

FIG. 1

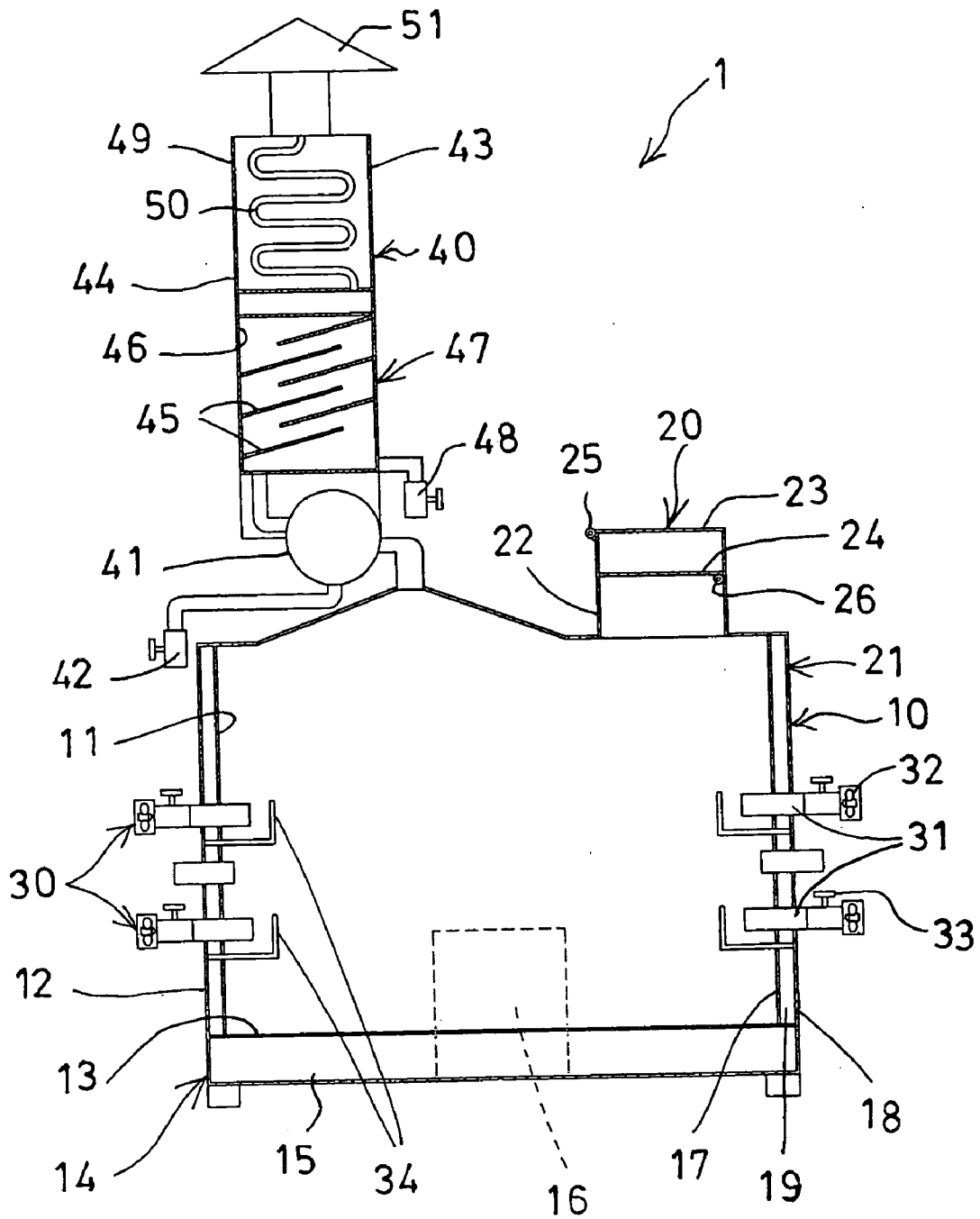


FIG. 2

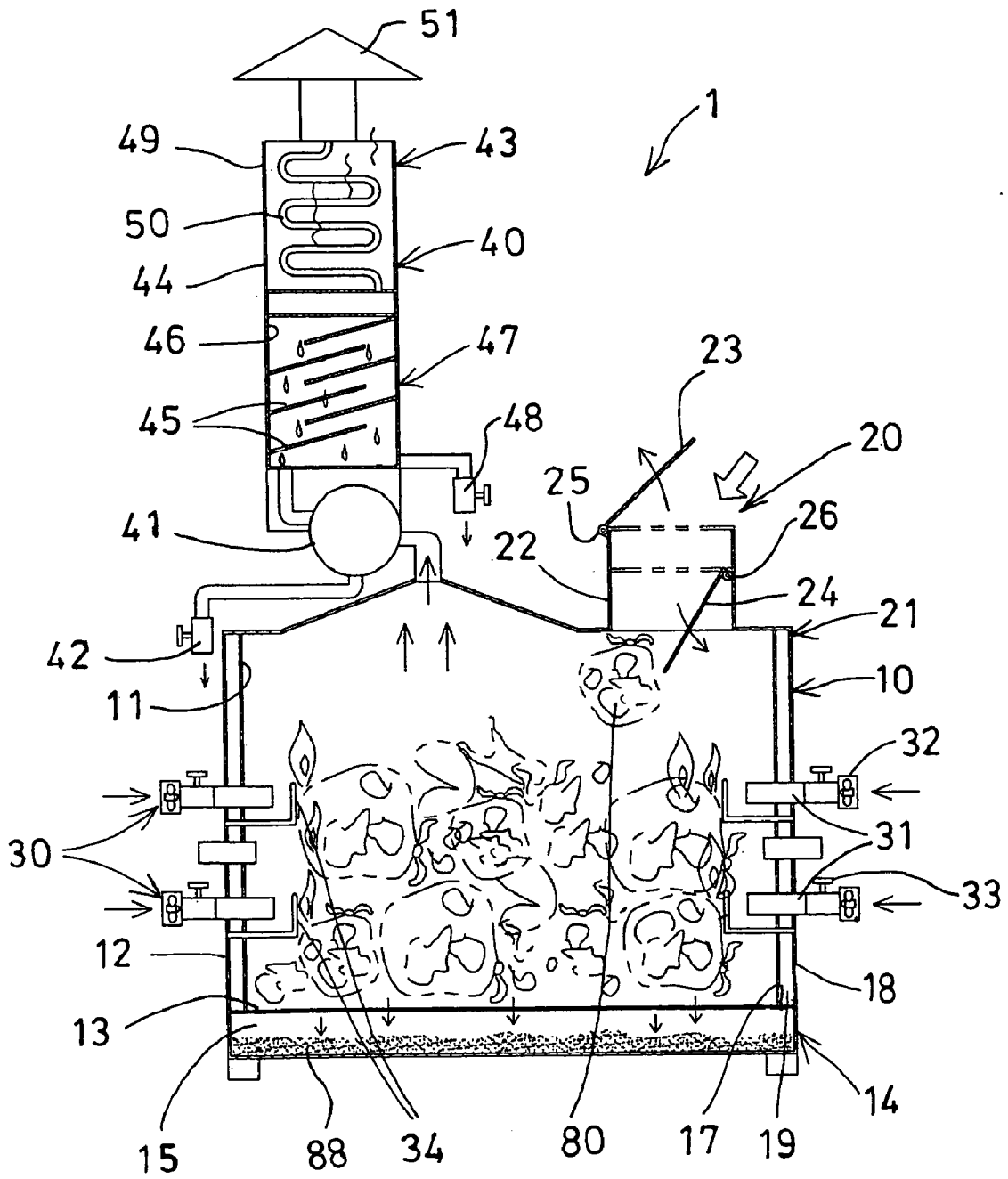


FIG. 3

SOLID WASTE BURNER

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a solid waste burner or furnace or incineration plant, and more particularly to a solid waste burner including a reduced and simplified structure for allowing the waste burner to be easily built everywhere, and including a structure for allowing the waste or the refuse to be burned with decreased energy, and including a structure for greatly reducing the air pollution problems.

[0003] 2. Description of the Prior Art

[0004] Various kinds of typical solid waste burners or furnaces or incineration plants have been developed and comprise a burner or combustion chamber for receiving the waste or the refuse and for burning the waste or the refuse.

[0005] For example, U.S. Pat. No. 3,543,702 to Appelhans discloses one of the typical methods and apparatuses for burning of refuse and comprising a circular path for successively guiding the waste or the refuse to move through a drying zone, a burning zone, and a cooling zone, for allowing the waste or the refuse to be continuous guided to combustion air and to be burned.

