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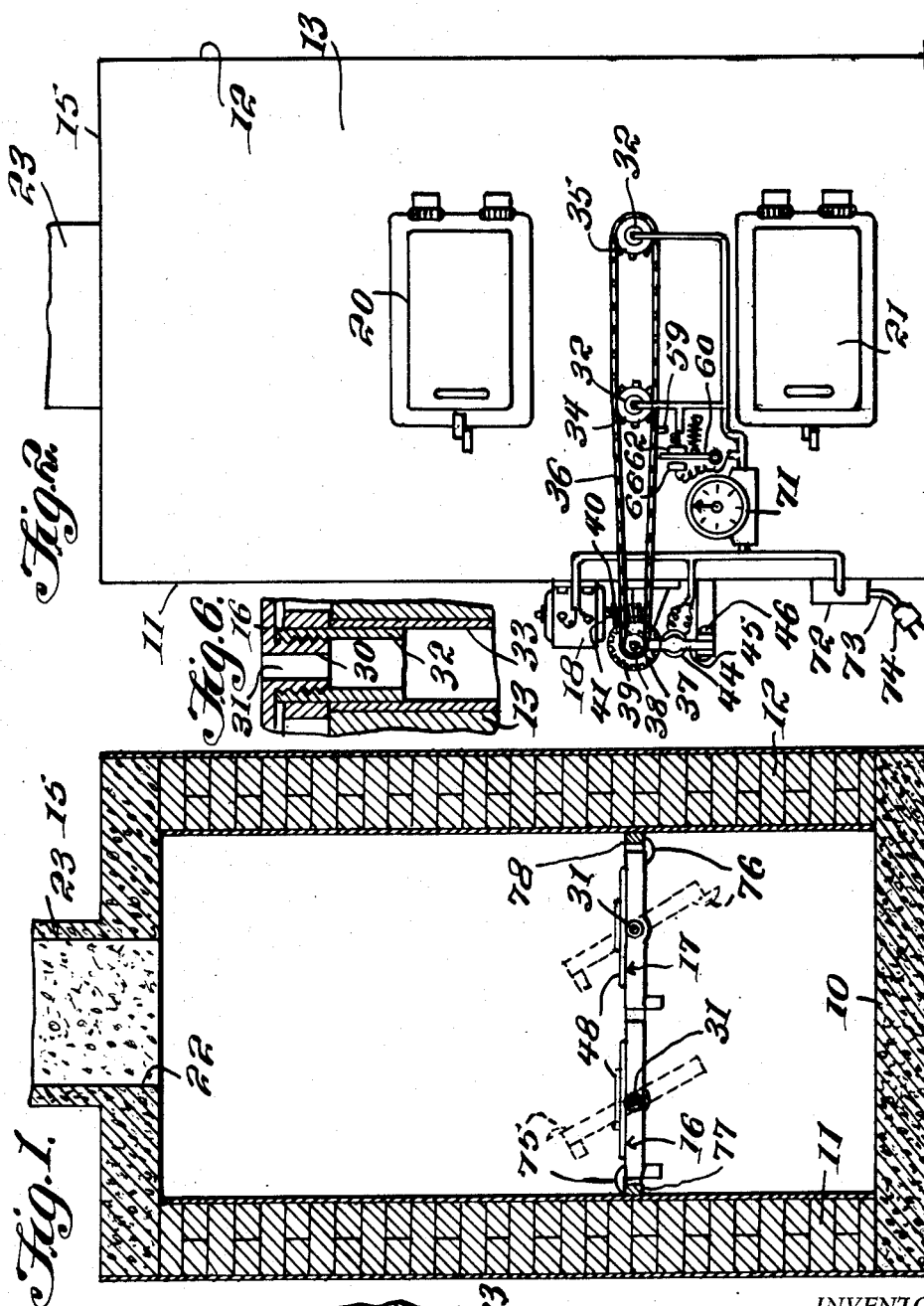
W. F. COMSTOCK

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ELECTRICALLY OPERATED INCINERATOR

