

Details of the Invention**Name of the Invention**

The incineration process using heat generated from combustion to bake and sublimate waste to produce gases using as fuel for the burning.

Characteristics and objectives of the invention

The incinerator which uses heat generated from combustion to bake and sublimate waste to create gas for burning is particularly designed to allow waste inside the incinerator to receive the heat generated from combustion to bake and sublimate waste to create gas which is then used as fuel for the incineration. The waste baking chamber (2) has a cylindrical shape and the gas combustion chamber (6) is a duct located in the middle of the baking chamber. (2) This is designed so that the baking process and the burning process of waste can be separated from each other. The waste which has already been baked is burned in the charcoal burning compartment (3) which is at the bottom and has a conical shape connected to the baking chamber. (2) It is also supported by the bottom grate (5) which is characterized by grates assembled into an overturned cone. Inflammable gas will be drawn through the gas duct (10) to be used in the burning of waste in the burning chamber. (6) The burning process using inflammable gas will not be combined with the burning of waste in the burning chamber. (3) As a result, inflammable gas will be totally used in the burning chamber (6) without the use of any other fuel because there will be a sufficient quantity of gas needed. High heat generated from the burning of gas will be used in the baking process without complicated equipment required. Further, the ash from the burning chamber (3) will fall from the bottom grate (5) to the ash collecting tray (17) by jet pulse of compressed air at regular intervals.

This invention enables the incineration process operate consistently with less emission gases at the initial stage. The initial step requires the use of gasoline to make the temperature high enough to bake the waste until dry enough to release inflammable gas. After that, gasoline is no longer needed. The burning of baked waste that releases inflammable gas is similar to the burning of

charcoal in which less polluting gas generated because of the high temperature in the incinerator.

Related fields of technology of the invention

Physics which concerns management of process before and during complete burning of waste.

Background of related technology

The development of incinerators begins with a single compartment incinerator which usually consists of a burning chamber which injects fuel mixed with air into the chamber filled with waste. This kind of incinerator is still in use at present, especially the small-sized ones used in factories and hospitals. One problem with this kind of incinerator is that the temperature within the burning chamber, approximately 400-500 degrees Celsius, is low so there will be polluting substances resulting from incomplete combustion. The cause of low temperature comes from the loss of heat in the burning chamber through the evaporation which takes place before the waste is dry and inflamed. Since this is a loss of energy, the later models of incinerators are composed of two separated burning chambers: waste burning chamber and gas burning chamber. The gas burning chamber added will make the inflammable gas created from the burning of waste burn at a higher temperature, which, in turn, makes the burning of waste more complete. At present, the two-chamber incinerator has the waste burning chamber and gas burning chamber completely separated from each other. As for the waste burning chamber, the heat generated will make waste dry and release inflammable gas. The reactions that take place, both the burning of already dry waste and the release of inflammable gas and heat, will be used in the subsequent evaporation process and the release of gas. These reactions lower the temperature, so gasoline is needed to raise the temperature to the appropriate level. Some part of inflammable gas generated will be burned in the process. The rest will be passed to the gas burning chamber. However, the concentration of the gas is not high enough to ignite the flame, so fuel is needed to increase the temperature to the appropriate level for burning and destroying poisonous gas that results, loss of energy.

The Complete Disclosure of the Invention

The materials used in the assembly of the incinerator consist of heat and corrosion resistant metal. As shown in figures 1 and 2, waste will be fed through the top of the incinerator with the screw feeder, (1) the screw is connected to a motor at the end of the tub, while the other end of the screw does not reach the other end of the tube, thus leaving space to compact waste before put out into the incinerator. That is to prevent the back flow of vapor and gas through the screw. Waste will be fed into the baking chamber, (2) which is cylindrical shape. In the middle of the baking chamber, there is a gas burning compartment (6) which is a vertical duct located at the center of the baking chamber (2) to generate heat used in the baking process. The charcoal-burning chamber (3) is connected to the baking chamber.(2) Its bottom part is conical shape to force waste into the middle, right beneath the middle duct which acts as a gas burning compartment.(6) Waste in the charcoal burning chamber (3) will fall onto the bottom grate,(5) which is circular in shape, with the top part shaped like a funnel (16) and connected to the grate whose teeth are tilted at 30 to 35 degrees to allow ashes to easily move from the charcoal burning chamber, (3) with the jet pulse of compressed air, to the ash collecting tray, (17)a funnel at the button of the incinerator.

