

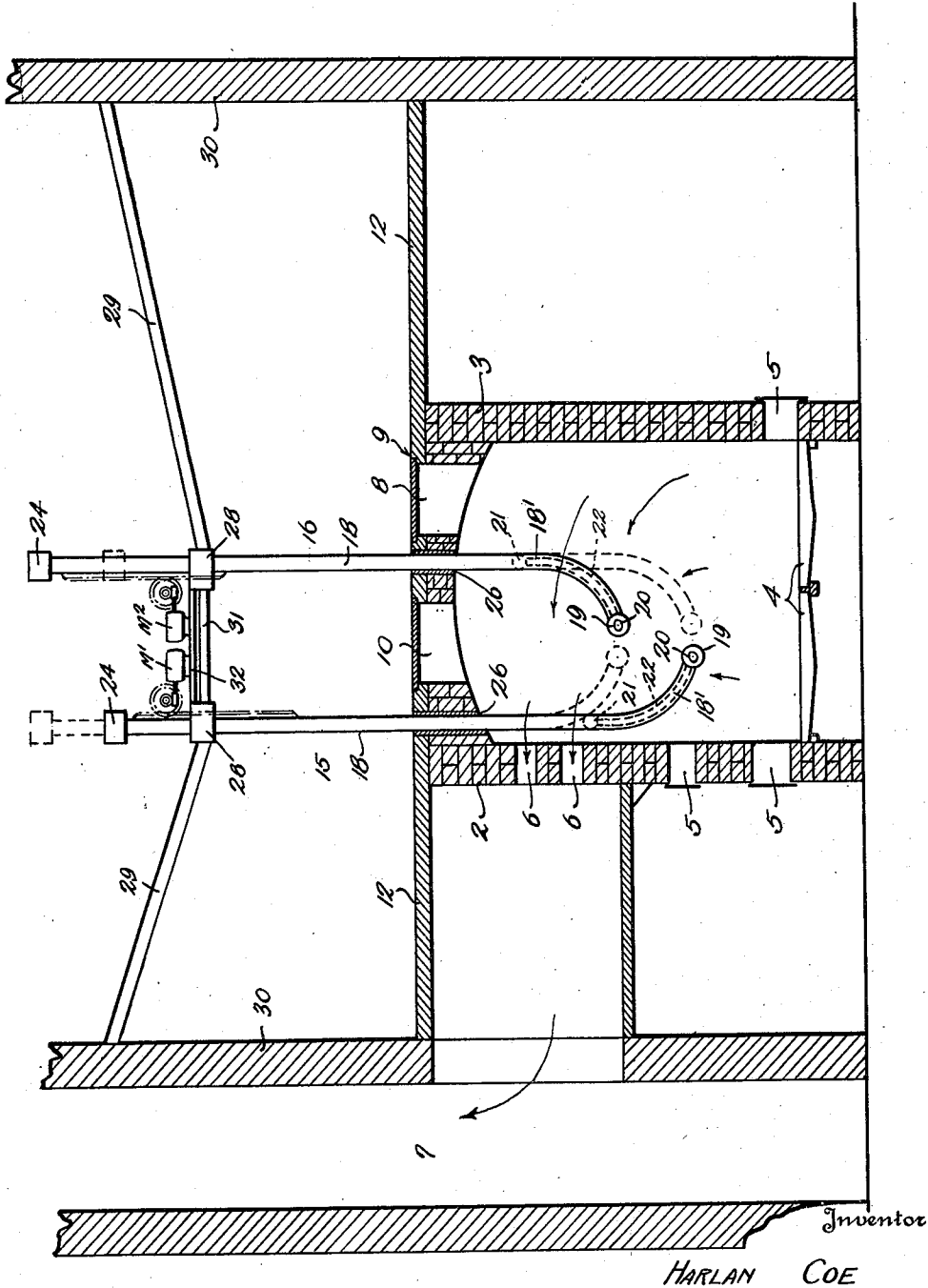
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INCINERATOR

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UNITED STATES PATENT OFFICE.

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INCINERATOR.

