Biochar machine includes a sealed container for rice straw bales with two gates. The top gate is for rice straw feeding and the bottom gate for Biochar. The Biochar unit is equipped with a stirrer operated by an electric motor and a speed reduction unit. The Biochar unit is operated indirectly through a combustion chamber with a fuel burner to heat the sealed container from all sides indirectly. The gases produced as a result of heating the rice straw are collected and returned back to the combustion chamber through a blower.
BIOCHAR MACHINE FOR TREATING RICE STRAW BALES

TECHNICAL FIELD

[0001] The objective of this invention is the grinding of agricultural waste and turn them into material Biochar by burning in isolation from the air inside the oven and are Coking and milling in one oven.

BACKGROUND ART

[0002] Agricultural waste is charred by burning in the absence of oxygen, then, taken out from the charring furnaces to be ground and turned into Biochar.

[0003] In addition to this process being economically costly, it affects the environment as it involves transporting the coal from thechar furnaces, then grinding and packing the ground material in various packages.

[0004] The novelty of this invention is that charring and grinding take place in one furnace, after which the Biochar is taken out for packing.

DISCLOSURE OF THE INVENTION

[0005] The Biochar machine consists of a sealed processing tank wherein the rice straw is placed. The container has an opening in the lower part for exit of the Biochar and an opening in the upper part for entry of the rice straw. In the middle of the container, there is an electrically-powered agitator, a conveyer belt and a speed reducing system. The machine is equipped with water sprayers to cool the Biochar with water directly before it comes out of the container. The spraying unit consists of a pump, pipes, links, sittings and sprayers.

[0006] The Biochar unit also contains a combustion unit consisting of a burner to warm the fuel adjacent to the container to heat the rice straw air free from all directions. The gases collected inside the container are drawn out to the combustion chamber by means of a vacuum ventilator operated by an electric motor.

BRIEF DISCLOSURE OF DRAWING


[0008] 2. Ventilator: for drawing the gases from inside the charring container and sending to the burner to accelerate the burning process and thereby reducing fuel consumption and preventing contamination of air by gas emissions during the charring process.

[0009] 3. Gases Route: return of char gases from the charring chamber to the burner.

[0010] Agitator: for mixing and turning over the agricultural waste inside the sealed processing tank.

[0011] Burner: for burning the fuel and supplying the unit with the necessary thermal energy.

[0012] Chimney: for getting rid of the gases resulting from burning.

[0013] Water sprayers: for cooling the Biochar before exiting the charring unit.

[0014] Speed-reducing unit: for turning over the rice straw to guarantee uniformity of the charring process as well as grinding the rice straw.

[0015] Thermostat: for controlling the charring temperature.

1-3. (canceled)

4. A biochar machine comprising:
   a sealable charring processing tank (1) for receiving and charring rice straw bales;
   an agitator (4) positioned in said sealable charring processing tank (1), said agitator (4) configured to grind rice straw inside said sealable processing tank (1); and
   a water sprayer (7) positioned in said sealable charring processing tank (1) and configured to spray water inside said sealable processing tank (1).

5. The biochar machine according to claim 4, wherein said sealable charring processing tank (1) has an opening in a lower part for exiting biochar said sealable charring processing tank (1) and an opening in an upper part for receiving said rice straw bales.

6. The biochar machine according to claim 4, further comprising a combustion unit comprising a burner (5) for burning fuel adjacent to said sealable charring processing tank (1) in order to heat the rice straw air free, from all directions.

7. A method of forming biochar from rice straw bales comprising:
   introducing rice straw bales into the biochar machine according to claim 4 that comprises a sealable charring processing tank by placing rice straw bales, without cutting, inside said sealable charring processing tank;
   sealing said sealable charring processing tank and subjecting said rice straw to a charring process to form biochar;
   grinding said rice straw during the charring process;
   cooling said biochar by spraying water into said sealable charring processing tank.

8. The method according to claim 7, wherein said charring process comprises heating said rice straw in air-free using a burner for burning fuel adjacent to said sealable processing tank in order to heat the rice straw air free, from all directions.

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