An incinerator includes: a furnace defining a combustion chamber and having a stack in fluid communication with the combustion chamber and having top and bottom open ends; and a flue gas-guiding mechanism including a flue gas conduit and a flue gas blower. The flue gas conduit has a generally L-shaped end portion extending into the stack and disposed between the top and bottom open ends of the stack. The flue gas blower is connected to the flue gas conduit for drawing flue gas out of the stack.
INCINERATOR WITH A FLUE GAS GUIDING MECHANISM

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an incinerator, more particularly to an incinerator with a flue gas guiding mechanism.

2. Description of the related art

U.S. Pat. Nos. 6,619,216 discloses an incinerator for combustion of hull or shell waste of agricultural crops. The incinerator includes a furnace and a stack having a damper installed therein for releasing flue gas when the pressure inside the furnace is undesirably and overly built up. However, the effectiveness of the damper in releasing the flue gas is relatively poor, and prevention of potential explosion due to sudden sharp increase in pressure inside the furnace cannot be fully ensured.

SUMMARY OF THE INVENTION

Therefore, the object of the present invention is to provide an incinerator that is capable of overcoming the aforesaid drawback associated with the prior art.

According to the present invention, an incinerator comprises: a furnace defining a combustion chamber and having a stack in fluid communication with the combustion chamber and having top and bottom open ends; and a flue gas-guiding mechanism including a flue gas conduit and a flue gas blower. The flue gas conduit has a generally L-shaped end portion extending into the stack and disposed between the top and bottom open ends of the stack. The flue gas blower is connected to the flue gas conduit for drawing flue gas out of the stack.

BRIEF DESCRIPTION OF THE DRAWINGS

In drawings which illustrate an embodiment of the invention,

FIG. 1 is a fragmentary schematic view of an incinerator of the preferred embodiment according to this invention; and

FIG. 2 is a fragmentary, partly sectional view to illustrate how a flue gas-guiding mechanism functions to guide flue gas out of a stack of the preferred embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIGS. 1 and 2 illustrate the preferred embodiment of an incinerator according to this invention for combustion of hull or shell waste of agricultural crops.

The incinerator includes: a furnace 21 defining a combustion chamber 210 and having a cylindrical stack 4 in fluid communication with the combustion chamber 210 and having top and bottom open ends 42, 43; a waste-feeding unit 22 for feeding solid waste into the combustion chamber 210; and a flue gas-guiding mechanism including a flue gas conduit 6 and a flue gas blower 7. The flue gas conduit 6 is connected to and extends outwardly of the stack 4, and has a generally L-shaped end portion 61 defining an inlet 60, extending into the stack 4, and disposed between the top and bottom open ends 42, 43 of the stack 4. The flue gas blower 7 is connected to the flue gas conduit 6 for drawing flue gas out of the stack 4.

The flue gas-guiding mechanism further includes a hood 5 mounted in the stack 4 and disposed adjacent to the bottom open end 43 of the stack 4. The hood 5 has a non-tapered portion 51 that is in contact with the inner surface 40 of the stack 4, and a tapered portion 53 extending and tapered from the non-tapered portion 51 toward the L-shaped end portion 61 of the flue gas conduit 6 and defining a discharging opening 52 that confronts the inlet 60 of the L-shaped end portion of the flue gas conduit 6.

The furnace 21 is mounted in a thermally-insulating housing 23, and cooperates with the thermally-insulating housing 23 to define a gap 231 therebetween. A dryer 3 is in fluid communication with the gap 231 through a pipe unit 25 for drying crops stored therein. The thermally-insulating housing 23 has an air inlet 230 for passage of ambient air into the gap 231. The air in the gap 231 is heated by the furnace 21, and flows into the dryer 3 through the pipe unit 25.

The furnace 21 has a top portion 211 that is provided with a heat exchanger 8 such that the flue gas arising from the combustion chamber 210 is cooled by the heat exchanger 8 before entering into the hood 5.

During operation of the incinerator, the flue gas arising from the combustion chamber 210 passes through the hood 5, and enters into the stack 4. A major portion of the flue gas in the stack 4 is drawn by the flue gas blower 7 to pass into and through the flue gas conduit 6, while the remainder of the flue gas bypasses the flue gas conduit 6 and is discharged from the top open end 42 of the stack 4.

With the inclusion of the flue gas blower 7 and the flue gas conduit 6 in the incinerator of this invention, the aforesaid drawback is encountered in the prior art can be eliminated.

With the invention thus explained, it is apparent that various modifications and variations can be made without departing from the spirit of the present invention. It is therefore intended that the invention be limited only as recited in the appended claims.

What is claimed is:

1. An incinerator comprising:
   a furnace defining a combustion chamber and having a stack in fluid communication with said combustion chamber and having top and bottom open ends; and
   a flue gas-guiding mechanism including
   a flue gas conduit having a generally L-shaped end portion extending into said stack and disposed between said top and bottom open ends of said stack, and
   a flue gas blower connected to said flue gas conduit for drawing flue gas out of said stack.

2. The incinerator of claim 1, wherein said flue gas-guiding mechanism further includes a hood mounted in said
stack and disposed adjacent to said bottom open end of said stack, said stack having an inner surface, said hood having a non-tapered portion that is in contact with said inner surface of said stack, and a tapered portion extending and tapered from said non-tapered portion toward said L-shaped end portion of said flue gas conduit.

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