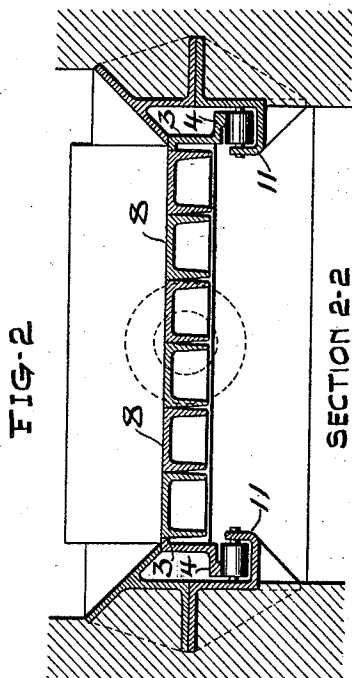


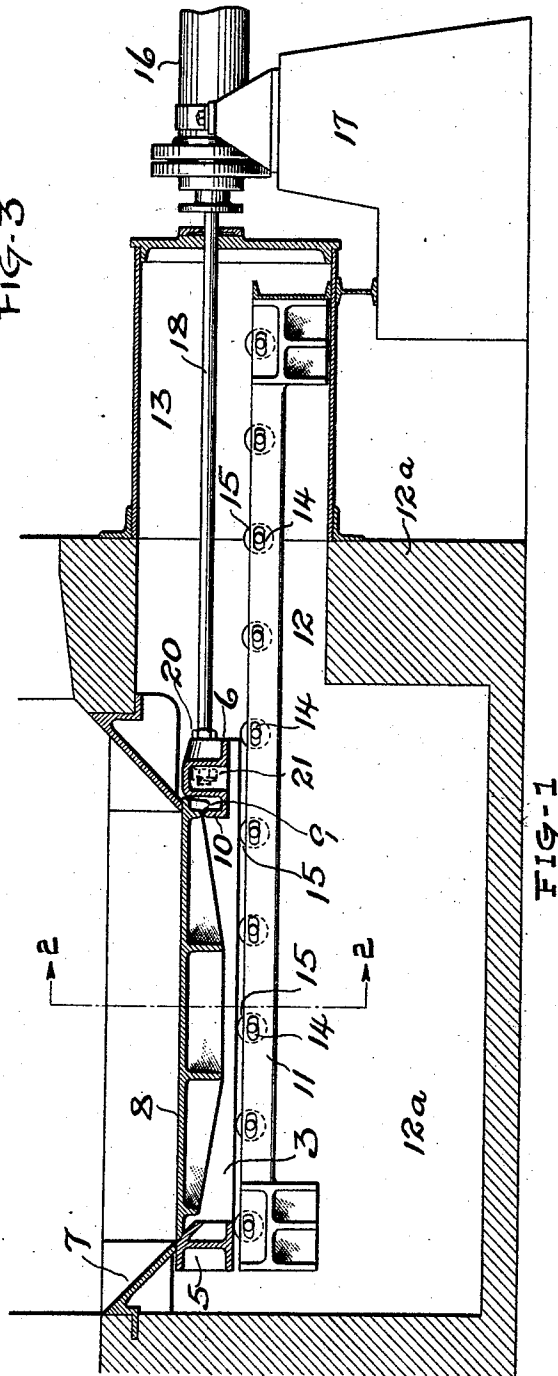
1,066,197.

FIG-3



2-611

NOTES



FI-611

Witnesses:
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By his Attorneys
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UNITED STATES PATENT OFFICE.

ERNEST H. FOSTER, OF NEW YORK, N. Y., ASSIGNOR TO POWER SPECIALTY COMPANY,
OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

GRATE FOR DESTRUCTOR-FURNACES.

1,066,197.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed January 20, 1910. Serial No. 539,103.

To all whom it may concern:

Be it known that I, ERNEST H. FOSTER, a citizen of the United States, residing at New York, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Grates for Destructor-Furnaces, of which the following is a full, clear, and exact description.

In the operation of so-called "destructor" furnaces, for consuming garbage, household refuse, and other waste materials, the clinker resulting from the combustion is extremely tough and tenacious, and considerable difficulty is experienced in dislodging it from the grates.

My present invention is designed to facilitate the work of "clinkering", and its chief object is to provide a movable grate, with simple and effective means actuating the grate, whereby to dump or discharge the material therefrom into the ash pit below.

To this and other ends the invention which I desire to cover consists in the novel features of construction and combinations of elements hereinafter described.

A convenient and effective embodiment of the invention is illustrated in the annexed drawing, in which—

Figure 1 shows the movable grate in longitudinal vertical section, with fluid-pressure mechanism for operating the grate. Fig. 2 is a cross section on line 2—2 of Fig. 1. Fig. 3 is a detail perspective view showing the connection between the grate and the piston of the ram or fluid-pressure mechanism.

