June 1, 1926. 1,586,838

E. J. PERREY

FURNACE

Filed June 3, 1925

Fig. 1

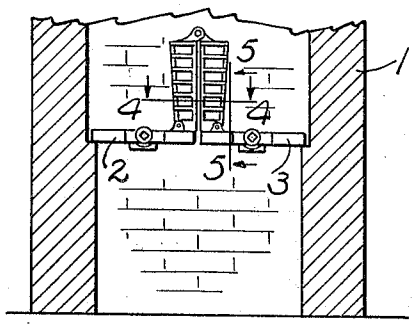


Fig. 2

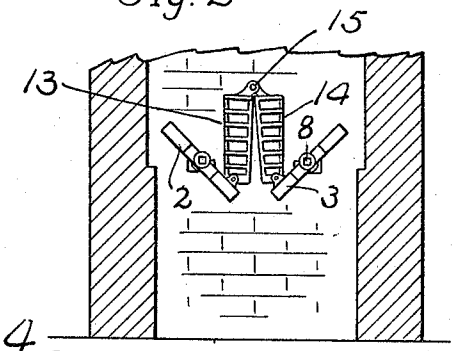


Fig. 3

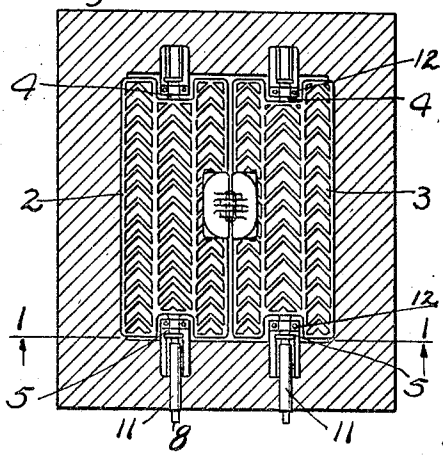


Fig. 4

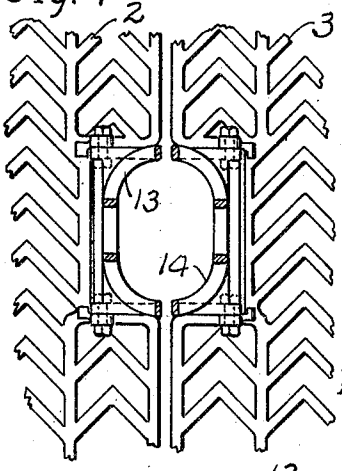


Fig. 5

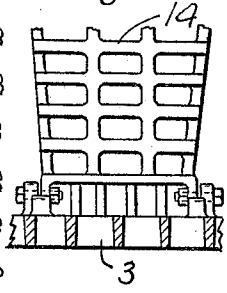


Fig. 6

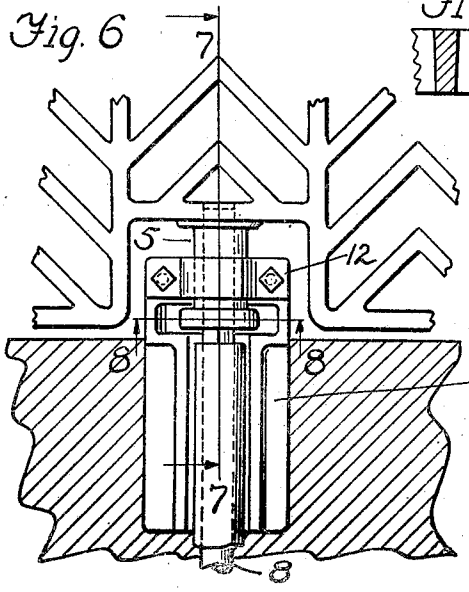


Fig. 7

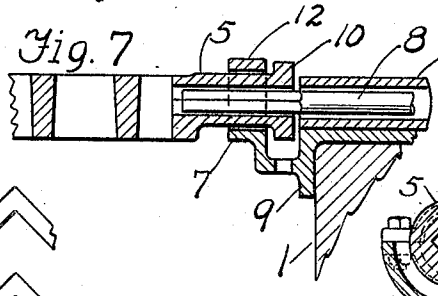
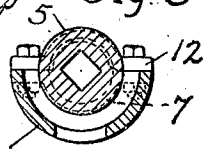


Fig. 8



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Patented June 1, 1926. 1,586,838

UNITED STATES PATENT OFFICE.

EDWARD J. PERREY, OF CHICAGO, ILLINOIS.

FURNACE.

Application filed June 3, 1925. Serial No. 34,574.

My invention relates to furnaces and is of particular service when embodied in furnaces of the class known as incinerators that are used to consume garbage and other refuse matter. The invention, however, is not to be limited to any particular use to which it may be put. The furnace of my invention includes a grate having at least one horizontal section which is mounted to turn whereby the ashes resulting from the combustion within the furnace may be dumped. The grate also includes an upright section joined with the horizontal section, this upright section being within the zone of the matter, to be burnt, that is loaded upon the horizontal section. In the preferred embodiment of the invention the grate is inclusive of two complemental horizontal sections both mounted to turn and two complemental upright sections in articulated connection with the horizontal sections and with each other, the upright sections permitting the horizontal sections to be turned or tilted for the purpose of discharging the ashes therefrom and serving to limit the extent to which the horizontal sections may be tilted.

