

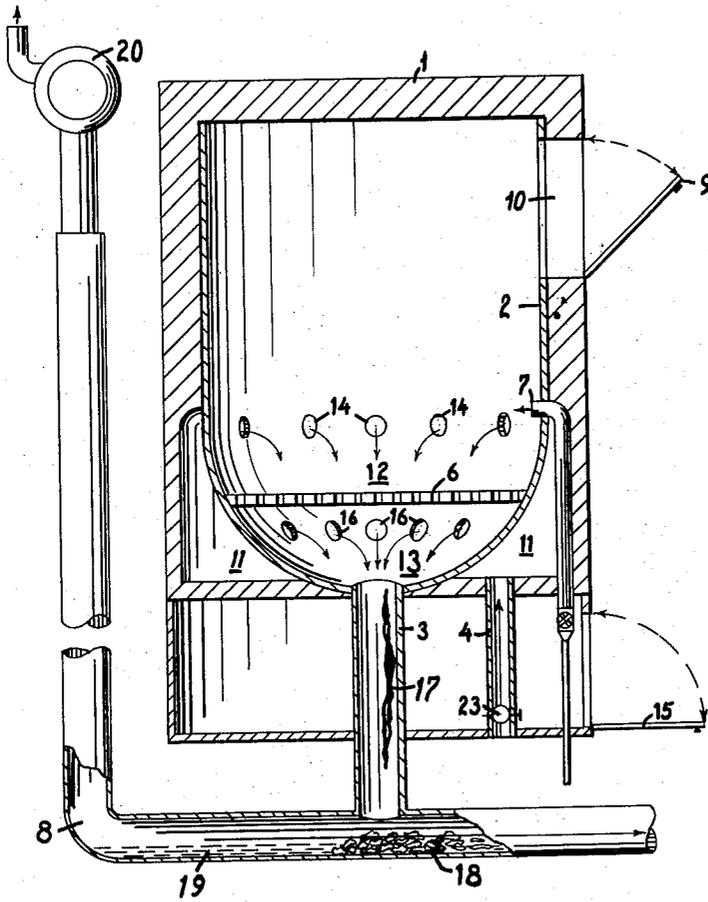
April 28, 1959

R. D. COREY

2,883,947

INCINERATOR

Filed May 24, 1956



INVENTOR.
RONALD DAVID COREY
BY *John P. Murphy*
ATTORNEY

1

2,883,947

INCINERATOR

Ronald David Corey, McGraw, N.Y.

Application May 24, 1956, Serial No. 587,109

3 Claims. (Cl. 110—18)

This invention relates to incinerators, and in particular to a method and incinerator whereby the waste gases are pulled downwardly by a vacuum and out through a vent pipe.

In a conventional incinerator, the burning is started at the bottom of the refuse holding container and the gases flow upwardly through the refuse and out through the stack. In this conventional type of incinerator, the entire contents of refuse is eventually burning, with the result that the flame, smoke, and high temperature gases travel through a smoke pipe rapidly creating an overheated pipe between the incinerator and the chimney. This high rate of combustion at one time proves to be a direct fire hazard. This type of incinerator lacks the necessary means for controlling the flame, as well as disposing of the ashes resulting from the burning.

It is an object of the present invention to provide an incinerator in which the waste gases and ashes are pulled down from the basin of the refuse container where the burning occurs by means of a vacuum and out through a vent.

Another object of my novel incinerator is to limit the burning action by limiting the amount of incoming air in the combustion chamber.

Still another advantage of this type of incinerator is that a slower rate of burning results because the flame is limited to the bottom part of the refuse at one particular time. The supply of air entering a supply tube concentric with the vent tube, located at the bottom of the refuse container, passes up the side of the bottom portion of the refuse container, enters through the draft holes above the grate, and permits burning only at this location. The waste gases and ashes are pulled directly down through the grate by the vacuum, and out through the vent.

This control of burning is also advantageous, inasmuch as the waste gases and smoke are blended with cool air admitted through the air holes in the basin portion below the grate, as they pass through the vent, thus preventing the vent from reaching excessively high temperatures. The vent tube temperature is kept to a point that is perfectly safe with respect to fire hazards.

Another advantage of this novel incinerator is the fact that the upper part is sealed from any incoming draft. As is readily known, fire cannot be supported without a sufficient amount of air and oxygen. My invention limits the amount of air induced into the burning chamber, and has no draft outlets, such as stacks, located at the top of a conventional type incinerator. This results in the entire burning being limited to the bottom of the refuse heap, whereby there is no danger of flames reaching the top, or upper area of the refuse container. As the refuse is being constantly burned, the weight of the unburned refuse constantly settles the refuse down into the area of burning automatically until all of the refuse is burned.

In accordance with the present invention, an incinerator is located in an enclosed chamber. The refuse is

2

placed in the incinerator through a connecting door and chute, and onto a grate located directly below the heating element, both of which are located in the lower portion of the refuse container. A vacuum pipe is connected to the bottom of the incinerator. The opposite end of this pipe is connected to a vent. The air tube, which is parallel with the vacuum pipe, supplies air and oxygen into the incinerator. This air passage is confined to the lower part of the incinerator at the grate area. Air holes are located directly above the grate to support combustion and also located below the grate, to cool the combustion gases.

