(No Model.)

# W. R. RONEY & C. W. TOWNSEND.

## DUMPING GRATE.

No. 557,891. Patented Apr. 7, 1896.

*Fig. 1.*

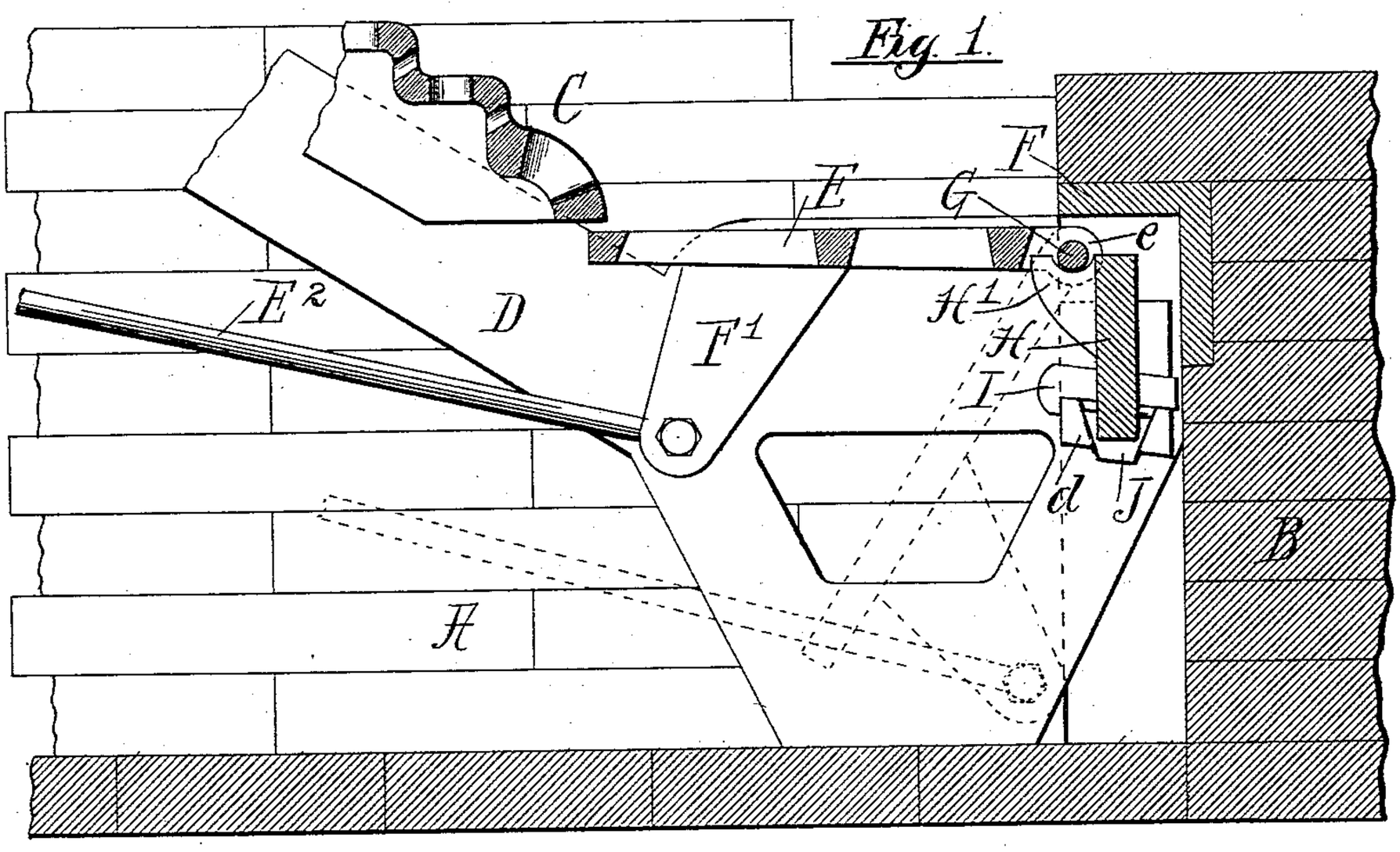



