Aug. 23, 1949. F. O. DECARIE 2,479,818

INCINERATOR

Filed July 24, 1944 4 Sheets-Sheet 1

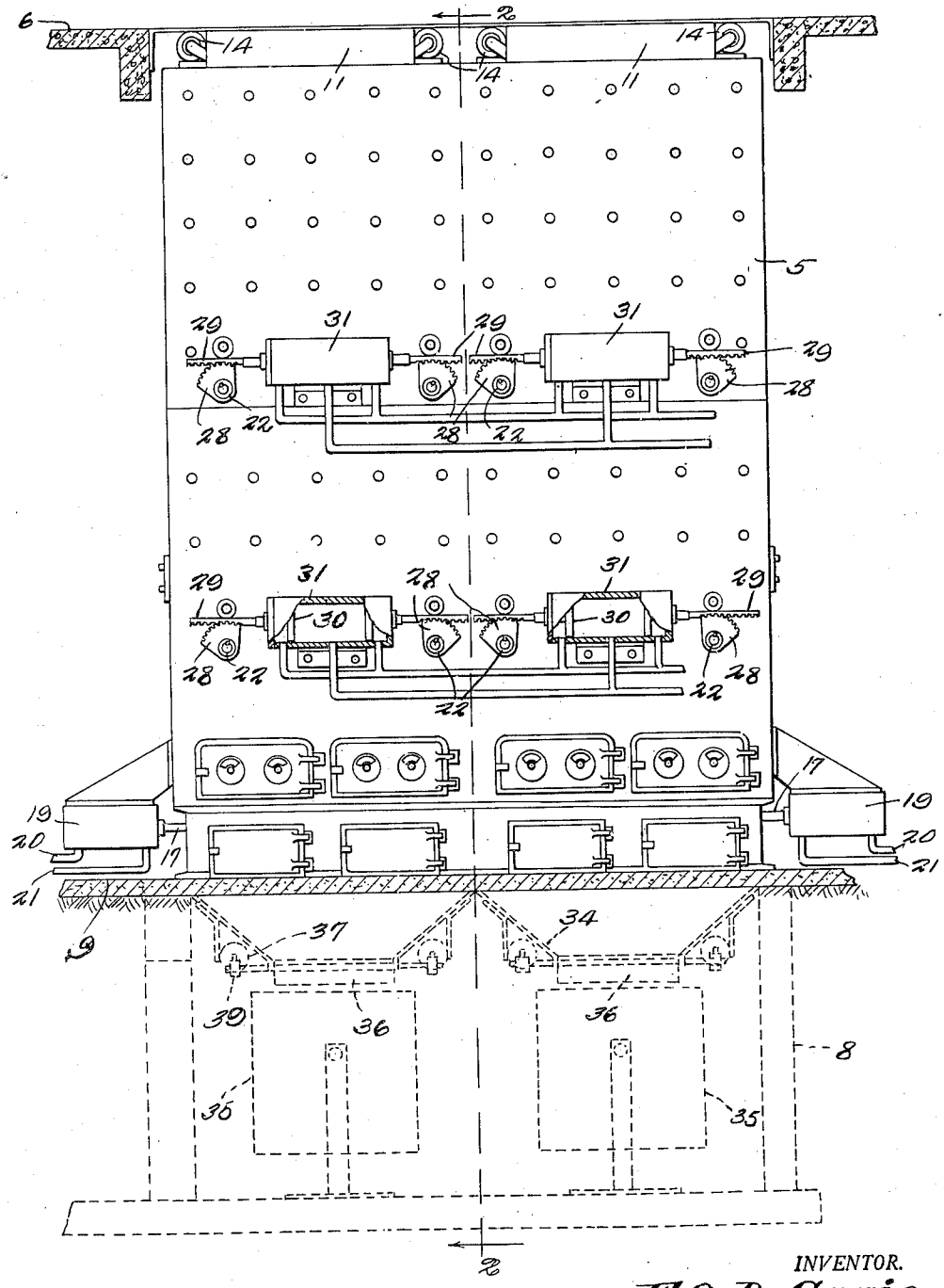


Fig. 1.

