(No Model.) 2 Sheets—Sheet 1.

F. W. KEIFEL, Jr. & J. ZIPP.

GRATE.

No. 547,854. Patented Oct. 15, 1895.

Fig. 1.

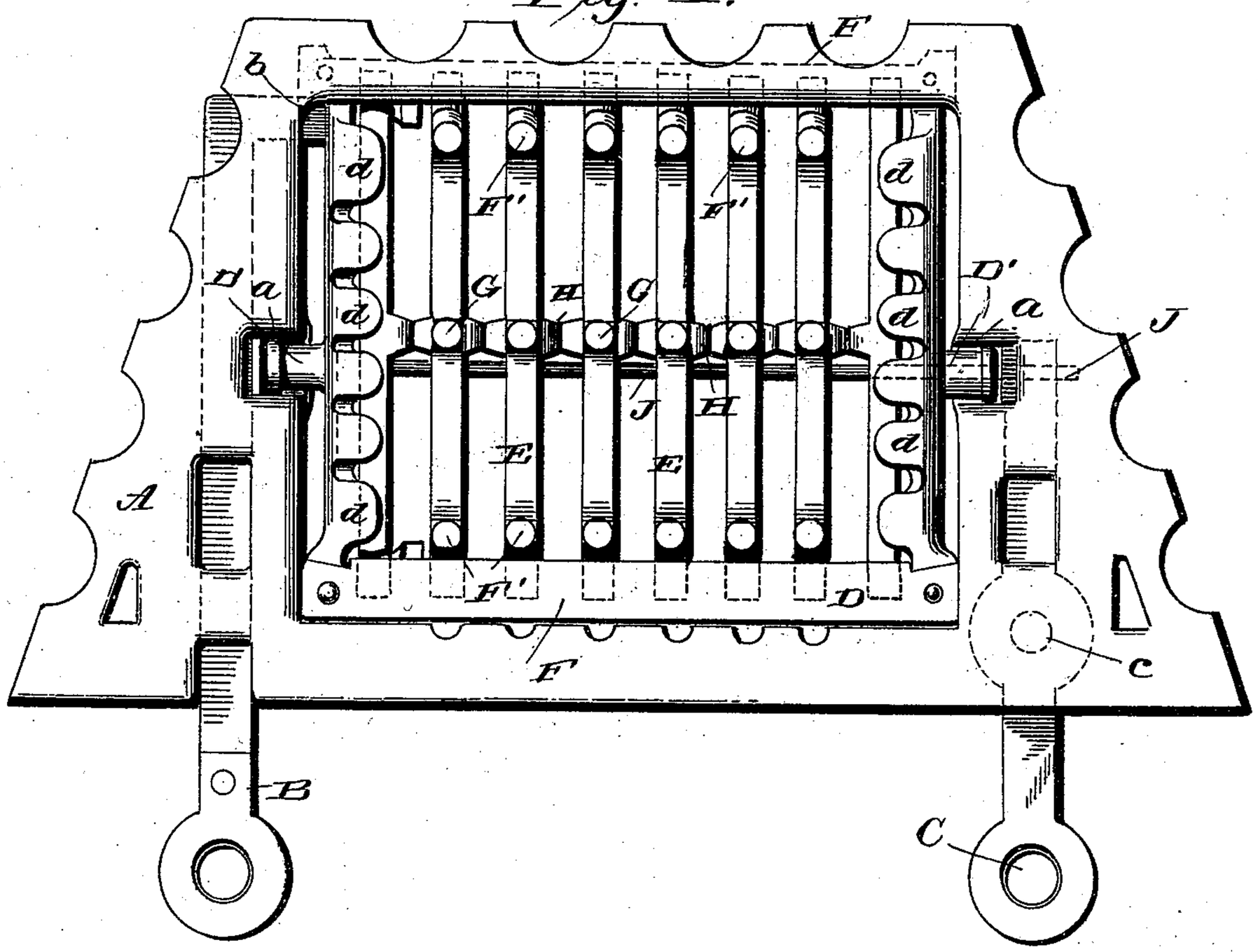
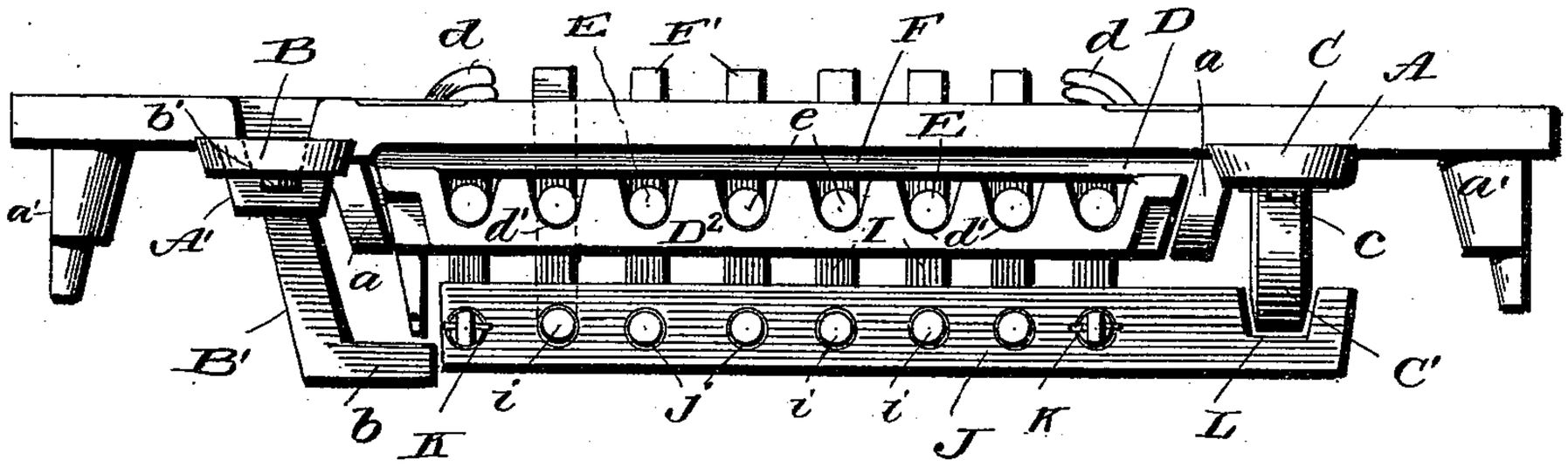