When the heating element reaches the necessary temperature for combustion, the refuse located on the top of the grate proceeds to burn. The waste gases and ashes, along with the smoke, which are the result of this burning, are pulled down directly into the vacuum pipe leading to the vent. The flames of combustion are also drawn downward to the lower basin of the incinerator, where the cool air is admitted. As the burned residue is drawn into the vacuum pipe, the unburned refuse constantly settles down into the air of burning, to replace the burned waste. In this manner, the entire amount of refuse is burned, eliminating the danger of too large a fire, and completely and efficiently disposing of all the gases without overheating the vent.

Further specific objects and advantages will become more apparent from the detailed description given below taken in connection with the accompanying drawing which forms a part of this specification and illustrates merely by way of example a preferred embodiment of the present invention.

Reference is now made to the annexed drawing in which:

The figure is an elevated view in section illustrating the construction and parts of the present invention.

With reference now to the drawing, an incinerator casing 1 is disposed as holding a refuse holding container 2. In the embodiment illustrated, both casing 1 and container 2 are substantially circular in cross section. Located at the upper portion of the container 2 and casing 1 is an opening 10 and a movable chute 9, for receiving refuse to be burned in the incinerator. At the lower portion of container 2 is a conventional grate 6, generally of the type illustrated as being perforated so that ashes and the like may pass therethrough into an area below. The grate area immediately above the grate is designated at 12, and substantially adjacent this area is a heating unit or other element 7, for heating refuse to the combustion temperature. A series of perforations or holes 14 is located above the grate area 12 through the side of the container 2 and transversely around the circumference thereof. Another series of holes 16 is located in like manner below the grate 6. A chamber 11 is defined between the walls of the casing 1 and the lower portion of the outer wall of the container 2. This chamber 11 is in communication with the atmosphere by a pipe 4 having a conventional damper 23 therein, which damper 23 is adapted to be opened or closed for controlling draft through pipe 4. A vertical pipe 3 is in communication with and extends downwardly from chamber 13 in container 2. Chamber 13 is directly below the grate 6, receiving ashes and smoke from the perforations in the grate 6. A substantially horizontal pipe 8 receives the lower end of pipe 3 and is connected to a sewer drain (not shown) at one end and is vented through a vacuum or exhaust pump 20 to the atmosphere at the other end. Vent pipe 8 contains water 19 for flushing ashes into the sewer drain.

When the refuse is placed through the chute 9 on the grate 6 in the refuse holding container 2, the heating ele-

ment 7 and damper 23 are turned on, so that when the necessary temperature is reached, the refuse begins to burn. As the burning takes place, the gases, as a result of this burning, are drawn directly down from the source through the vacuum pipe 3 and are emitted to the vent pipe 3. The weight of the unburned refuse settles it down in the area of automatic burning. Thus, this deposit of refuse is burned continuously, until the entire pipe is burned.

The limit of air entrance to the burning chambers 12 and 13 of the container 2 by means of the draft holes 14 and 16 affords a safety means, inasmuch as flames are drawn downward through the grate into chamber 13 by means of the vacuum, the flames and resulting heat are blended with incoming cool air admitted through draft holes 16, cooling the smoke and gases 17, reducing danger from overheated pipes. The gases and smoke 17 are drawn down through the vacuum pipe 3 to the vent 8 and discharged safely by vacuum pump 20 to outside vent. The ash 18 drops from the grates 6 downward through chamber 13 and continues downward through vacuum pipe 3, lodging at bottom of vent pipe 8 which is also connected to a sewer drain, at the opposite end from which the smoke and flue gases 17 are drawn out by vacuum pump 20. This sewer drain connection permits the ashes 18 to be flushed away by water 19 to the drainage system thus eliminating the need of emptying a dusty ash pan.

A service door 15 located at bottom of casing 1 permits access to control chamber 21 in which are mounted controls, timing devices and switches to control the electric heating element. Gas burners and gas controls can also be utilized for a source of heat for burning.

It is to be understood, that while a preferred embodiment of the invention has been shown and described herein, changes and modifications may be made in this invention without departing from the spirit and scope thereof.

I claim:

1. An incinerator comprising a casing and container therein forming a chamber in said container, the lower portion of said casing and container being spaced to form a second chamber, the upper portion of said container and casing having a feed opening, a chute attached to said casing and arranged to deliver refuse through said opening to said chamber, a perforated grate in said chamber, said container having air intake holes opening from said second chamber into said first chamber above and below said grate, a pipe and damper opening into said second chamber for admitting air thereinto, a vertical second pipe extending downwardly from said first chamber below said grate, a vent pipe receiving said second pipe for discharging smoke and carrying away ashes from said incinerator.

2. An incinerator according to claim 1, one end of said vent pipe having vacuum means for causing to be drawn from the atmosphere through said first pipe into said container through said intake holes, thence through said second pipe into said vent pipe, whereby combustion is supported and gases from said combustion are vented to the atmosphere.

3. An incinerator according to claim 1, one end of said vent pipe being connected to an outlet, said vent pipe having a horizontal portion therein for receiving ashes from said first chamber and adapted to be flushed with water whereby said ashes are flushed into said outlet by said water.

References Cited in the file of this patent

UNITED STATES PATENTS

914,923	Cahoone	Mar. 9, 1909
1,226,868	Dodd	May 22, 1917
1,257,359	Johnson	Feb. 26, 1918
1,954,923	Eichhorn	Apr. 17, 1934
2,010,460	McKinley	Aug. 6, 1935
2,598,067	O'Brien	May 27, 1952