In this process, the primary air is generated from the air blower (15) which separates air into two parts: that sent to the bottom grate, (5) a funnel with air hole on the top; and, that sent to the side grate (4) connected to the funnel collecting waste from the waste burning chamber.(2) At the bottom edge, there is room for air to circulate and air-feeding holes around it.

The secondary air comes from the air blower, (9) and it will be injected into the gas burning chamber, (6) passing through the main duct (11) connected to the gas sucking duct (10) which sends air into the gas and vapor collecting compartment. (12) Because the gas and vapor collecting compartment is an overturned funnel above the side grate, (4) there is an empty space. As the secondary air is sucked into the gas burning chamber, (6) the velocity of the air in the duct (9) will create the venturi principle in the main duct (11) which results in gas and vapor being sucked from the waste baking chamber (2)

through the gas collecting duct, (13) a welded duct running along the top of the waste baking chamber, (2) to the gas collecting compartment. (12) Gas and vapor will then be sucked through the gas sucking duct (10) to the main duct (11) and subsequently injected into the gas burning chamber (6) together with secondary air for combustion.

The gas burning chamber (6) is a vertical duct with the bottom end located on the top of the charcoal burning chamber (3) and placed at the center of the waste baking compartment. (2) Inside the gas burning chamber, (6) at the bottom there is an orifice plate (7) which is a ring with the outer part welded with the inner part of the duct, thus leaving a smaller hole in the middle to reduce the cut surface of the chamber.(6) This enables the gas and air to mix well which, in turn, leads to a more complete combustion, as well as increases the temperature of the burning process. The burning of gas will continuously take place in the gas burning chamber (6) and then the gas will be released outside for the incinerator with a small waste baking chamber (2) (as shown in Figure 1). But, if the waste banking chamber (2) is large, hot gas will be passed through the hot gas duct (8) welded into the outer side of the baking chamber (2) (as shown in Figure 2) to increase the effectiveness of the baking process. Inside the waste baking chamber, (2) there is a waste-stirring machine (19) which is a screw connected to 4 or more long axles that run from the top to the bottom of the chamber. This waste-stirring machine (2) stirs the waste in the waste baking chamber to increase the efficiency of the baking process. The outer part of the incinerator will be insulated (14) to prevent loss of heat.

During start up the incinerator, fuel is used to ignite the combustion. It will be sent through a duct and injected to the top of the main duct. (11) As the ignition starts, the fuel will be burned in the gas burning chamber (6) until it reaches the temperature of approximately 800 to 900°C. The waste will continuously emit inflammable gas which will then flow to the gas burning chamber.(6) When the temperature in the gas burning chamber increases, the injection of fuel will be stopped.

The revelation of the invention means that those who have sufficient knowledge and understanding in the field will be able to improve, adjust, or make any changes to the appearance, shape, and/or other details of this invention. Those differences are considered as parts of the composition which can replace one another. As a result, claims which is described here will regard any change or addition as something using the same principle as the original invention.

Brief Description of the Drawings

In the complete disclosure of the incinerator in this invention, the composition of the incinerator will be illustrated as follows:

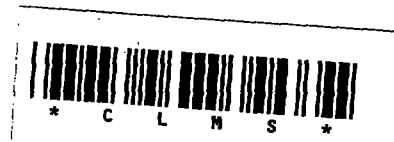
Figure 1: Illustration of a small-sized incinerator.

