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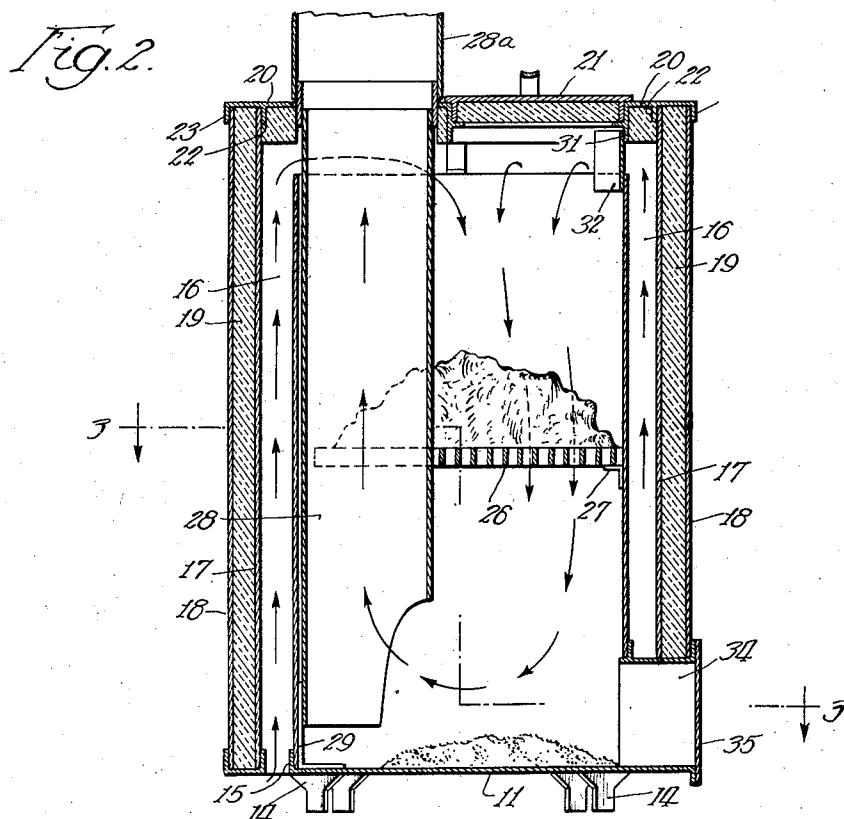
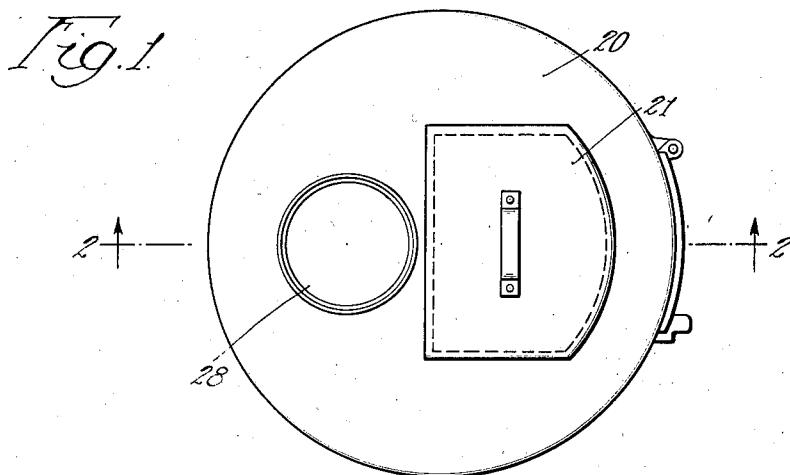
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GARBAGE AND REFUSE INCINERATOR