Fig. 2.



Witnesses:
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E. A. Bond

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

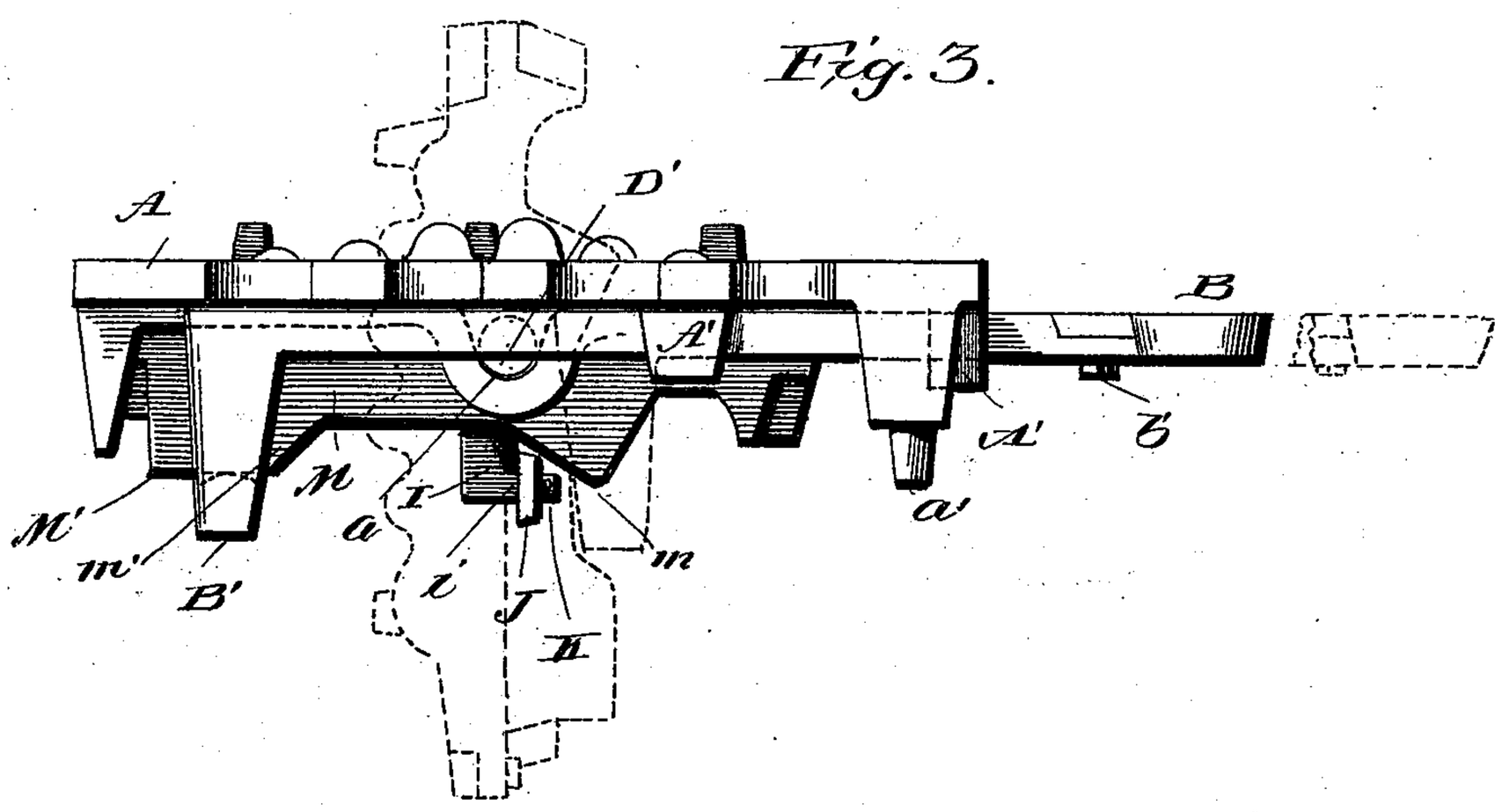


Fig 4.

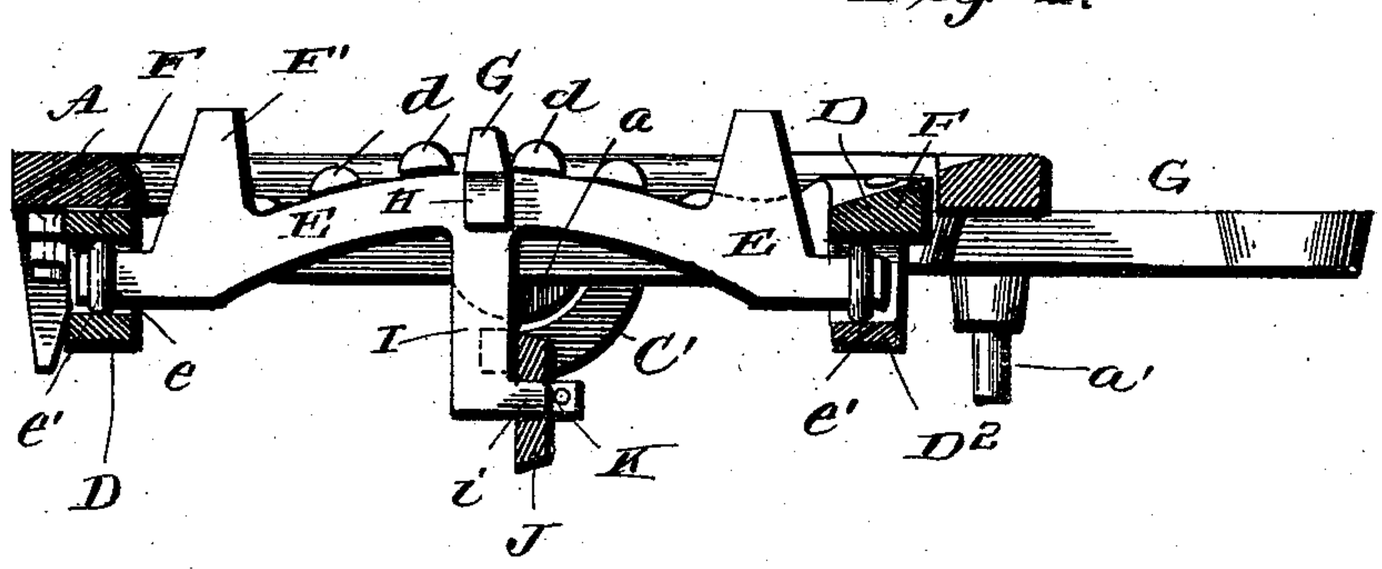
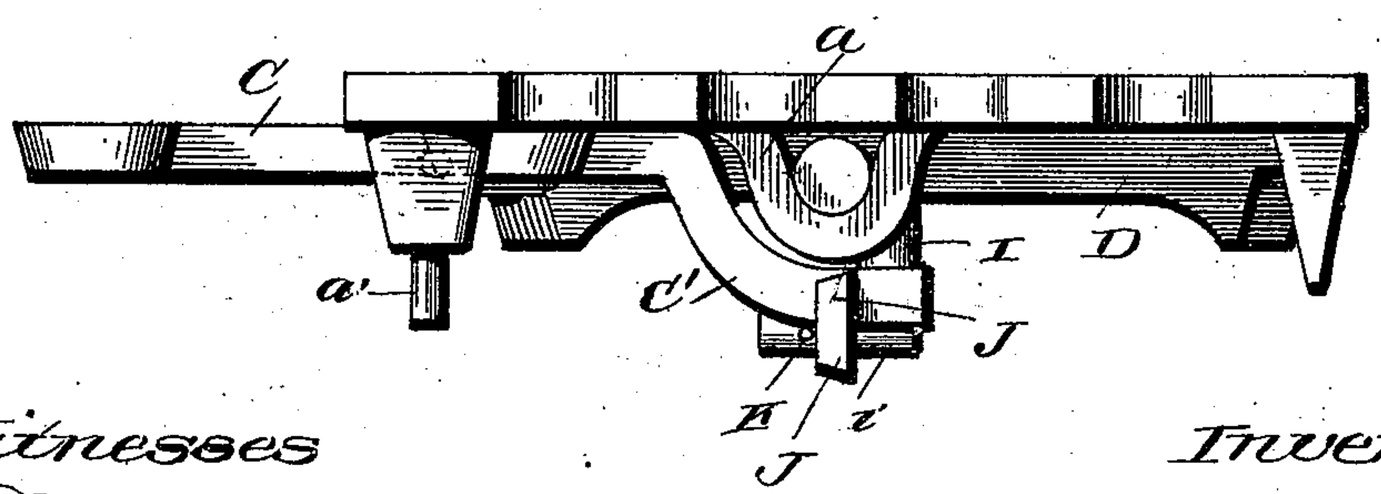