*Fig. 2.*

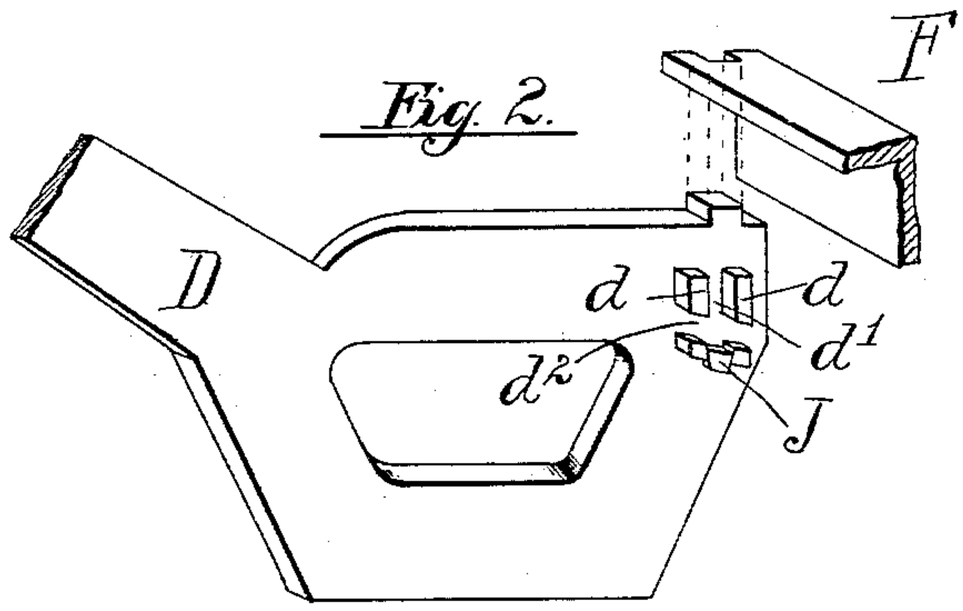



*Fig. 3.*

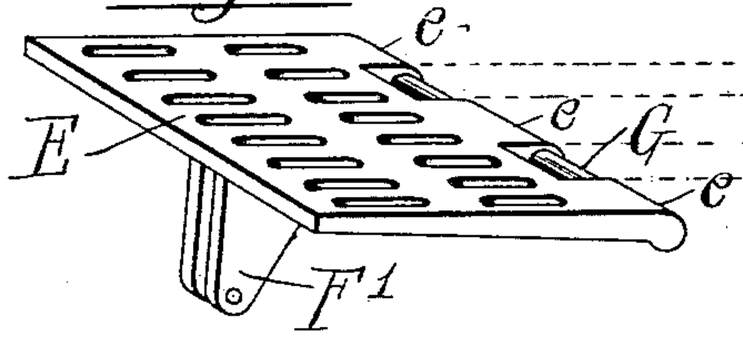
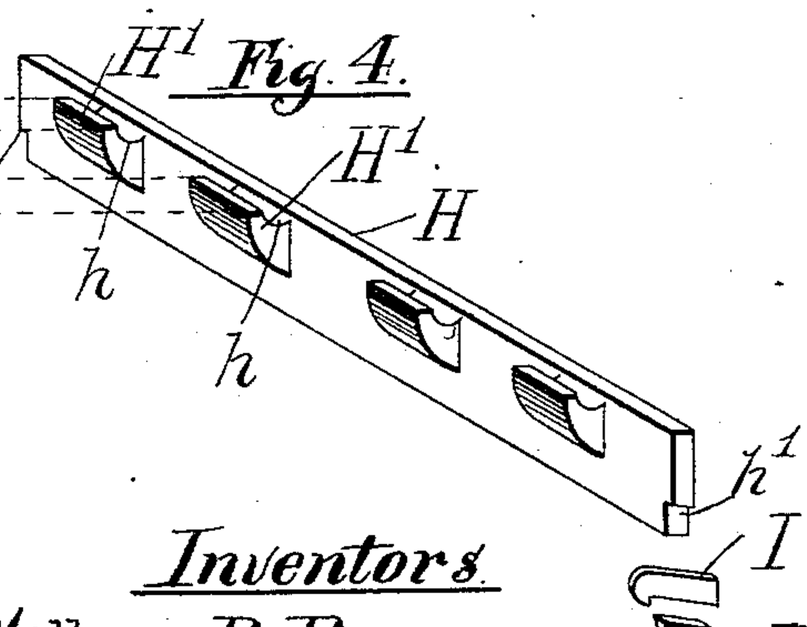