Figure 2: Illustration of a large-sized incinerator.

The Best Invention

As discussed under the Complete Disclosure of the Invention.

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Claims



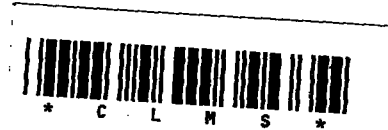
1. An incineration process using heat generated from combustion to bake and sublimate waste to produce gas as for burning waste characterized by:-

a. A waste-feeding screw (1) on top of the incinerator which is a duct in which there is a screw to feed waste. One of the outer ends of the screw is connected to a motor at the end of the tub, while the other end of the screw does not reach the other end of the tube, thus leaving space to compact waste before sending it into the incinerator to prevent the loss of vapor and gas;

b. A waste-baking chamber (2) which is a cylindrical tank with a gas burning compartment, (6) a vertical duct located at the center, (2) to generate heat used in the baking process;

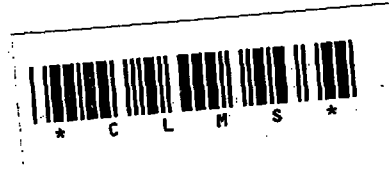
c. A charcoal-burning chamber (3) which is connected to the baking chamber. (2), its bottom part is conical to force waste into the middle, right beneath the middle duct which acts as a gas burning compartment. (6) Waste in the charcoal burning chamber (3) will fall onto the bottom grate, (5) which is circular in shape, with the top part shaped like a funnel and connected to the grate whose teeth are tilted at 30 to 35 degrees to allow ashes jet to easily move from the charcoal burning chamber, (3) with the push from of

compressed air pulse, to the ash collecting tray, (17) a funnel at the button of the incinerator;



d. A duct (15) which separates primary air into two parts: that sent to the bottom grate, (5) a funnel with an air hole on the top; and, that sent to the side grate (4) connected to the funnel collecting waste from the waste burning chamber. (2) At the bottom edge, there is room for air to circulate and air-feeding holes around it;

e. A duct (9) to feed secondary air into the gas burning chamber, (6) passing through the main duct (11) connected to the gas sucking duct (10) which sends air into the gas and vapor collecting compartment. (12) Because the gas and vapor collecting compartment is an overturned funnel above the side grate, (4) there is an empty space. As the secondary air is sucked into the gas burning chamber, (6) the velocity of the air in the duct (9) will create the venturi principle in the main duct (11) which results in gas and vapor being sucked from the waste baking chamber (2) through the gas collecting duct, (13) a welded duct running along the top of the waste baking chamber, (2) to the gas collecting compartment. (12) Gas and vapor will then be sucked through the gas sucking duct (10) to the main duct (11) and subsequently injected into



the gas burning chamber (6) together with secondary air for combustion;

f. A gas burning chamber (6) which is a vertical duct with the bottom end located on the top of the charcoal burning chamber (3) and placed at the center of the waste baking compartment. (2) Inside the gas burning chamber, (6) at the bottom there is an orifice plate (7) which is a ring with the outer part welded with the inner part of the duct, thus leaving a smaller hole in the middle to reduce the cut surface of the chamber. (6) This enables the gas and air to mix well which, in turn, leads to a more complete combustion, as well as increases the temperature of the burning process. The burning of gas will continuously take place in the gas burning chamber (6) and then the gas will be released outside for the incinerator with a small waste baking chamber (2) (as shown in Figure 1). However, if the waste banking chamber (2) is large, hot gas will be passed through the hot gas duct (8) welded into the outer side of the baking chamber (2) to increase the effectiveness of the baking process; and

g. A waste-stirring machine (19) which is a screw connected to 4 or more long axles that run from the top to the bottom of the chamber. (2) This waste-stirring machine (2) stirs the waste in the waste-baking chamber (14) to increase the efficiency of the baking process. The outer part of the incinerator will be insulated to prevent loss of heat.