[0006] However, normally, the typical solid waste burners or furnaces or incineration plants comprise a large volume that may not be built or constructed in local or downtown area. In addition, the combustion gas or the burned air or the combustion ash will fly everywhere such that the typical solid waste burners or furnaces or incineration plants also may not be built or constructed in local or downtown area.

[0007] U.S. Pat. No. 4,098,200 to Dauvergne discloses another typical low pollution solid waste burner comprising a first combustion chamber for partially oxidizing the waste or the refuse, a second combustion chamber for further oxidizing the waste or the refuse, and a conduit provided between an ash compartment and the first combustion chamber for completely oxidizing the ash compartment gases.

[0008] However, similarly, the typical solid waste burners or furnaces or incineration plants also comprise a large volume that may not be built or constructed in local or downtown area, and the combustion gas or the burned air or the combustion ash also may not be completely filtered or treated and will also fly everywhere such that the typical solid waste burners or furnaces or incineration plants also may not be built or constructed in local or downtown area.

[0009] U.S. Pat. No. 4,449,924 to Ceretti discloses a further typical industrial furnace comprising a chamber with refractory walls to which energy is supplied by electric means and/or by combustion and into which the material to be treated is charged. However, the combustion gas or the burned air or the combustion ash generated by the typical industrial furnace also may not be filtered or treated and will fly everywhere such that the typical solid waste burners or furnaces or incineration plants also may not be built or constructed in local or downtown area.

[0010] U.S. Pat. No. 6,453,829 to Tsai et al. discloses a still further typical incinerator assembly having waste smoke treating device and comprising a complicated structure for treating the waste smoke. The typical incinerator assembly also comprises a large volume that may not be built or constructed in local or downtown area where territory or land may not be easily obtained.

[0011] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional solid waste burners.

SUMMARY OF THE INVENTION

[0012] The primary objective of the present invention is to provide a solid waste burner including a reduced and simplified structure for allowing the waste burner to be easily built everywhere, and including a structure for allowing the waste or the refuse to be burned with decreased energy, and including a structure for greatly reducing the air pollution problems.

[0013] In accordance with one aspect of the invention, there is provided a solid waste burner comprising a housing including a combustion chamber formed therein and defined by a peripheral wall for receiving a waste to be burned, at least one electric heating member attached to the peripheral wall and engaged into the combustion chamber of the housing for igniting and burning the waste, at least one airing device including a pipe engaged through the peripheral wall and into the combustion chamber of the housing, a propelling device attached to the pipe for circulating an air into the combustion chamber of the housing, and a valve member attached to the pipe for controlling a flowing of the air into the combustion chamber of the housing, the housing includes at least one door for reaching the combustion chamber of the housing and for removing an ash from the combustion chamber of the housing, the housing includes an inlet mouth having a tubular member provided on an upper portion of the housing, and a double security enclosing device is attached to the tubular member for enclosing the combustion chamber of the housing and for allowing the waste to be inserted into the combustion chamber of the housing, and for preventing a waste smoke from flying out through the inlet mouth of the housing, and a container is attached to the upper portion of the housing for receiving a steam and the waste smoke and for allowing the steam to remove the ash from the waste smoke.

[0014] The housing includes a net device disposed in a lower portion of the housing for forming an ash compartment in the lower portion of the housing and located below the net device for receiving the ash.

[0015] The double security enclosing device includes an upper flap and a lower flap pivotally secured to the tubular member of the inlet mouth of the housing to enclose the tubular member. For example, the upper flap is openable upwardly and the lower flap is openable downwardly.

[0016] A discharge valve may further be provided and attached to the container for discharging a fluid collected within the container. An outlet device may further be provided and includes a casing attached to the upper portion of the housing, and an electric heating device attached to the casing for heating and burning the waste smoke and for removing a poisonous material from the waste smoke.

[0017] The outlet device includes a plurality of ramps disposed in a lower portion of the casing for obstructing and removing a fluid from the waste smoke. The outlet device includes a discharge valve attached to a bottom portion of the casing for discharging a fluid collected within the casing. The outlet device includes a hood attached to top of the casing.