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2 Sheets-Sheet 1



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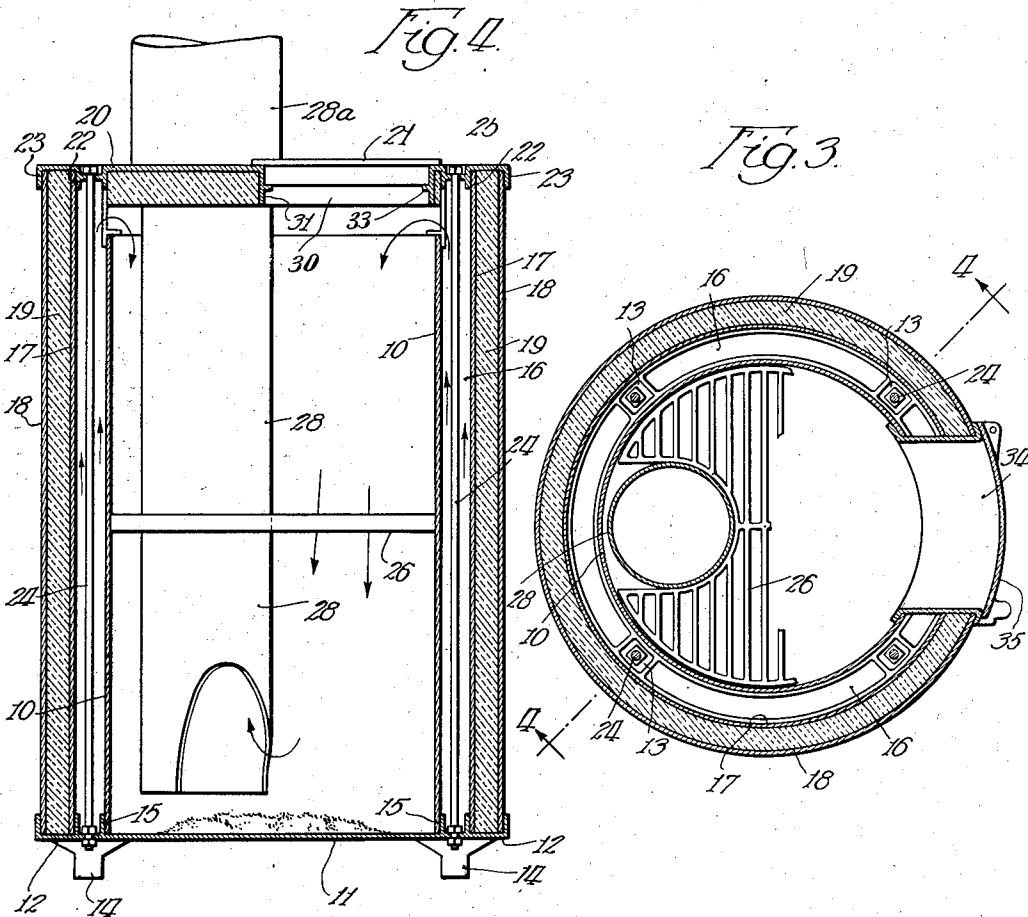
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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GARBAGE AND REFUSE INCINERATOR

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5 Claims. (Cl. 110—18)

The invention relates to incinerators and more particularly it relates to incinerators adapted for use in the basement of a house or other building or in any other suitable location, wherein it may be connected with a flue, and whereby small quantities of trash and slow-burning garbage may be frequently and conveniently disposed of.

Garbage incinerators of the kind described, as hitherto constructed, either provide means for preliminary drying of the garbage in order that it be rendered combustible, or it is burned without preliminary drying by the use of fuel in proximity to or mixed therewith, and malodorous vapors and gases issue from the drying or burning material and escape to contaminate the atmosphere.

An object of the invention is the provision of an incinerator having an exhaust stack connected with the bottom of the combustion chamber and projecting through the top thereof, the stack being so positioned that it is immediately heated by initial combustion and thereby induces a maximum down draft by siphoning air from the outside through the burning material which continues until all of the garbage or refuse is consumed.

The invention has as another of its objects the provision of an improved incinerator having an air circulating system so arranged that the air is preheated by the burning garbage before coming in contact therewith, and is then distributed over and siphoned downwardly through the garbage at a rate such that initial combustion of the top layer of garbage results in the immediate drying of the adjacent garbage followed by its combustion, the rapid drying and burning being continuous until the garbage is completely consumed without the use of fuel other than a slight amount requisite for initial combustion.

A further object of the invention is the provision of an incinerator having an improved air circulating system, in which all of the air delivered into the incinerator is caused to travel downwardly through the burning garbage and into a combustion chamber underneath the garbage, the air carrying with it the malodorous vapors and gases emitted by the garbage whereby they are odorless or substantially so when discharged from the incinerator.

A still further object of the invention is the provision of a novel method of delivering a continuous supply of preheated air to normally slow-burning garbage at a rate such that the garbage is rapidly and completely consumed without the

use of fuel, other than a relatively small quantity necessary to start combustion.

