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(54) Title: MAINTENANCE DRAWER FOR THE COMBUSTION CHAMBER AND SMOKE ASPIRATION FAN OF THE FLUE OF A BIO-MASS POWERED THERMAL BOILER

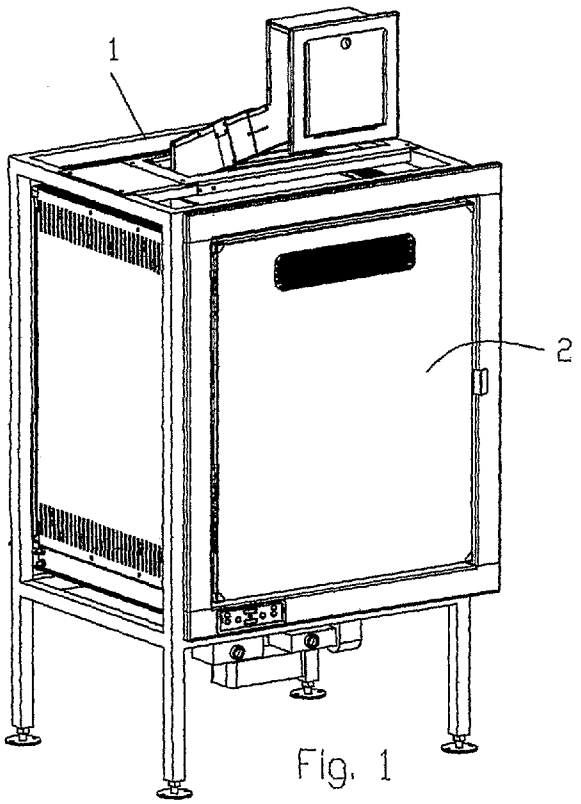

Fig. 1

(57) Abstract: Maintenance drawer for the combustion chamber and smoke aspiration fan of the flue of a bio-mass powered thermal boiler, characterised by the fact that it is inserted into the front part of the thermal boiler, that it has two compartments, that one compartment is situated under the furnace to collect the ashes, that the other compartment is situated under the aspiration fan to collect the dust contained in the smoke from combustion.

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Maintenance drawer for the combustion chamber and smoke aspiration fan of the flue of a bio-mass powered thermal boiler

Technical field of the invention

The present invention regards the creation of a maintenance drawer for the combustion chamber and smoke aspiration fan of the flue of a bio-mass powered thermal boiler.

State of the Art

Biomass thermal boilers need constant maintenance in order to maintain a high level of efficiency.

During the combustion of the bio-masses ashes, creosote and dust are produced. The ashes, dust and the creosote must be continually gathered and removed in order to avoid the possibility of polluting the bio-mass powered thermal boiler, and thus decreasing their efficiency.

Bio-mass powered thermal boilers are normally fitted with a drawer for the ashes placed under the furnace, access to which is from the front, and by a drawer which collects the dust from the smoke, access to which is from the side.

Patent application WO-A-2006109346 describes a thermal boiler with a drawer below the smoke aspiration fan to collect the dust from the smoke.

Said solution presents a series of inconveniences.

The cleaning of the ash drawer and of the dust drawer is carried out separately. The ash drawer is fitted in an easily accessible position. The *dust* drawer is fitted on the lateral part of the thermal boiler, which is generally

difficult to access for non-specialized personnel. The user is therefore forced to ask for the intervention of the maintenance service to carry out the cleaning.

The drawer is not easily inspected, in order to be able to eliminate the dust deposited in it.

Description of the Invention.

The present invention proposes the creation of a drawer which allows the user, with a single operation, to keep the cleaning and maintenance of the furnace and aspiration fan under control, freeing the furnace from the ashes produced and the smoke aspiration fan free from the dust attracted by the fan itself.

The main object of the present invention is to overcome the difficulties and disadvantages present in the solutions on sale at present.

The principal aim of the present invention is the creation of drawer for the maintenance of the combustion chamber and the smoke aspiration fan of the flue of a bio-mass thermal boiler, characterised by the fact that it is inserted into the front of the thermal boiler, that it has two compartments, that one compartment is placed under the furnace to collect the ashes, that the other compartment is placed under the aspiration fan to collect the dust contained in the smoke from combustion.

Another characteristic is given by the fact that the compartment for collecting the ashes is of a parallelepiped shape.

Another characteristic is given by the fact that the compartment for collecting dust is of a cylindrical shape.