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

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## DUMPING-GRATE.

SPECIFICATION forming part of Letters Patent No. 557,891, dated April 7, 1896.

Application filed October 4, 1893. Serial No. 487,171. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM R. RONEY, of Boston, Suffolk county, Massachusetts, and CHARLES W. TOWNSEND, of Pittsburg, Allegheny county, Pennsylvania, have invented certain new and useful Improvements in Dumping-Grates; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to furnace-grates, and more especially to that class of grates known as "dumping-grates," or those used in connection with inclined grates, on which the fuel rests and over which it moves forwardly and downwardly while being burned, and which are hinged or pivoted at their rear edges and are adapted to swing downwardly at their forward edges to permit the discharge of the ashes and clinker which accumulate thereon.

The object of the invention is to provide a construction and means by which the dumping-grate is supported and securely held in place, whereby it may be easily removed and replaced; and it consists in the matters hereinafter described, and pointed out in the appended claims.

In said drawings, Figure 1 is a sectional elevation of a dumping-grate embodying our invention, together with adjacent parts of the furnace in which it is located. Fig. 2 is a view in perspective of the side bearer of the furnace, together with the bar or girder which overhangs the inner edge of the grate. Fig. 3 is a view of one section of the dumping-grate removed from its place. Fig. 4 is a perspective view of the supporting-bar for the grate, together with a wedge-block and key by which the end of the same is sustained.

As illustrated in said drawings, A designates the side wall of the furnace, and B the rear wall thereof.

C indicates as a whole an inclined grate within the furnace, and D one of the side bearers, which is located in contact with the side wall of the furnace, and which sustains the inclined grate and also the dumping-grate E. Said dumping-grate E is located at the front of the inclined grate C and is adapted to receive that part of the fuel, clinker, &c., which is not consumed in passing over the said inclined grate. Said dumping-grate E is generally similar to those heretofore used in connection with inclined grates, the same being generally flat and horizontally arranged and pivotally mounted at its rear edge, so that its front edge may be swung downwardly or dropped to allow the discharge of the fuel.

For actuating and dumping the grate the same is provided near its forward edge with a depending lug F′, to which is attached an actuating-rod $E^2$.

F is a bar or girder which extends over the rear edge of the dumping-grate and supports the part of the rear wall of the furnace above the same, said girder forming in effect a recess in said rear wall, in which the rear edge of the dumping-grate extends, and wherein are located the parts by which the grate is pivotally supported. Said bar F is shown as made of inverted-L form and as having its depending flange arranged flush with the face of the rear wall B below the overhanging part thereof.

To now describe the novel devices by which the dumping-grate is supported, these parts are made as follows: Said grate is provided at its rear edge with a pivot or hinge rod G, which is supported in projecting lugs *e e e*, preferably cast integral with the body of the grate.

H is a bearer-bar which extends transversely across the furnace parallel with the rear wall B beneath the supporting-bar F, and which is sustained at its ends by resting on side bearers D. Said bearer-bar H is provided with a plurality of brackets H′ H′, having in their upper edges sockets *h h* to receive the pivot-rod G, which is engaged with said brackets in its parts between the lugs *e e*. Said lugs, together with the pivot-rod G, constitute a hinge or pivotal support for the dumping-grate, permitting the forward edge of the grate to swing downwardly into posi-

tion shown in dotted lines in Fig. 1. The said bearer-bar is adapted to be moved vertically, but when in its normal position its upper edge is adjacent to the under surface of the supporting-bar F and so close to the same that the pivot-rod G is prevented from being lifted out of the sockets *h* by contact of the upper surface of the grate with that part of the bar F which overhangs the same, as clearly seen in Fig. 1.