[0018] Further objectives and advantages of the present invention will become apparent from a careful reading of the

detailed description provided hereinbelow, with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIG. 1 is a top plan schematic view of a solid waste burner in accordance with the present invention;

[0020] FIG. 2 is a partial cross sectional view of the solid waste burner taken along lines 2-2 of FIG. 1; and

[0021] FIG. 3 is a partial cross sectional view similar to FIG. 2, illustrating the operation of the solid waste burner.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0022] Referring to the drawings, and initially to FIGS. 1 and 2, a solid waste burner or furnace or incineration plant 1 in accordance with the present invention comprises a housing 10 including a combustion chamber 11 formed therein and defined by an outer peripheral wall 12 for receiving the waste or the refuse 80 (FIG. 3) to be burned or to be treated, such as the waste or the refuse 80 from hospitals, and including a partition or net device 13 disposed horizontally or laterally in the lower portion 14 thereof for forming or defining an ash compartment 15 in the lower portion 14 thereof and located below the net device 13 for receiving the combustion ash 88 (FIG. 3). The housing 10 may be formed into various shapes or contours, such as circular or cylindrical shape (FIG. 1), square or rectangular or other geometric shapes.

[0023] The housing 10 includes one or more windows or doors 16 provided therein for reaching the combustion chamber 11 and/or the ash compartment 15 and for collecting or removing the combustion ash 88 from the housing 10. It is preferable that the outer peripheral wall 12 of the housing 10 includes an inner wall member 17 and an outer wall member 18 for forming or defining a peripheral space 19 between the wall members 17, 18 and for receiving such as heat resistive materials (not shown) in the peripheral space 19 that is formed between the wall members 17, 18, and for preventing the outer wall member 18 from being heated. The housing 10 includes an inlet mouth 20 formed or provided in the upper portion 21 thereof and communicating with the combustion chamber 11 of the housing 10 for disposing or inserting the waste or the refuse 80 to be burned or to be treated into the combustion chamber 11 of the housing 10.

[0024] The inlet mouth 20 of the housing 10 includes a tubular member 22 formed or provided or extended upwardly from the upper portion 21 of the housing 10, and two closing flaps 23, 24 hinged or pivotally secured to the tubular member 22 of the inlet mouth 20 of the housing 10 with such as spring hinges 25, 26 respectively which may bias and force the flaps 23, 24 to enclose the tubular member 22 of the inlet mouth 20 of the housing 10. For example, the first or the upper flap 23 is disposed above the second or the lower flap 24 and is openable upwardly and the second or the lower flap 24 disposed below the first or the upper flap 23 and is openable downwardly (FIG. 3) for forming a double security enclosing means or device and for suitably enclosing or shielding the combustion chamber 11 of the housing 10 and for allowing the waste or the refuse 80 to be disposed or inserted into the combustion chamber 11 of the housing 10, and for preventing the combustion or exhaust gas or the

burned air or the waste smoke from flying out through the inlet mouth 20 of the housing 10.

[0025] The housing 10 includes one or more airing devices 30 attached to the outer peripheral portion of the outer peripheral wall 12 of the housing 10, best shown in FIG. 1, for supplying fresh air into the combustion chamber 11 of the housing 10 and for allowing the waste or the refuse 80 to be suitably or completely burned. For example, the airing devices 30 each include a pipe 31 engaged through the outer peripheral wall 12 and into the combustion chamber 11 of the housing 10, a propelling device 32, such as a fan device 32 attached to the pipe 31 for circulating or propelling the air into the combustion chamber 11 of the housing 10, and a switch or valve member 33 attached to the pipe 31 for controlling the flowing of the air into the combustion chamber 11 of the housing 10.

[0026] One or more electric heating members 34 are attached to the outer peripheral wall 12 and engaged into the combustion chamber 11 of the housing 10 for directly contacting with the waste or the refuse 80 and for directly igniting or burning the waste or the refuse 80. A control device (not shown) may be provided and coupled to the electric heating members 34 and/or the valve members 33 and/or the propelling devices 32 and/or the other electric parts or elements. The housing 10 further includes a waste smoke treating device 40 having a container 41 provided or coupled or attached to the upper portion 21 of the housing 10 for receiving the exhaust gas or the waste smoke, and the container 41 is provided for receiving the steams which may be used to act with the exhaust gas or the waste smoke in order to filter or to remove the ash or particles from the exhaust gas or the waste smoke.

[0027] A discharge valve 42 is attached or coupled to the bottom portion of the container 41 for discharging the fluid or water collected within the container 41. The waste smoke treating device 40 further includes an exhaust chimney or outlet device 43 having a casing 44 formed or provided or attached on top of the container 41, and having a number of partitions or inclined ramps 45 disposed in the inner space 46 of the casing 44 of the outlet device 43 and preferably disposed in the lower portion 47 of the casing 44 for obstructing or separating or removing the fluid from the waste smoke. Another discharge valve 48 is attached or coupled to the bottom portion 47 of the casing 44 for discharging the fluid or water collected within the casing 44.