Other characteristics and advantages of the present invention will appear clear from the following description of a method of creating the present invention, given as a non-limiting example in the figures 1, 2 and 3.

Brief description of the figures.

Figure 1 represents an axonometric view of a thermal boiler in which a drawer, object of the present invention, is placed for the maintenance of the combustion chamber and smoke aspiration fan of the flue of a bio-mass

Figure 2 represents a section of a thermal boiler in which a drawer, object of the present invention, is placed for the maintenance of the combustion chamber and the smoke aspiration fan of the flue of a bio-mass thermal boiler;

Figure 3 represents a view of the drawer, object of the present invention, for the maintenance of the combustion chamber and the smoke aspiration fan of the flue of a bio-mass thermal boiler.

Detailed description of an embodiment of the present invention

With reference to figure 1, which is an axonometric view of a bio-mass thermal boiler1, the door 2, placed in the front part, is visible.

In the front part, as can be seen in figure 2, behind the door 2, the drawer 20 is situated.

The drawer 20 is constituted of a closing and grasping element 21, to which an element formed of two compartments is attached, the compartment for ashes 22 followed by the compartment for dust 23. The drawer 20 is inserted from the front side of the thermal boiler 1, the compartment for ashes 22 is situated under the furnace 24 and the compartment for dust 23 is positioned

under the smoke aspiration fan 25. The compartment 22 creates, with its side in contact with the compartment for dust 23, a perfect seal with the walls of the furnace.

In this way the ashes produced in the furnace 24 fall into the ash compartment 22 situated under the furnace 24, while the dust produced by the smoke from combustion is collected in the dust compartment 23, situated under the aspiration fan 25.

To carry out the cleaning and maintenance of the thermal boiler 1 of ashes and smoke dust it is thus necessary to pull out the drawer 20 frontally, grasping the closing and grasping element 21, empty the refuse eventually contained both in the compartment 22 and in the compartment 23 and return the drawer 20 to its place.

The shape of the ash drawer 22 can be of a parallelepiped form, while the shape of the dust compartment 23 can be cylindrical in order to better adhere to the shape of the aspiration fan.

To always keep both the furnace 1 and the aspiration fan 25 clean it is sufficient to periodically repeat the above described cleaning and maintenance operation, without the necessity for complicated operations that necessitate complex dismantling and reassembling.

In this way both the furnace 1 and the aspiration fan 25 of the thermal boiler are kept clean and therefore the efficiency of the thermal boiler is always maintained at a high level.

The invention, it should be noted, is not limited to the representations given by the figures, but may be perfected and modified by those skilled in the Art, without, however, exceeding the limits of patent.

The present invention permits numerous advantages and to overcome difficulties that could not be overcome with the systems on sale at present.

CLAIMS

1. Maintenance drawer for the combustion chamber and smoke aspiration fan of the flue of a bio-mass powered thermal boiler, characterised by the fact that it is inserted into the front part of the thermal boiler, that it has two compartments, that one compartment is situated under the furnace to collect the ashes, that the other compartment is situated under the aspiration fan to collect the dust contained in the smoke from combustion.

2. Maintenance drawer for the combustion chamber and smoke aspiration fan of the flue of a bio-mass powered thermal boiler, according to claim 1, characterised by the fact that the drawer for collecting the ashes is parallelepiped in shape.

3. Maintenance drawer for the combustion chamber and smoke aspiration fan of the flue of a bio-mass powered thermal boiler, according to claims 1 or 2, characterised by the fact that the drawer for collecting dust is cylindrical in shape.