In its preferred form the grate comprises a rectangular frame composed of parallel side members 3, 3, provided with outwardly directed flanges 4, and connected at their ends to a forward transverse member 5, and to a hollow rear transverse member 6. The former member is beveled inwardly, as shown, and such beveled portion is in alignment with the sloping or inclined front walls 7 of the grate chamber, which is provided with similar walls on its remaining three sides. The hollow grate-bars 8, provided with air-holes or perforations, as 8^a, have their forward edges beveled to fit the beveled front member 5 and extend to the rear member 6, being provided at their rear ends with downwardly extending lugs 9 to engage suitable means on the rear member,

as for example a rail or rib 10 carried thereby, said rail being of such height as to cause the bars to lie under the edge of the grate-chamber wall, as shown.

Below the side members 3, 3, are two longitudinal rails 11, 11, extending rearwardly, through an opening 12 in the rear wall of the ash-pit 12^a into a closed chamber 13 of suitable construction. These rails are each provided with a series of elongated bearings 14, in which the anti-friction rollers 15 are journaled. The side members 3, 3, of the grate-frame, rest on these rollers.

At the rear of the chamber 13 I provide suitable means for retracting and advancing the grate on its rails, as for example a fluid-pressure ram 16 mounted firmly on a pier 17. The piston 18 of this ram extends through the rear wall of chamber 13, and through a central vertical slot 49 in the rear transverse member 6, to which the piston is connected by nuts 20, 21. These nuts or stops are preferably not set up tightly against the wall of the rear member, but are spaced therefrom sufficiently to permit free movement of the piston in the slot. The loose connection thus provided enables the parts to accommodate themselves without strain to any inaccuracy in the construction or to such warping of the parts as may occur in use.

From the foregoing description the method of using the apparatus will be readily understood. When the furnace is to be "clinkered" the fluid-pressure mechanism is started, thereby retracting the sliding grate. As the latter moves to the rear the mass of clinker is scraped, or sheared off, as it were, by the inclined rear wall of the grate-chamber, and drops into the clinker pit below. If the clinker should not drop at once, but should "bridge" across the grate-chamber, it can be dislodged by a few blows of the usual clinkering bar. The actuating mechanism is then reversed and the grate returned to its initial position.

It will thus be seen that the apparatus practically eliminates manual labor in the clinkering operation, and performs the work more rapidly than can be done by hand. At the same time the structure is simple in design, and it will be observed that the parts of the grate which are in contact with or close to the fire are of a hollow or skeleton

construction so as to be cooled by the air rising from the clinker-pit.

The apparatus herein specifically described is convenient and effective for its purpose, but it is to be understood that the invention may be embodied in other forms without departure from its proper spirit and scope.

I claim:

10 1. A destructor furnace comprising, in combination, a grate, a grate chamber located above and a clinker chamber located below said grate, the horizontal dimensions of said chambers being substantially the same as the horizontal dimensions of said grate said clinker chamber being provided with an opening, and an air tight metallic casing extending horizontally from the face of the furnace walls to seal the said opening against the entrance of external air and into which the grate may be retracted to discharge the clinker therefrom into the clinker pit.

25 2. In a destructor furnace, in combination, a clinker pit having an opening in its rear wall, supporting rails at the upper part of the clinker pit and extending through said opening, an air tight metallic chamber connected to the surrounding walls of and extending rearwardly from said opening and inclosing the rear portion of said rails, a grate slidably mounted on the rails, a power actuated means for retracting the grate through said opening into the air tight chamber, and means cooperating with the grate to dislodge clinker therefrom as

the grate is retracted into said air tight chamber.

3. In a destructor furnace, in combination, a clinker pit having an opening in its rear wall, supporting rails provided with anti-friction rollers and located at the upper part of the clinker pit and extending through said opening, an air tight metallic chamber connected to the surrounding walls of and extending rearwardly from said opening and inclosing the rear portion of said rails, a grate-chamber above the clinker pit having walls extending inwardly over the rails to protect the same, a grate slidably mounted on the rails, a power actuated means for retracting the grate through said opening into the air tight chamber, said inwardly extending walls adapted to cooperate with the grate as the latter is retracted into said air tight chamber to dislodge the clinker therefrom and discharge the same into the clinker pit.

4. In a destructor furnace, in combination, a horizontal grate having an end member provided with a vertical slot, a fluid-pressure ram having a piston loosely engaging the grate in said vertical slot, whereby the relative positions of the parts may vary without strain, and means for slidably supporting the grate.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

ERNEST H. FOSTER.

Witnesses:

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S. S. DUNHAM.