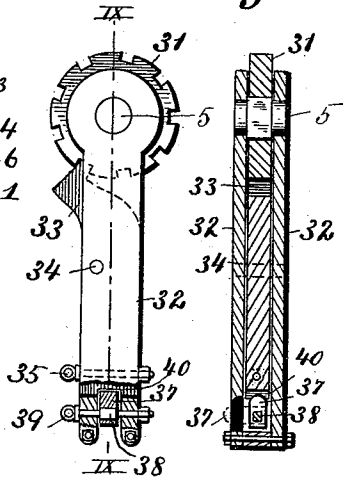


Fig. VIII. Fig. IX.



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(No Model.) 3 Sheets—Sheet 3.

J. H. JOHNS.

ROCKING GRATE.

No. 495,092. Patented Apr. 11, 1893.

Fig X.

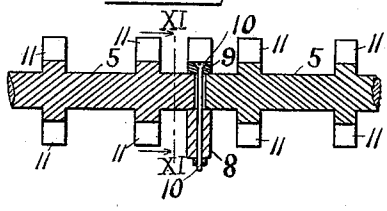


Fig XI.

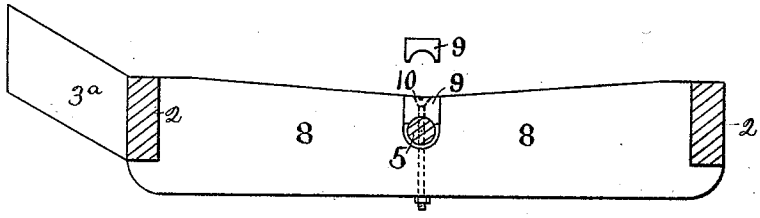
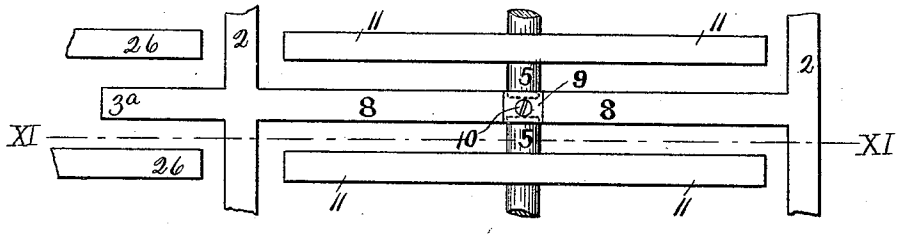


Fig XII.



Attest:
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UNITED STATES PATENT OFFICE.

JOHN H. JOHNS, OF THE NATIONAL MILITARY HOME, LEAVENWORTH COUNTY, KANSAS.

ROCKING GRATE.

SPECIFICATION forming part of Letters Patent No. 495,092, dated April 11, 1893.

Application filed April 30, 1892. Serial No. 431,256. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. JOHNS, of the National Military Home, in the county of Leavenworth 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 certain new and useful improvements in the construction and operation of rocking grates, and my invention comprises an inclined straight grate, a dumping grate, and an inclined rocking grate located between the lower end of the inclined straight grate and the dumping grate and it consists in certain features of novelty hereinafter described and pointed out in the claims.

Figure I, is a top view of my improved grate. Fig. II, is a side elevation of the same. Fig. III, is a longitudinal section taken on line, III, III, Fig. I. Fig. IV, is a perspective of one of the side supporting bars. Fig. V, is an enlarged perspective of the front supporting and rocking bar. Fig. VI, is a perspective of the supporting bar for the lower end of the straight grate. Fig. VII, is a transverse section taken on line, VII, VII, of Fig. I. Fig. VIII, represents a side elevation of the pawl and ratchet device for operating a dumping or revolving grate. Fig. IX, is a section taken on line, IX, IX, of Fig. VIII. Fig. X is a detail section of the dumping grate. Fig. XI is a detail section of the dumping grate and frame on the line XI XI Figs. X and XII. Fig. XII is a detail plan view of the same.

Referring to the drawings: 1, represents the side supporting frames extending the full length of the grates, said frames being suitably supported by the walls of the furnace.

2, represents a fixed horizontal frame having two series of inner grate bars, 3, and a series of outer grate bars 3^a cast integral therewith, said frame being supported on the side bars, 1, by means of flanges, 4, cast to said frame and resting on said side bars.

5, represents a revolving shaft of a dumping grate formed in sections and pivoted to the frame, 2, as shown at 6, 7, the inner ends of said sections resting on a web, 8, of the frame, 2, and held in position by means of a cap-piece, 9, and a bolt, 10, passing through the said cap-piece and the said web.

11, represents a series of grate bars connected with said revolving shaft.

12, 12^a represent a series of straight grate bars of an inclined grate placed at an angle with the bars, 11; said bars, 12, being recessed, as shown at 13, and supported by a pivoted bearing bar, 14, pivoted to the side bars, 1, by gudgeons, 15, working in recesses, 16, of the side bars, 1. The bar, 14, is formed in the shape of an angle bar having a series of lugs, 17, on which each of the bars, 12, rests. Said lugs extend beyond the main web of the supporting bar, (see Fig. V.)

18, represents an arm connected with the bar, 14, and extending downwardly, having an opening, 19, to which the rod, 20, may be secured in order to rock said bar. As said bar is rocked back and forth, the lugs, 17, will cause each alternate bar 12 between the bars 12^a to move out of line with the adjoining bar 12^a, (see dotted lines, Fig. III,) thus causing the ashes to be discharged between the bars.