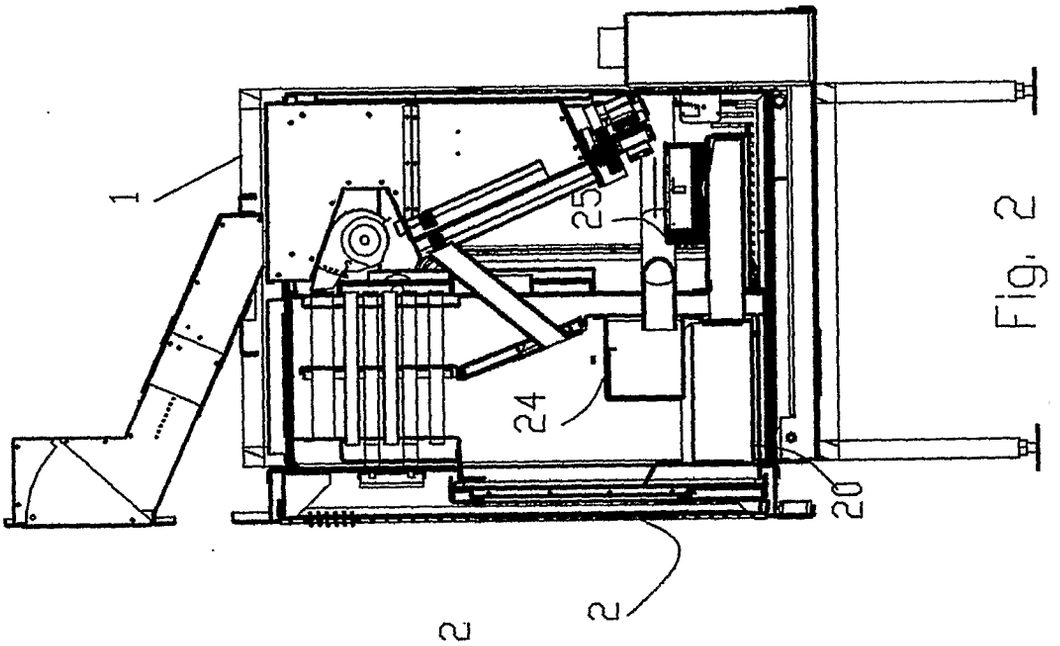

Fig. 2

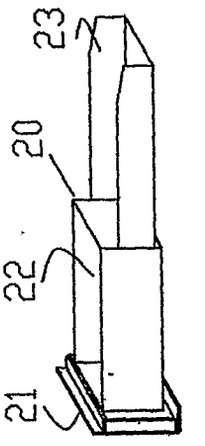

Fig. 3

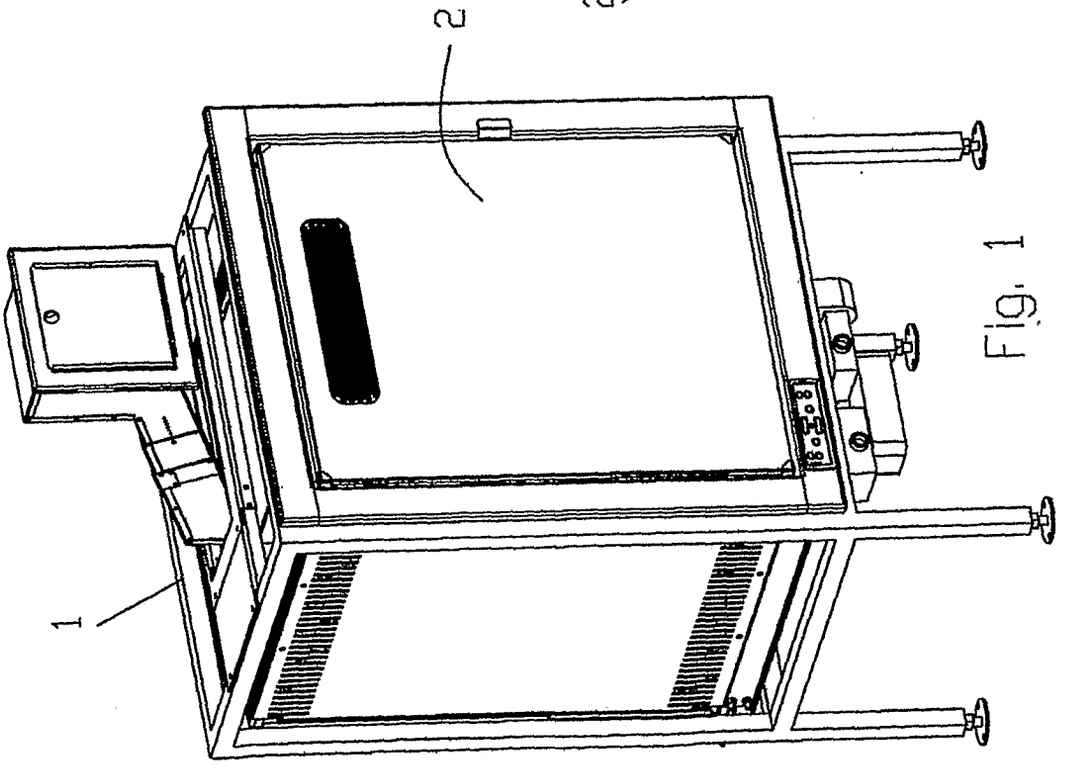

Fig. 1