A further object of the invention is the provision of an improved garbage and refuse incinerator of the kind described, which is simple, easily assembled, inexpensive to manufacture, durable and satisfactory for its intended purpose.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end the invention consists in the novel method of air delivery and in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the claims.

In the drawings wherein like reference characters indicate like or corresponding parts,

Fig. 1 is a top plan view of the incinerator;

Fig. 2 is a sectional view along the line 2—2 of Fig. 1;

Fig. 3 is a sectional view along the line 3—3 of Fig. 2; and

Fig. 4 is a sectional view along the line 4—4 of Fig. 3.

Referring now more particularly to the drawings, the incinerator comprises a cylindrical shell 10 open at the top and closed at the bottom by a plate 11 providing a support for the shell. The shell 10 is preferably constructed of No. 14 gauge steel and the plate 11 is preferably constructed of cast iron. A U-shaped member or channel 12, extending around and spaced from the plate 11, is integrally connected with the plate 11 by a plurality of circumferentially spaced members 13 each extending downwardly to provide a pair of legs 14. Any suitable number of members 13 may be provided, there being four shown as equally spaced about the outer periphery of the plate 11. The shell 10 rests on the bottom plate 11 and closely fits a flange 15 integrally formed with the bottom plate.

The channel 12 provides a support for an outer cylindrical casing extending upwardly beyond the shell 10 and providing an air inlet and heating space 16 surrounding the shell. The casing comprises an inner plate 17 and an outer plate 18 of any suitable material such as sheet steel, the spacing between the plates being filled with insulating material 19, and the casing being closed at the top by a cast iron cover plate 20 including a charging door 21. The periphery of the plate 20 provides integrally formed rings 22 and 23 spaced to receive and respectively closely

fit the steel plates 17 and 18. The cover plate 20 is provided with insulation 19 inside of the ring 22 as shown and is fastened to the bottom connecting members 13 by rods 24 extending through the space 16, the plate having insets 25 adapted to receive the heads of the bolts.

A grate 26 positioned in the shell 10 at a substantial distance from its bottom is supported by a bracket 27. The space below the grate 26 provides a combustion chamber for gases emitted by burning garbage and refuse positioned on the grate.

A gas and air discharge conduit or stack 28, preferably constructed of sheet metal or the like and positioned in and adjacent to one side of the shell 10, extends upwardly through the grate 26 and projects through the cover plate 20 for connection with a removable stack section 28a. The stack section 28a may be of any suitable length adapting it to deliver discharged gases to a flue or the like not shown. The lower end of the stack 28 terminates adjacent the bottom of the shell 10 and is supported by a bracket 29 resting on the bottom plate 11, one side of the stack being cut away as shown to receive and to facilitate the discharge of gases from the lower end of the shell and thereby to induce a maximum draft.

The charging door 21 forms a closure for an opening in the cover plate 20, the opening being bounded by a flange 31 and the door being removable to permit dumping of garbage or refuse onto the grate 26. The door 21 has an inner layer of insulation 19 and closely fits the flange 31 and a seat 33 projecting from the flange to provide an air tight closure for the opening 30. A baffle plate 32, suspended from the flange 31 is so positioned as to prevent the falling garbage from entering the air space 16.

A clean out conduit 34 closed by a door 35 is provided for the removal of ash which collects on the bottom plate 11. The conduit 34 is preferably located opposite the stack 28 and the plate 11 provides an extension forming the bottom of the conduit to facilitate removal of the ash.

In burning garbage or other refuse not readily combustible, the charging door 21 is removed and the garbage or refuse, preferably wrapped in newspapers, is dumped through the opening and falls upon the grate 26. A small charge of readily inflammable fuel such as dry papers or the like is placed on top of the garbage and ignited. The door 21 is then closed and the initially burning fuel immediately heats the stack 28 causing the air contained therein to rise and thereby induces an immediate and rapid down draft of air through the garbage and the grate. The initial combustion of the fuel also heats the shell 10 thereby heating the air ascending in the space 16 surrounding the shell. The pre-heated air, thus delivered into the shell 10 above the grate 26 is siphoned through the grate at a rate such that the combustion of the fuel dries and ignites the contiguous garbage, the drying and burning of the garbage successively continuing after the fuel is exhausted and at a rate such that the stack 28 remains at a high temperature and the resulting induced rapid down draft is uninterrupted. Obviously, all odoriferous vapors, emitted by and tending to ascend from the burning garbage, are carried downwardly through the garbage and into the combustion chamber beneath the grate where they are subjected to heat of sufficient intensity to render them sub-

stantially non-odorous upon their discharge through the exhaust stack 28.