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2 Sheets-Sheet 1



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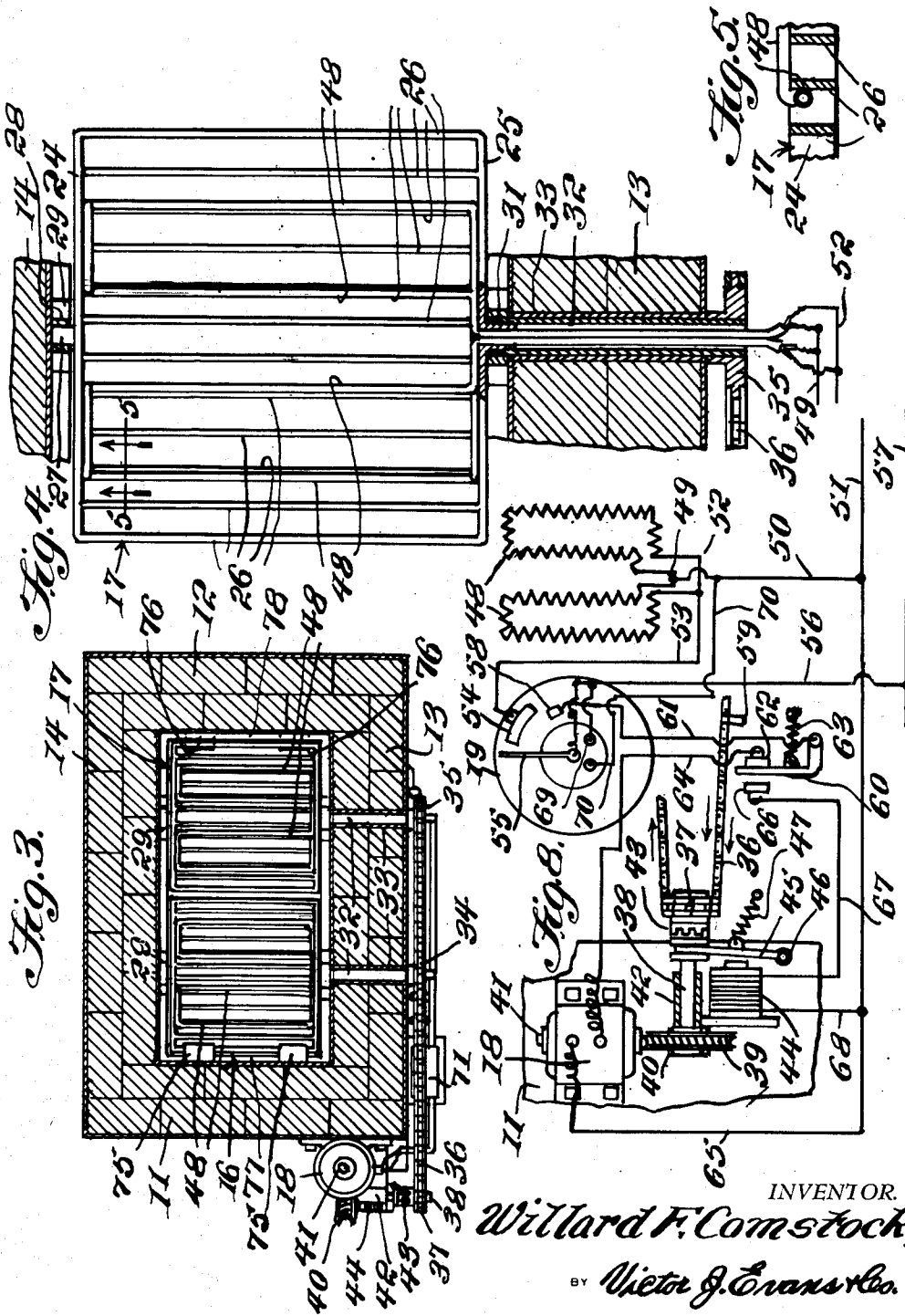
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ELECTRICALLY OPERATED INCINERATOR

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2 Claims. (Cl. 219—19)

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This invention relates to incinerators particularly adapted for family, residence and apartment house operation, and in particular a furnace having pivotally mounted tilting grate bars with electric heating elements incorporated in the grates and in which means is provided for automatically applying current to the heating elements and also for automatically tilting the grates at predetermined time intervals.