Fig. 5.



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UNITED STATES PATENT OFFICE.

FREDERICK W. KEIFEL, JR., OF LOUISVILLE, KENTUCKY, AND JOHN ZIPP, OF NEW ALBANY, INDIANA, ASSIGNORS TO EDWARD SCANLAN, OF LOUISVILLE, KENTUCKY.

GRATE.

SPECIFICATION forming part of Letters Patent No. 547,854, dated October 15, 1895.

Application filed July 23, 1894. Serial No. 518,364. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK W. KEIFEL, Jr., residing at Louisville, in the county of Jefferson and State of Kentucky, and JOHN ZIPP, residing at New Albany, in the county of Floyd and State of Indiana, citizens of the United States, have invented certain new and useful Improvements in Grates, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in shaking and dumping grates or baskets, and it has for its objects, among others, to provide a grate or basket in which the parts shall be simple in their nature, readily assembled or separated, and most efficient in operation.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a top plan of the improvement. Fig. 2 is a front elevation. Fig. 3 is an edge view thereof with the grate-section shown tilted by dotted lines. Fig. 4 is a vertical section from front to rear with portions in elevation. Fig. 5 is a view looking at the edge opposite to that shown in Fig. 3.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the supporting-frame of the grate or basket, having the oppositely-disposed depressions *a* for the reception of the pintles of the grate and with the depending lugs *a'* for supporting the same in position in any well-known manner. At one side, preferably the left-hand, the supporting-frame is formed with the depending loops A', in which is supported and guided the reciprocating shaker B, the rear end of which is turned vertically downward, as shown at B', and thence horizontally inward, as shown at *b*. This shaker is formed with a detachable handle portion, as shown best in Figs. 1 and 3, and the head of the bolt or the nut *b'* thereon, which secures the two parts together, serves as a stop to limit the inward movement of the shaker. Upon the under face of the frame A, at the right-hand side, is pivotally mounted, as at *c*, the lever C, the rear end of which is curved downward and rearward, as shown at C', to engage the notch in the end of the lower connecting-bar of the grate-bar sections, as indicated best in Fig. 2.