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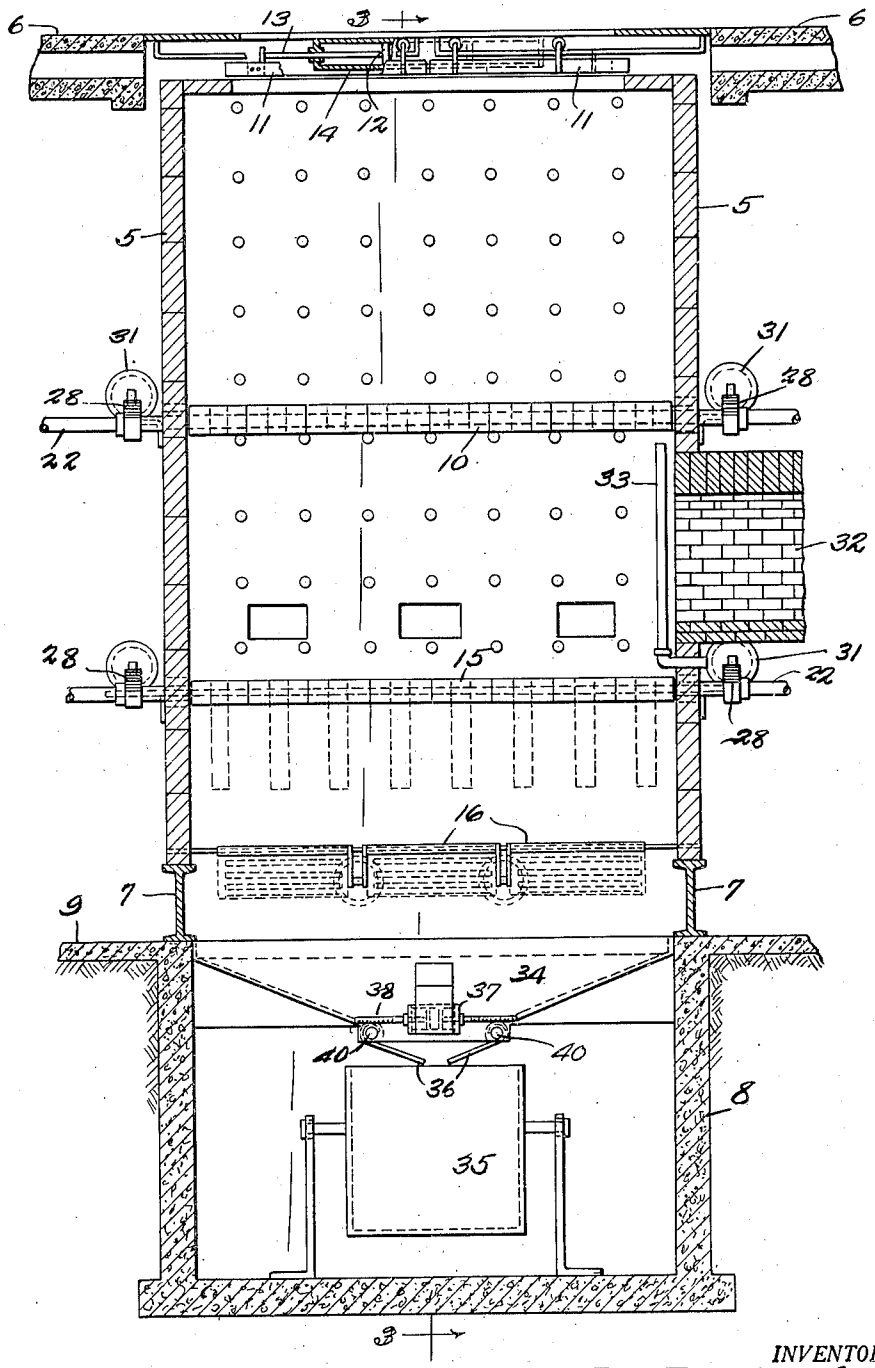


Fig. 2.