The invention will be more fully explained in connection with the accompanying drawing in which Fig. 1 is a sectional view on line 1—1 of Fig. 3; Fig. 2 is a view similar to Fig. 1 showing the grate sections adjusted to discharge the ashes; Fig. 3 is a sectional plan view taken above the grate structure; Fig. 4 is a sectional view illustrating portions of the grate structure on a larger scale taken on line 4—4 of Fig. 1; Fig. 5 is a sectional view on line 5—5 of Fig. 1 also on a larger scale; Fig. 6 is a view on a larger scale of a part of the structure as it appears in Fig. 3; Fig. 7 is a sectional view on line 7—7 of Fig. 6, and Fig. 8 is a sectional view on line 8—8 of Fig. 6. The furnace illustrated includes the usual or suitable furnace wall 1 generally made of masonry. Two complemental horizontal grate sections 2 and 3 are mounted to turn upon axes individual thereto and on bearings which are carried by the furnace wall. Each of these grate sections carries shafts 4 and 5 which turn within bearings 7. these shafts being integrally formed with the grate sections as illustrated most clearly in Fig. 7. The shafts 5 are in the form of sleeves to receive the squared inner ends of the shafts 8, the bores of the hollow shafts 5 fitting the squared inner ends of the shafts 8. The outer ends of the shafts 8 are also squared to receive wrenches in order to turn the grate sections having these shafts. The bearings 7 are carried upon brackets 9 from which the bearings are spaced apart sufficiently to receive the enlarged outer ends of the shafts 4 and 5 as illustrated most clearly in Fig. 7, where I have shown the hollow shaft 5 provided with an outer enlarged end 10. The brackets 9 extend partially across the furnace wall and support housing sleeves 11 extending entirely through the furnace wall to protect the shafts 8 that extend through these housings. The brackets are of cradle like form where they carry the tubular housings 11 and also at their bearing portions 7 where the shafts 4 and 5 are supported. The bearings 7 have cap portions 12 bolted thereto so that the shafts 4 and 5 are completely surrounded and are prevented from leaving their bearings. When the grate sections 2 and 3 are closed, they are in sufficiently close proximity at their adjacent or meeting edges to hold the material placed thereon that is to be burnt, as illustrated in Fig. 1. When these grate sections are tilted they are spread apart, as illustrated in Fig. 2, to enable the ashes thereon to be dumped therefrom.

I provide upright grate sections 13 and 14 that are complemental to each other and which are respectively in articulated connection at their lower ends with the underlying grate sections 2 and 3 each upon one side of the axis of the corresponding longitudinal section, whereby the upright grate sections change their angularity with respect to the horizontal grate sections as the latter are turned, the upright grate sections 13 and 14 being preferably connected with the underlying grate sections 2 and 3 adjacent to the meeting edges of the latter sections. The upright grate sections 13 and 14 are placed in articulated connection with each other at their upper ends as illustrated at 15. When either horizontal grate section 2 or 3 is turned by means of a wrench coupled with its shaft 8, the other horizontal grate section is at that time also turned through the intermediation of the linkage between the horizontal grate sections that is comprised of the interlinked upright grate sections 13 and 14. When the horizontal grate sections are in normal fuel re-

ceiving position the upright grate sections penetrate the fuel and are in engagement at their opposed faces, as illustrated in Fig. 1, so that no fuel may enter between the upright grate sections.

When the grate is adjusted to dump the ashes therefrom, Fig. 2, the upright grate sections will diverge at their lower ends so that any ashes or unburnt matter that may have passed through the openings in the upright grate sections will drop from between these grate sections and through the space between the tilted horizontal gate sections. Each horizontal grate section and the upright grate section articulated therewith, constitutes a linkage between the furnace wall and the other grate sections. The invention therefore is not to be limited to a plurality of horizontal grate sections nor to a plurality of upright grate sections.

Changes may be made without departing from my invention.

Having thus described my invention, I claim:—

1. A furnace provided with a grate having a horizontal section mounted to turn and an upright section in articulated connection at its lower end with the horizontal section upon one side of the axis of the latter section to permit the angularity of the two grate sections to change when the horizontal section is being turned; and linkage connecting the upright grate section above its lower end with the furnace wall.

2. A furnace provided with two complemental horizontal grate sections, both mounted to turn, and two complemental upright grate sections respectively articulated with said horizontal sections to enable the angularity of the upright and horizontal sections to change as the horizontal sections are turned, said upright grate sections being in moving connection with each other above their places of connection with the other grate sections.

3. A furnace provided with two complemental horizontal grate sections, both mounted to turn, and two complemental upright grate sections in articulated connection with each other at their upper ends and in articulated connection at their lower ends with the other grate sections at the meeting edges of these latter sections.

4. A furnace provided with a grate having a horizontal section mounted to turn and an upright section in articulated connection at its lower end with the horizontal section to permit the angularity of the grate sections to change when the horizontal section is being turned; and linkage connecting the upright grate section above its lower end with the furnace wall.

5. A furnace provided with a grate having a horizontal section mounted to turn upon an axis intermediate its sides and an upright section in articulated connection at its lower end upon one side of said axis, and means for guiding movement of the upper end of said upright section.

In witness whereof, I hereunto subscribe my name.

EDWARD J. PERREY.