The grate-bar section is constructed as follows: D is the surrounding frame or outer portion, the end bars of which are provided with the pintles or journals D', which rest in the sockets *a*, and this frame is mounted within the frame A, so that the preponderance of weight is to the rear of its pivots, so that unless otherwise provided the grate-section will dump to the rear. The end bars of this portion D are formed with the inwardly-extending and curved teeth or lugs *d*, as seen best in Figs. 1 and 2, and the front and rear cross-bars of the said portion are formed with the curved sockets or depressions *d'*, as shown best in Fig. 2, and in which rest the rounded ends or journals *e* of the grate-bars E, the said journals being preferably formed or provided with the annular ribs *e'*, as seen best in Fig. 4, to reduce the frictional contact-surface. These journals are placed in the sockets or depressions of the front and rear cross-bars D^2, and then the bars or plates F are secured over the said sockets and journals, as shown best in Fig. 1, the said plates or bars being secured in any suitable manner permitting of their ready removal when desired. Each of the grate-bars is curved upon its upper face, and all of the bars except the two end ones are provided with the upwardly-extending portions F' near their ends and near their centers with the upwardly-extending portions or lugs G, and upon opposite sides thereof are the lugs H, which serve to space or spread the bars, as seen best in Fig. 1, the end bars of the grate-sections not being provided with the upward extensions, in order that they may fit under the lugs or fingers *d* of the surrounding frame, as seen best in Fig. 1. The grate-bars are each formed near the center of their length with downwardly-extending arms I, which at their lower ends are extended sub-

stantially horizontally and forward, as seen at *i* in Figs. 2 and 4, and passed loosely through openings *j* in the bar J, the end ones being extended sufficiently to receive keys K, as seen best in Figs. 3 and 4, which hold the bar against displacement from the portions *i* of the grate-bars. The bar J at its right-hand end is provided upon its upper face with a notch L, as seen best in Fig. 2, into which engages the curved end C′ of the shaker-lever C.

The end grate-bar on the left is formed with a downwardly-extending portion M, as seen best in Fig. 3, which terminates at opposite eends in inclined or cam faces *m* and *m′*, between which is designed to work the lateral extension *b* of the dumping-lever B, which extension is shown best in Fig. 1. Normally this dumping-lever B is in its innermost position, as seen by full lines in Fig. 3, and its lateral portion *b* extends just under the rear end of the portion M of the end grate-bar, which keeps the grate-section in its uppermost position—*i. e.*, horizontally. When it is desired to dump the grate, this dumping-lever is pulled forward, and after the lateral portion *b* has passed the flat surface M′ of the portion M of the end grate-bar the grate, owing to its being pivoted, as above stated, so that the preponderance of weight is to the rear of its pivot, will automatically dump, the grate-bars assuming the position indicated by dotted lines in Fig. 3. Should, however, the grate be so loaded as to overcome this preponderance of weight to the rear the further forward movement of the dumping-lever will cause its lateral portion to engage the cam-surface *m* of the end grate-bar, and thus cause the grate to dump. After the grate is dumped and it is desired it to return to its normal position the dumping-lever is pushed inward, when its lateral portion, engaging the cam-surface *m′* of the portion *m* of the end grate-bar, will ride up the same and force the grate into its horizontal position, in which it will be held by the rear portion M′ of the said end grate-bar resting upon the lateral portion. The grate is shaken by movement of the lever C back and forth, as indicated by arrow in Fig. 1, its curved arm C′ engaging in a notch L of the bar J, as seen best in Fig. 2, the grate-bars having a movement independently of each other, but all being mounted to move together by reason of their connection with the said bar J.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is—

1. The combination with the supporting frame having oppositely-disposed depressions, of the grate bars in sections each bar being curved upon its upper face and provided near the ends with upwardly-extending portions and near its center with upwardly-extending lug, substantially as specified.

2. The combination with the supporting frame having oppositely-disposed depressions, of the grate bars in sections each bar being curved upon its upper face and provided near its ends with upwardly extending portions and near the center with an upwardly extending lug and with pintles resting in said depressions, substantially as specified.

3. A rocking grate bar curved upon its upper surface and provided with upwardly-extending portions near its ends and at its center, substantially as specified.

4. A rocking grate bar curved on its upper surface, combined with the frame having fingers *d*, curved on their under surface to extend over said rocking bar, substantially as specified.

5. The combination of the dumping frame carrying the independently-mounted rocking bars and the lever arranged to one side of the grate and having curved end relative to the journals of the frame of the grate and extended under said rocking bars, whereby the lever will not interfere with the frame being dumped, and the bar arranged parallel with and below the journals of the grate frame substantially as specified.

6. The combination with the supporting frame and the grate frame with its pivoted grate bars formed at their center with downwardly extending arms with horizontal extensions, of the bar having openings through which said extensions will pass, means for holding the same against displacement, the shaking lever having curved end relative to the journals of the grate frame whereby the lever will not interfere with the frame when being dumped and the bar provided with a notch upon its upper face to receive said curved end, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK W. KEIFEL, JR.
JOHN ZIPP.

Witnesses:
JAMES B. COCKE,
D. S. TRINLER.