The purpose of this invention is to provide an incinerator that is operated by a time clock so that at a certain time during the day garbage and the like deposited from a chute on the incinerator grates is fired and in which after a predetermined period of time the grates are tilted to dump ashes and the like therefrom.

In the conventional type of domestic or apartment house incinerator the services of the janitor or an attendant are required to light the incinerator as products accumulate therein and, after the products are completely burned, dump the ashes and the like from the grate. Should the attendant neglect his duties products accumulate in the incinerator and congestion in chutes leading thereto results. With this thought in mind this invention contemplates an incinerator which operates in cycles whereby products deposited therein are continuously burned and ashes or residue from the products are continuously dumped.

The object of this invention is, therefore, to provide operating means for an incinerator whereby at predetermined time intervals products on the grates of the incinerator are fired and after additional time intervals the ashes or residue from the burning products are dumped.

Another object of the invention is to provide automatic operating means for incinerators that may be incorporated in incinerators now in use.

A further object of the invention is to provide an automatically operating incinerator which is of a simple and economical construction.

With these and other objects and advantages in view the invention embodies a furnace housing having grates pivotally mounted therein with electric heating elements for firing products on the grate incorporated in the grate, with means for tilting the grates at predetermined time intervals and with means for supplying current to electric heating elements in the grate, also at predetermined time intervals.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings, wherein:

Figure 1 is vertical section through a furnace housing or incinerator showing grates pivotally mounted therein and illustrating the grates tilted to dumping position with dotted line.

Figure 2 is a front elevational view of the in-

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cinerator shown in Figure 1 showing the automatic operating instrumentalities.

Figure 3 is a sectional plan through the incinerator taken on a line positioned above the grate.

Figure 4 is a plan view illustrating one of the grates of the incinerator, showing the grate on an enlarged scale and showing a tubular shaft mounting in section with the mounting adapted to carry an electric cord to the heating element of the grate.

Figure 5 is a detail showing a section taken on line 5—5 of Figure 4 illustrating the positions of the heating elements where the heating elements are located below the upper surfaces of the grate bars in order to protect the heating elements from dropping objects.

Figure 6 is a sectional plan illustrating the method of attaching a tubular shaft extended through a tube in the front wall of the furnace or incinerator to the grate.

Figure 7 is a cross section through the tubular shaft and mounting tube and also showing the electric wires in the tube.

Figure 8 is a view illustrating a typical wiring diagram for connecting the grate actuating motor and also showing the time controls for actuating the motor and for applying current to the heating element.

Referring now to the drawing wherein like reference characters denote corresponding parts the improved electric incinerator of this invention includes a furnace housing having a base 10, side walls 11 and 12, a front wall 13, a rear wall 14 and a top 15, grates 16 and 17 pivotally mounted in the front and rear walls of the housing, a motor 18 and a clock controlled timing disc 19.

The incinerator housing is provided with a conventional front or fire door 20 and an ash door 21 and the top 15 is provided with an opening 22 from which a chute 23 extends, as shown in Figure 1.

The grates 16 and 17 are provided with end bars 24 and 25 and these bars are connected by spaced longitudinally disposed bars or rods 26.

The end bar 24 of each of the grates is provided with a stud 27 that is journaled in a sleeve 28 in a bearing 29 on the rear wall 14. The end bar 25 of each of the grates is provided with a threaded hub 30 having a passage 31 there-through and the hub 30 is threaded into a pipe 32 that extends through a sleeve 33 in a front wall of the housing.

Sprockets 34 and 35 are mounted on the outer end of the pipe 32 and a chain 36, trained over the sprocket, is also trained over a sprocket 37 on a shaft 38 on which a worm gear 39 is mounted. The worm gear 39 meshes with a

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worm 40 on a motor shaft 41 and, as illustrated in Figure 8, the shaft 38 which is journaled in a bearing 42 is provided with a clutch 43 that is actuated by a solenoid 44. The solenoid is positioned to draw a clutch lever 45 to the position of disengaging the clutch element as the solenoid is energized. The lever 45 is pivotally mounted on a pin 46 and a spring 47 snaps the clutch lever 45 to the position of holding the clutch element in engagement when the solenoid is deenergized.