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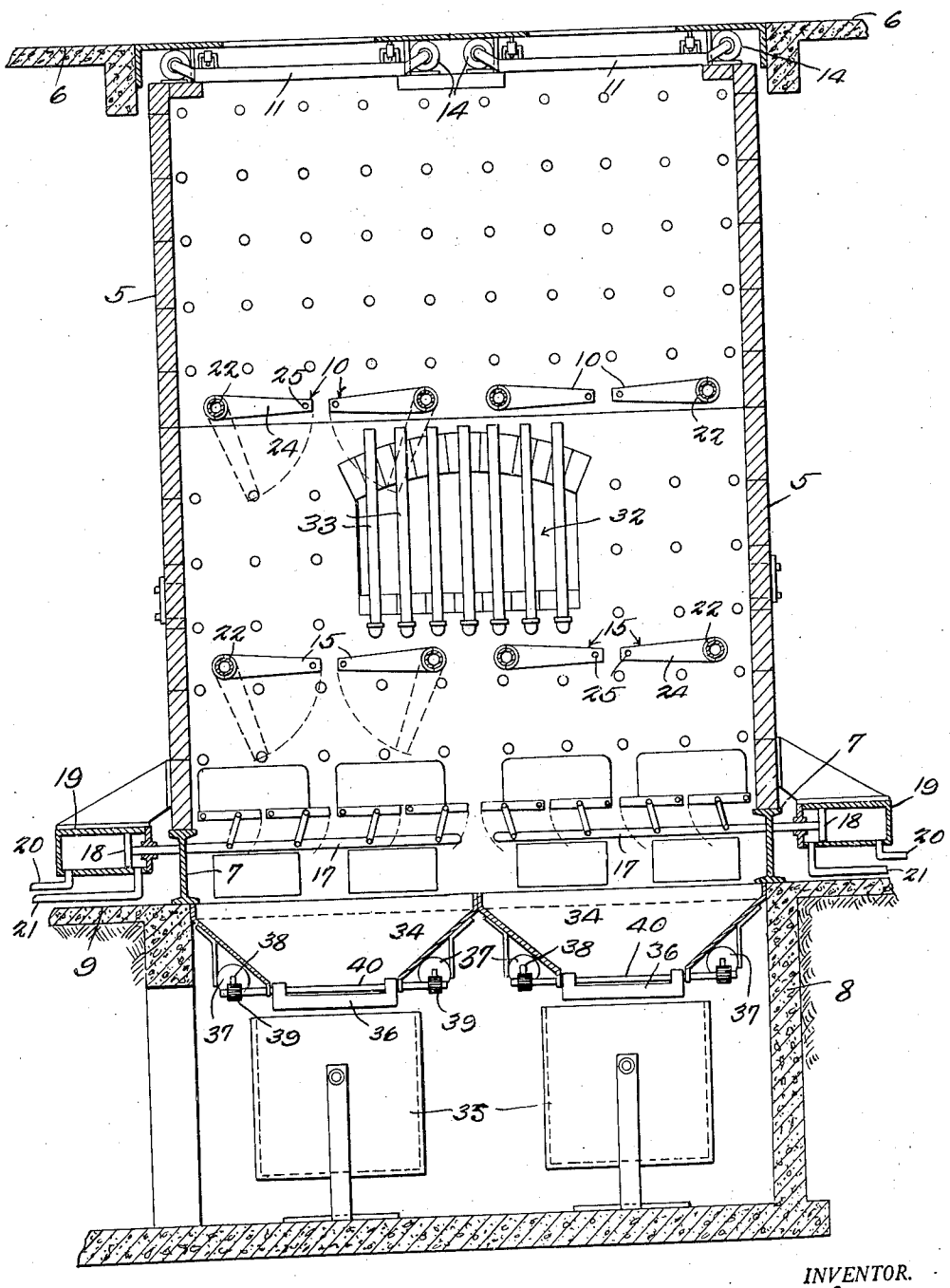


Fig. 3.