The insulation of the top and side walls of the incinerator results in all of the heat radiated by the shell 10 being utilized in heating the air space 16 and thereby contributing to accelerate siphoning of preheated air downwardly through the grate 26. In practice it is found that ordinary kitchen garbage is consumed at a rate such that the stack 28 and stack section 28a become red hot and that insulation is necessary to prevent an attendant from being burned by contact with the incinerator. The insulation also prevents heating of the room in which the incinerator is positioned, this frequently being a desirable feature, especially in hot weather.

Thus it will be seen that the invention provides novel and improved features of incinerator construction adapting garbage and the like to be burned from the top down, merely by igniting an initial charge of fuel positioned on top of the garbage and by siphoning air downwardly therethrough instead of passing air over the top or from the bottom upwardly through the burning material with the result that green or damp garbage is entirely consumed without the use of fuel other than the initial charge, and whereby the combustion is rapid and without the emission of disagreeable or obnoxious odors.

Having thus described the invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. A garbage incinerator of the kind described comprising a closed combustion chamber, an air supply conduit extending vertically alongside and opening into the top of said chamber, means for inducing a down draft through said chamber comprising an air discharge conduit positioned in and directly exposed to the heat of combustion within said chamber, the lower end of said discharge conduit being open and connected with the bottom of said chamber and providing the sole air outlet for said chamber, the upper outlet end of said conduit terminating above the chamber, and a grate through which the air passes downward in travelling from the supply conduit to the discharge conduit.

2. A garbage incinerator of the kind described comprising a closed combustion chamber, an air supply conduit extending vertically alongside of and opening into the top of said chamber, means for inducing a down draft through said chamber comprising an air discharge sheet metal stack or conduit positioned in and directly exposed to the heat of combustion within said chamber and having its lower end open and connected with the bottom of said chamber, and a grate through which the air passes in descending through said chamber, said discharge stack or conduit being imperforate above the grate and extending upwardly from below the grate through and terminating above said chamber at an elevation such that the induced air currents travel through the grate at a rate sufficient to cause continued burning of initially ignited garbage positioned on the grate.

3. An incinerator of the kind described consisting of an inner sheet metal shell open at the

top and closed at the sides and bottom to provide a combustion chamber, a grate positioned in the shell, and means for inducing a down draft through the grate, said means comprising a metal stack positioned in and directly exposed throughout its length to the heat of combustion in said chamber, said stack having a single opening into the chamber and located below the grate, and a casing surrounding and spaced from said shell, the upper end of said casing being closed and positioned above the open end of the shell, and the lower end of said casing being open to permit outside air to ascend through the space between the casing and shell and to enter the open end of the shell and then to pass downwardly through the grate and be discharged through the stack.

4. An incinerator of the kind described consisting of an inner shell open at the top and closed at the sides and bottom to provide a combustion chamber, a grate positioned in the shell, and means whereby combustion of material positioned on the grate induces a down draft through the grate, said means comprising a thin metal stack positioned in and directly exposed to the heat of combustion within said chamber, said stack projecting through the top of said casing with its lower end only opening into and

communicating with the combustion chamber below the grate, and a casing surrounding and spaced from said shell, the upper end of said casing being closed and positioned above the open end of the shell, and the lower end of the casing being open to permit air to ascend between the shell and casing and enter the chamber at the top of the shell.

5. The method of burning garbage which consists in starting its combustion by burning a small quantity of inflammable material in contact with the top thereof, siphoning air upwardly in a path segregated from and adjacent to the burning material to preheat the same and thence passing all of said air downwardly through and past the garbage at a rate such that the garbage continues to burn without the use of supplemental fuel and thence directing all of the resulting heated mixture of air and gases upwardly from beneath the garbage in a segregated path adjacent to the burning material and terminating above the garbage, said mixture being further heated by its proximity to the burning material and thereby inducing a flow of air and gases and accelerating the rate at which the same passes downwardly through the garbage.

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