The grates 16 and 17 are provided with electric heating elements 48 which, as illustrated in Figure 5, are positioned below the upper surfaces of the grate bars so that the elements are protected from dropping objects by the bars and the wires supplying current to the elements extend through the pipe 32, as shown in Figure 4. The elements are similar and although a single element is shown in Figure 3 it will be understood that a duplicate element is also provided for the other grate.

One terminal 49 of the electric heating element 48 is connected by a wire 50 to a wire 51 leading from a source of current supply and the other terminal 52 of the electric heating element is connected by a wire 53 to an elongated contact 54 on the timing disc 19.

Upon rotation of an arm 55 in a clock-wise direction it will first engage the elongated contact 54, completing a circuit through the heating element to a wire 56 which is connected to the other wire 57 of the source of current supply whereby a circuit is completed through the electric heating elements.

Continued movement of the arm 55 causes the arm to disengage the contact 54 and engage a contact 58 which completes a circuit to a motor 18 whereby the chain is actuated to tilt or dump the grates and after the chain has traveled a sufficient distance for dumping the grates a projection 59 on the chain engages a contact arm 60, breaking the circuit to the motor and completing the circuit to the solenoid 44 whereby the clutch is disengaged.

The contact 58 is connected by a wire 61 to the lever 60, which is normally held in engagement with a contact 62 by a spring 63 and the contact 62 is connected by a wire 64 to one terminal of the motor 18, the opposite terminal of which is connected by a wire 65 to the current supply wire 51.

The arm 60 is positioned to engage a contact 66 which is connected by a wire 67 to one terminal of the solenoid the opposite terminal of which is connected by a wire 68 to the wire 51.

The clock motor which actuates the timer disc 19 is provided with current through wires 69 and 70, the wire 69 being connected to the supply wire 57 through the wire 56 and the wire 70 being connected to the supply wire 51 through the wire 50.

The timer control clock which is indicated by the numeral 71 may be located at any suitable point, as shown in Figure 2 the current supply wires extend from an outlet box 72 from which an electric cord 73 with a plug 74 thereon extends.

As illustrated in Figure 1, the edges of the grates may be provided with extensions 75 and 76, respectively forming stops, and the stops may be positioned to engage lugs 77 and 78 on the inner surfaces of the walls of the housing.

With the parts arranged in this manner the timing elements are set whereby current is supplied to the electric heating elements once a day,

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or at different periods throughout the day and after the electric heating elements have fired the products on the grates the grates are automatically dumped as shown and described.

As a rule an attendant must burn the garbage in an incinerator three or four times before it is necessary to withdraw the ash and other debris from the ash pit. This automatic method of mine will reduce the attendant's consumption of time by 75% because the electrically operated incinerator will do the burning thus requiring the janitor's attention only when the ash pit needs cleaning.

It will be understood that the grates may be of other suitable designs and may be mounted in a furnace or incinerator housing of a different type or design. The timing and control units may also be of different types and designs.

It will be understood that other modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. An electrically operated incinerator comprising a housing including a horizontally disposed base, a pair of spaced parallel vertically disposed side walls, a vertically disposed front wall and rear wall, and a top wall, a plurality of grates pivotally mounted in the front and rear walls of said housing, each of said grates including a pair of spaced parallel end bars, a plurality of spaced parallel rods extending between said bars and secured thereto, sleeves supported in said front wall, hubs extending from said end bars and journaled in said sleeves, sprockets operatively connected to said hubs, a motor arranged exteriorly of said housing, a shaft driven by said motor, a sprocket on said shaft, an endless chain trained over said sprockets, a clutch element for controlling actuation of said motor shaft, a solenoid for controlling said clutch element whereby said grates may be rotated by the motor, each of said grates being provided with a heating element connected to a source of supply of current, said heating elements being positioned below the upper surfaces of the grates, a clock controlled timing device including a disc, an arm rotatably arranged contiguous to said disc, contacts extending from said disc and connected to said motor, heating elements, and solenoid, said contacts being selectively engaged by said arm to energize said heating elements and motor sequentially.

2. The apparatus as described in claim 1, wherein said grates are provided with extensions forming stops, and lugs on the inner surfaces of said walls engaged by said extensions.

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