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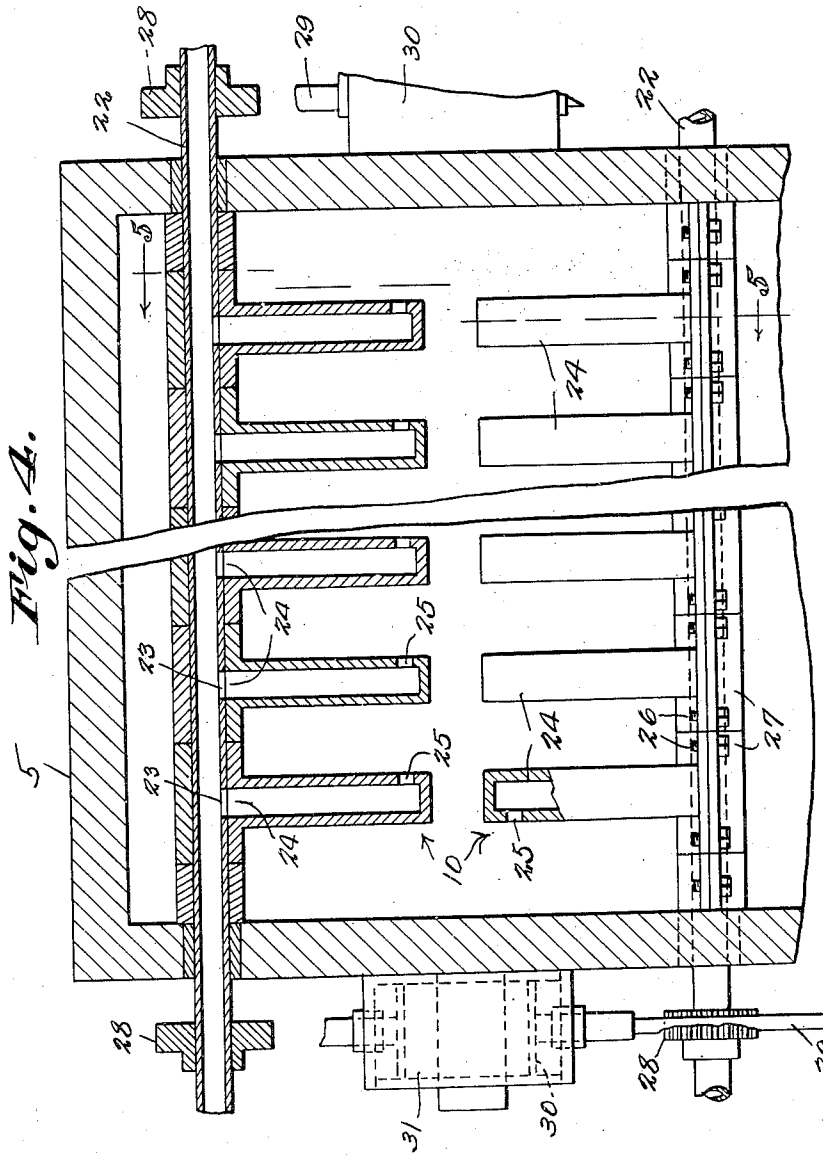


Fig. 4.

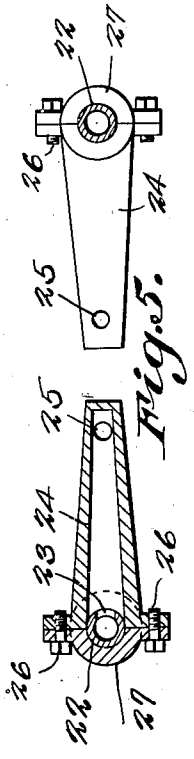


Fig. 5.

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UNITED STATES PATENT OFFICE

2,479,818

INCINERATOR

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Application July 24, 1944, Serial No. 546,253

1 Claim. (Cl. 110—15)

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This invention relates to incinerators, the primary object of the invention being to provide an incinerator including superposed groups of air-cooled grates of the movable type, the grates constituting the bottoms of the compartments or bins in which the refuse under treatment, is contained.

An important object of the invention is to provide an incinerator of this character wherein the refuse will be dried and partially burned, prior to its passage to the firing grates, to the end that the refuse will burn readily, when finally deposited on the firing grates of the incinerator.

Another object of the invention is to provide an incinerator including air-cooled grates, embodying hollow movable arms through which air is directed, the air taking a horizontal path along the bottoms of the bins or refuse compartments, the refuse being held in direct line with the fire and products of combustion passing upwardly through the flue of the incinerator.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawings:

Figure 1 is an elevational view of an incinerator constructed in accordance with the invention.

Figure 2 is a vertical sectional view taken on line 2—2 of Fig. 1.

Figure 3 is a sectional view taken on line 3—3 of Fig. 2.

Figure 4 is a transverse sectional view through the incinerator, showing one section of the air-cooled grates, in plan.

Figure 5 is a sectional view taken on line 5—5 of Figure 4.

Referring to the drawings in detail, the body portion of the incinerator comprises the vertical walls 5 which extend at right angles with respect to each other, the construction of the body portion being such that the top thereof is on a line with the receiving floor of the building in which the incinerator is placed, the receiving floor being indicated by the reference character 6.