21, represents a transverse bar pivoted by gudgeons, 22, in recesses, 23, of the bearing bars, 1, said bar, 21, supporting the lower ends of the bars, 12, which are provided with recesses, 24, to hold them in contact with said bar. As the bars, 12, are rocked by the angle bar, 14, at their forward ends, they also rock on the bearing, 21, which is formed rounding in order to fit the recesses, 24.

25, represents a transverse bar of an inclined rocking grate resting in recesses, 26, of the side bars, 1. On the bar, 25, is a series of short bars, 26, and a downwardly extending leg, 27, having an opening, 28.

29, represents a rod having a hooked end, 30, which may be inserted in the opening, 28, for rocking the bars, 26, in order to clean the fire, and which may be thrown on an angle with the bars 12, 12^a (see dotted lines, Fig. III), in order to prevent the coals on the inclined bars, 12, from sliding down on to the

revolving bars, 11, when it is desired to rotate said revolving bars in order to clean the fire.

31, represents ratchet wheels secured near the outer ends to each section of the shaft, 5, of the dumping grate. To either side of the ratchets, 31, are journaled to the shaft, 5, downwardly extending bars, 32.

33, represents pawls pivoted to the bar, 32, as shown at 34. To the lower end of each of the pawls, 33, there are secured eye-bolts, 35, into which the hook of a poker or rod, 36, may be inserted in order to move said pawl and rotate said ratchet, together with the shaft, 5, and the bars, 11, when it is desired to clean the clinkers, &c., from the rear portion of the furnace. To each of the bars, 32, is pivoted a latch, 37, secured to a squared portion, 38, of an eye-bolt, 39. This latch may be thrown into connection with the pawl, 33, by passing into a slot, 40, at the lower end of the same, or it may be thrown out of connection with said pawl, (see dotted lines, Fig. IX.) When it is desired to merely shake the dumping grate, without revolving it entirely, said latch is thrown into connection with the pawl, and the pawl is thus prevented from moving to any great degree; thus by forcing the arm, 32, to and fro, the dumping grate, is caused to rock back and forth, whereas, when it is desired to revolve the grate, the latch is thrown out of connection with said pawl, and the pawl is then left free to rotate said ratchet, and the grate to which it is connected a certain distance, and by reverse movement of the cleaning rod or poker, the pawl is thrown out of engagement with the ratchet and returned to the starting point, where it engages another tooth, and then by a forward movement the grate is revolved still farther; the action thus being repeated until the grate, is turned completely around, one or more times, as it may be necessary, in order to thoroughly clean the same. To prevent the ashes and clinkers from coming in contact with the ratchet and pawl, I provide a flanged cap-piece, 41, secured to the frame, 2, as shown at 42, thus thoroughly protecting said ratchet and pawl. On the flanged cap-piece, 41, are downwardly extending lugs, 43, which engage in slots, 44, when placed in position, thus preventing the shafts, 5, from moving out of their bearings when the cap piece is in position. Owing to the presence of the inclined grate bars, 12, 12^a and the inclined rocking grate all clinkers are compelled to travel downwardly on to the revolving grate at the rear of the furnace, where they can be readily discharged.

The shaft 5 and the dumping grate being made in sections enables each section to be revolved independently of the other section as a pawl and ratchet device is applied to each section.

I claim as my invention—

1. The combination of an inclined grate, an inclined rocking grate at the lower end of the inclined grate, and a dumping grate at the lower end of the rocking grate; substantially as described.

2. The combination of the inclined grate having bars 12^a and alternating shaking bars 12, an inclined rocking grate at the lower end of the inclined grate, and a dumping grate at the lower end of the rocking grate; substantially as described.

3. The combination of the inclined grate, an inclined rocking grate at the lower end of the inclined grate, a fixed horizontal frame formed with two series of inner grate bars and a series of outer grate bars at the lower end of the rocking grate, and the dumping grate operated within the frame; substantially as described.

4. The combination of the side supporting frames 1 formed with outer recesses 16 and inner recesses 23, the bars 12, the alternating shaking bars 12 having end recesses 13 and under recesses 24, the angle bearing bar 14 journaled in the outer recesses, having lugs 17 occupying the end recesses, and an operating arm 18, the transverse bar 21 journaled in the inner recesses and occupying the under recesses, the inclined rocking grate at the lower end of the bars 12^a, 12, and the dumping grate at the lower end of the rocking grate; substantially as described.

5. The combination of the side supporting frames, the inclined grates, the fixed horizontal frame formed with flanges 4, two series of inner bars 3, a series of outer bars 3^a, and a web 8, the shaft 5 formed in sections, having grate bars 11, the cap-piece 9 for the inner ends of the shaft-sections, the securing bolt 10, and means by which the shaft sections are rotated independently of each other; substantially as described.

6. The combination of a revoluble shaft formed in sections, and bearing grate bars, a web, 8, for supporting the inner ends of said shaft, a cap-piece, 9, and a bolt, 10, for holding said inner ends in position, ratchets on said shaft, pawls for engaging said ratchets, cap-pieces, 41, having flanges thereon, and lugs, 43, on said cap-pieces, for retaining the revoluble shaft in its bearings; substantially as and for the purpose set forth.

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Witnesses:
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L. B. WILLIAMS.