For supporting the bearer-bar H the side bearers D D are provided with opposite vertical ribs *d d*, arranged to form between them a vertical slot *d'*, into which the ends of the bearer-bar are inserted and in which they are adapted to vertically slide. In said ribs *d d* is formed a transverse or horizontal keyway $d^2$, adapted to receive a key I, Figs. 1 and 4. The bearer-bar H is notched or cut away at the lower part of each end, so as to form shoulders *h' h'*, adapted to rest upon the key I, these parts being so arranged that when the bar is supported by the key it will be in its operative position, as seen in Fig. 1. The withdrawal of the key will obviously allow the bar to slide downwardly through the groove *d'*, and thus permit the removal both of the bar and the grate from its place within the furnace. In order, however, to enable the bar to be dropped a short distance only without being entirely displaced, for the purpose of disengaging the dumping-grate therefrom, the lower part of the groove *d'* below the keyway $d^2$ is made tapering or wedge-shaped, and a wedge-block J is provided for insertion in said lower part of the groove, so as to form a stop against which the shoulders *h'* of the bearer-bar will rest when the keys I I are removed.

When it is desired to remove the dumping-grate only, the keys I I are drawn out and the bar thus allowed to drop a short distance until it rests on the wedge-blocks J J, when the brackets H' H' will be lowered a sufficient distance to permit the pivot-rod to be lifted out and the dumping-grate thereby removed from its place. In order to allow the entire disengagement of the bearer-bar from the grooves, the wedge-blocks J J are also removed, when the ends of the bearer-bar will slide downwardly out of the grooves *d' d'*.

The construction described not only affords a cheap and simple construction in means for forming the hinge between the dumping-grate and its support, but also enables the dumping-grate and other parts to be easily removed for renewal or repairs.

The dumping-grate is commonly made in several short sections, each of which is operated by a separate actuating-rod, the grate herein shown being made in two sections, of which one only is shown in Fig. 5, the bearer-bar H, in this instance, being approximately twice the length of each grate-section.

We claim as our invention—

1. The combination with a dumping-grate of a bearer-bar which is capable of vertical movement and to which the grate is pivotally connected, movable supports for sustaining the bar in operative position, and removable stops limiting the descent of the bearer-bar, substantially as described.

2. The combination with a dumping-grate, of a bearer-bar having open sockets to receive the grate-pivots, a bar overhanging the bearer-bar and the said sockets, and removable supports sustaining the bearer-bar adjacent to the said bar which overhangs the same, substantially as described.

3. The combination with a dumping-grate, of a bearer-bar, supports for the same having vertical slots to receive the ends of said bearer-bar and provided with keyways and removable keys engaging the bearer-bar, substantially as described.

4. The combination with a dumping-grate, of a bearer-bar, supports for the same having vertical slots to receive the ends of said bearer-bar and provided with keyways and removable keys for sustaining the bearer-bar, and a wedge adapted for insertion into the vertical slot below the keyways to form stops for said bearer-bar, substantially as described.

5. In combination with a dumping-grate, means for removably securing said grate in operative position, comprising a bearer-bar H having bracket-bearings H' adapted to receive the pivot-rod of said grate, a bar F overhanging said bearer-bar and proximate thereto, and means for removably securing said bearer-bar in position, consisting of side bearers D D having ribs *d d* arranged to form vertical slots for the reception of said bearer-bar and a keyway adapted to receive a removable key, and a removable wedge which engages the lower parts of said ribs, substantially as described.

In testimony that we claim the foregoing as our invention we affix our signatures in presence of witnesses.

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CHARLES W. TOWNSEND.

Witnesses:
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WM. G. WATT,
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