The body portion is supported on the foundation 7 which embodies I-beams that are placed on the base 8 that extends into the basement of the building, below the firing floor, which is indicated by the reference character 9. Mounted within the body portion of the incinerator, and

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disposed below the receiving floor 6, are air-cooled grates 10 which divide the upper portion of the body into a storage bin which is fed with material through the openings in the receiving floor which openings, are closed by means of the sliding closures 11 which are operated by the pistons 12 connected with the closures by means of the piston rods 13. These pistons operate in the cylinders 14, and the pistons are moved to either end of the cylinders, by admitting air to the opposite sides of the pistons 12.

Directly below the air-cooled grates 10, and arranged in spaced relation therewith, are the grates 15 which are also air-cooled, and divide the intermediate portion of the body, into a chamber, into which the refuse is dumped, from the storage bin. Directly below the grates 15 are the firing grates 16 onto which the refuse passes, when the grates 15 are dumped. The grates 16 are operated by means of the rods 17 which carry pistons 18 at their outer ends, the pistons operating the cylinders 19, which pistons are moved to the opposite ends of the cylinders, by air pressure directed into the cylinders, at the ends thereof, the air entering the cylinders through the pipes 20 and 21.

The air-cooled grates embody pipes 22 that extend transversely of the body, the pipes 22 having openings 23 that are adapted to register with openings formed at the inner ends of the hollow grate bars 24. These hollow grate bars have discharge openings 25, which are disposed at the sides of the grate bars adjacent to the outer closed ends of the grate bars. On positioning the grate bars, they are clamped around the pipes 22, in a manner as shown by Fig. 5 of the drawings, the grate bars being provided with flanges formed with threaded openings to receive the bolts 26 that also pass through openings of the caps 27 that secure the grate bars in their proper positions. Gears 28 are secured to the pipes 22, which gears are engaged by the rack bars 29 that extend from the pistons 30 with the result that when air enters the cylinders 31 in which the pistons 30 operate, movement will be transmitted to the pipes 22 to move the grate bars from the positions shown in full lines in Fig. 3 of the drawings, to the dotted line positions shown in Fig. 3.

Due to this construction, it will be seen that the hollow grate bars may be readily and easily removed and replaced should they burn out, or otherwise be rendered inoperative.

The flue of the incinerator is indicated by the reference character 32 and arranged above the lowermost hollow grate bars so that the products

of combustion passing into the flue, must pass through the refuse supported on the hollow grate bars 15. Air pipes indicated at 33 extend vertically directly in front of the flue 32 and prevent the refuse from passing into the flue to clog the flue and obstruct the passage of the products of combustion through the flue.

Directly below the firing grates, are ash pits 34 into which the ashes from the firing grates fall, the ashes being dumped into the movable receptacles 35 mounted directly below the ash pits. The ash pits 34 are provided with doors 36 that are operated by means of the pistons operating in cylinders 37, the pistons embodying piston rods 38 having teeth meshing with the gears 39 secured to the ends of the shaft 40 on which the doors 36 are mounted. From the foregoing it will be seen that due to the construction shown and described, the refuse may be deposited in the storage bin and that by operating the uppermost grate bars, the material may be dropped into the compartment directly above the lowermost air-cooled grate bars, from where the material may be dropped onto the firing grates and burned. As the material burns, the products of combustion pass upwardly and out through the flue. It will also be noted that wet refuse deposited in the storage bin will, by the time it is necessary to deposit additional material to be burned on the firing grates, become dried and somewhat burned to cause the same to burn rapidly when on the firing grates of the incinerator.

What is claimed is:

In an incinerator, a body portion, firing grates disposed within the body portion adjacent to the bottom thereof, vertically spaced pairs of horizontal pipes extending transversely through the body portion, the pairs of pipes being disposed adjacent to opposite sides thereof, hollow grate bars secured to the pipes, said pipes having openings, the hollow grate bars embodying separable sections adapted to be clamped around the pipes directly over the openings, establishing communication between the pipes and hollow grate bars, said hollow grate bars dividing the body portion into superposed storage chambers communicating with each other, and means for operating the pipes whereby said grate bars are dumped depositing material on the adjacent lower grate bars.

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