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The object of this invention is to provide an incinerator for the disposal of garbage, rubbish and other waste material, capable of very economical operation, and equipped with means making it self stoking and for loosening the wet mass of garbage to allow the hot gases to pass through the same, thus more quickly evaporating the moisture and allowing more complete and rapid combustion.

Broadly stated, the invention consists of a suspended water cooled basket grate to receive and support the wet mass as it is dumped into the incinerator, such basket grate being formed of sections and movable vertically in its entirety or its sections independently vertically adjustable within the incinerator.

Referring to the accompanying drawings, wherein like reference numerals designate corresponding parts throughout the several views,

Fig. 1 is a vertical sectional view of the invention assembled,

Fig. 2 is an enlarged detail view in front elevation of the upper part of the basket grate and its operating mechanism,

Fig. 3 is a top plan view of Fig. 2,

Fig. 4 is a side elevation of a complete basket grate section, and

Fig. 5 is a top plan view of the two basket grate sections.

In the drawings, reference numerals 2 and 3 designate the side walls of the incinerating chamber proper, between which is located the firing grate 4, stoking doors or openings 5 being provided in such walls, and flue openings 6 being provided in the wall 2 for the escape of the products of combustion to a suitable stack 7. While one form of incinerating chamber is shown in the drawing, more or less diagrammatically, it will be understood that other types of furnaces may be used without departing from the spirit of the invention. Fuel for the firing grate 4 may be introduced through the opening 8 in the roof 9 of the incinerator.

The garbage or the like is fed through an opening or door 10 provided in the roof of the incinerator, charging floors 12 flush with the roof being provided over which the charging vehicles (not shown) travel. On each side of this opening 10, grate sections 15, 16 are arranged for vertical movement through

the roof 9 of the incinerator, each section being composed of a pair of vertical pipes 18 having their lower end portions 18' bent inwardly toward the adjacent grate section and connected together by a bottom horizontal pipe 19, the ends of which are closed by clean-out plugs 20. Parallel with the pipe 19 and some distance thereabove is a cross pipe 21, and between this and the pipe 19 extend a number of vertical parallel pipes 22, these occupying the same curved plane as the bent lower ends 18' of the pipes 18. The upper ends of the pipes 18 of each section are connected together by a horizontal pipe or reservoir 24, which may or may not have connection with suitable inlet and outlet means (not shown) for cooling water which circulates through the entire system of grate pipes mentioned. Obviously, the water which becomes heated in the grate, or its vapor, may be utilized for any desired purpose.

The vertical pipes 18 are arranged for vertical movement in suitable bearings 26 provided in the roof 9, and additional bearings 28 are provided for the upper ends of the pipes 18, the same having braces 29 suitably anchored to side walls or other fixed structure 30. The upper bearings 28 are connected together by intermediate braces 31 supporting a platform 32 upon which is arranged suitable operating mechanism. Various mechanisms may be employed for raising and lowering the grate basket sections 15 and 16, but for the purpose of illustrating one suitable mechanism, there is shown a pair of reversing electric motors M^1 and M^2 mounted on the platform 32, and the shaft of each motor has a worm gear 42 meshing with a worm gear 43, one of such gears being provided on each of a pair of shafts 44 journaled in bearing brackets 45 on the platform. Each shaft 44 is provided at its opposite end portions with pinions 46 meshing with racks 47 provided on the pipes 18. The motors have individual switches S^1 and S^2 and individual reversing circuits, there being an electric battery B or other source of current supply.

In operation, firing fuel is fed through opening 8, or openings 5, or both, onto the firing grate 4 and is there ignited, the products of combustion rising and sweeping across the incinerator chamber and out of ports 6, the basket grate sections 15 and 16 being located above the firing grate at one