[0028] The waste smoke treating device 40 further includes an electric heating device 50 attached or engaged into the inner space 46 of the casing 44 of the outlet device 43 and disposed or located in the upper portion 49 of the casing 44 or located above the ramps 45 for further heating the waste smoke and for burning or removing the other chemical elements or poisonous materials, such as dioxin from the waste smoke. It is preferable that the heating device 50 may generate a high temperature up to about 800° C. in order to suitably or completely burn and remove the chemical elements or the poisonous materials from the waste smoke. A cover or hood 51 is further provided and attached to top of the casing 44 of the outlet device 43 for shielding the casing 44 of the outlet device 43 and for preventing rain or the like from entering into the casing 44 of the outlet device 43.

[0029] It is to be noted that the double security enclosing means or device formed by the two closing flaps 23, 24 may suitably shield or block the tubular member 22 of the inlet

mouth 20 of the housing 10 for preventing the combustion or exhaust gas or the burned air or the waste smoke from flying out through the inlet mouth 20 of the housing 10. The steam container 41 and the ramps 45 of the casing 44 of the outlet device 43 and the heating device 50 may suitably heat and burn the waste smoke for suitably removing the chemical elements or poisonous materials from the waste smoke.

[0030] The provision of the electric heating members 34 to ignite or burn the waste or the refuse 80 may reduce the consumption of the energy or may save the energy, and may reduce the construction of the solid waste burner for allowing the waste burner to be easily built everywhere, especially local or downtown area, the chemical industries or plants, gas or petrol stations, wood working plants, paper making factories, etc.

[0031] Accordingly, the solid waste burner in accordance with the present invention includes a reduced and simplified structure for allowing the waste burner to be easily built everywhere, and including a structure for allowing the waste or the refuse to be burned with decreased energy, and including a structure for greatly reducing the air pollution problems.

[0032] Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

I claim:

1. A solid waste burner comprising:

a housing including a combustion chamber formed therein and defined by a peripheral wall for receiving a waste to be burned,

at least one electric heating member attached to said peripheral wall and engaged into said combustion chamber of said housing for igniting and burning the waste,

at least one airing device including a pipe engaged through said peripheral wall and into said combustion chamber of said housing, a propelling device attached to said pipe for circulating an air into said combustion chamber of said housing, and a valve member attached to said pipe for controlling a flowing of the air into said combustion chamber of said housing,

said housing including at least one door for reaching said combustion chamber of said housing and for removing an ash from said combustion chamber of said housing,

said housing including an inlet mouth having a tubular member provided on an upper portion of said housing, and a double security enclosing device attached to said tubular member for enclosing said combustion chamber of said housing and for allowing the waste to be inserted into said combustion chamber of said housing, and for preventing a waste smoke from flying out through said inlet mouth of said housing, and

a container attached to said upper portion of said housing for receiving a steam and the waste smoke and for allowing the steam to remove the ash from the waste smoke.

2. The solid waste burner as claimed in claim 1, wherein said housing includes a net device disposed in a lower portion of said housing for forming an ash compartment in said lower portion of said housing and located below said net device for receiving the ash.

3. The solid waste burner as claimed in claim 1, wherein said double security enclosing device includes an upper flap and a lower flap pivotally secured to said tubular member of said inlet mouth of said housing to enclose said tubular member.

4. The solid waste burner as claimed in claim 3, wherein said upper flap is openable upwardly and said lower flap is openable downwardly.

5. The solid waste burner as claimed in claim 1, wherein a discharge valve is attached to said container for discharging a fluid collected within said container.

6. The solid waste burner as claimed in claim 1, wherein an outlet device includes a casing attached to said upper portion of said housing, and an electric heating device attached to said casing for heating and burning the waste smoke and for removing a poisonous material from the waste smoke.

7. The solid waste burner as claimed in claim 6, wherein said outlet device includes a plurality of ramps disposed in a lower portion of said casing for obstructing and removing a fluid from the waste smoke.

8. The solid waste burner as claimed in claim 6, wherein said outlet device includes a discharge valve attached to a bottom portion of said casing for discharging a fluid collected within said casing.

9. The solid waste burner as claimed in claim 6, wherein said outlet device includes a hood attached to top of said casing.

* * * * *