side and in the direct path of such products of combustion, so that the garbage or other refuse which is dumped through the opening 10 and held in said basket grate sections 15 and 16 is thoroughly dried and partially consumed thereby. The wet mass of garbage or refuse will pack of its own weight until the hot gases cannot penetrate the same, and when this occurs, one or the other of the switches S^1 , S^2 is closed to cause operation of its respective motors M^1 , M^2 , and the resultant vertical reciprocation of its respective basket grate section 15, 16. One motor may not be operated while the other is operated, the worm gearing of the idle motor serving to check its respective basket grate section from falling of its own weight, or both motors may be reversely operated to secure the desired relative reciprocation between the basket grate sections, which reciprocation may be fast or slow to suit the desires of the attendant. For adjusting the general position of the basket grate as a whole according to the height of the fuel on the firing grate 4, both motors may be simultaneously operated. Thus it will be seen that when the mass of garbage or other refuse has become packed, the grate sections 15, 16 may be moved relatively to each other, whether by operation of one or both motors, to permit the hot gases to penetrate the mass and evaporate the moisture therein. When thoroughly dried, the mass of garbage or refuse may be dumped onto the firing grate 4 by sufficiently operating the basket grate sections relatively to each other as aforesaid. Obviously, some of the dried mass will fall from the basket grate during drying reciprocation of such grate sections, but the bulk will be released and dumped as stated. Thus it will be seen that the reciprocation relatively of the basket grate sections not only keeps the mass from packing and admits drying gases thereto, but delivers the dried mass from the basket grate to the firing grate as desired.

What is claimed is:—

1. An incinerator, comprising a firing chamber, and a sectional support for the material to be incinerated, said sections having hook-shaped lower ends and being separately adjustable bodily up and down over a considerable range within the firing chamber, said hook-shaped ends constituting a deformable basket.

2. An incinerator, comprising a firing chamber, and a sectional support for the material to be incinerated, said sections having hook-shaped lower ends and being separately and relatively adjustable rectilinearly over a considerable range within the firing chamber, said hook-shaped ends constituting a deformable basket.

3. An incinerator, comprising a firing chamber, and a number of spaced basket grate

sections for supporting the material to be incinerated, said sections having hook-shaped lower ends forming fuel supporting portions extending adjacent each other, and said sections being relatively vertically adjustable rectilinearly within the firing chamber.

4. An incinerator, comprising a firing chamber having a grate across its bottom portion and a pair of charging openings in its upper portion, spaced basket grate sections on opposite sides of the plane of one of the charging openings and overlying only a portion of the first mentioned grate for supporting the material to be incinerated, said sections having fuel supporting portions extending adjacent each other, said sections being relatively vertically adjustable bodily up and down within the firing chamber, and said firing chamber having outlets for the products of combustion located in one wall of the firing chamber.

5. In an incinerator, a firing chamber, a basket in said chamber for supporting the material to be incinerated, said basket comprising a plurality of hook-shaped sections, and means for moving said sections bodily up and down relatively to each other.

6. In an incinerator, a firing chamber, a basket in the chamber for supporting the material to be incinerated, said basket comprising a plurality of hook-shaped sections, each of said sections having rod portions, and means engaging said rod portions for moving the sections rectilinearly relatively to each other.

7. In an incinerator, a firing chamber, a basket in the chamber for supporting the material to be incinerated, said basket being formed of a plurality of hook-shaped sections, each of said sections having rod portions slidable through one wall of the chamber, and means engaging said rod portions for moving said sections relatively to each other.

8. An incinerator comprising a firing chamber having a grate across its lower portion and a pair of charging openings in its upper portion, a basket for supporting the material to be incinerated, said basket being arranged within the firing chamber in position to receive material through one of said charging openings, and being arranged to one side of the other charging opening to permit fuel to be fed into the firing chamber through the last mentioned charging opening, said basket being formed of sections, and each section having upwardly extending rod portions projecting through the top of the firing chamber, and means for reciprocating the rod portions of one of said sections relatively to the rod portions of another section.

9. An incinerator, comprising a firing chamber, a grate therein, and a sectional support for the material to be incinerated, said sections having hook-shaped lower ends and being separately adjustable rectilinearly

up and down within the firing chamber with respect to the grate thereof, said hook-shaped ends constituting a deformable basket.

10. In an incinerator, a firing chamber, a
5 sectional basket for supporting the material to be incinerated within the firing chamber, each section of the basket being hook-shaped

and having upwardly extending rods slidable through the top of the chamber, and means for releasing and lowering the rods of the 10 sections relatively to each other.

In testimony whereof I affix my signature.

HARLAN COE.