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(54) Wood burning stove with wood pellet burner

(57) In a wood burning stove comprising a burning chamber (1) and a wood pellet burner (3), said wood pellet burner (3) is movable between a retracted position, in which the components of the wood pellet burner (3) are positioned outside the burning chamber (1), whereby the burning chamber (1) is suitable for burning wood logs etc., and an inserted position, in which the main components of the wood pellet burner (3) are positioned inside the burning chamber (1), and the wood pellet burner (3) can be activated to bum wood pellets (19) or similar particulate solid fuel inside the burning chamber (1).

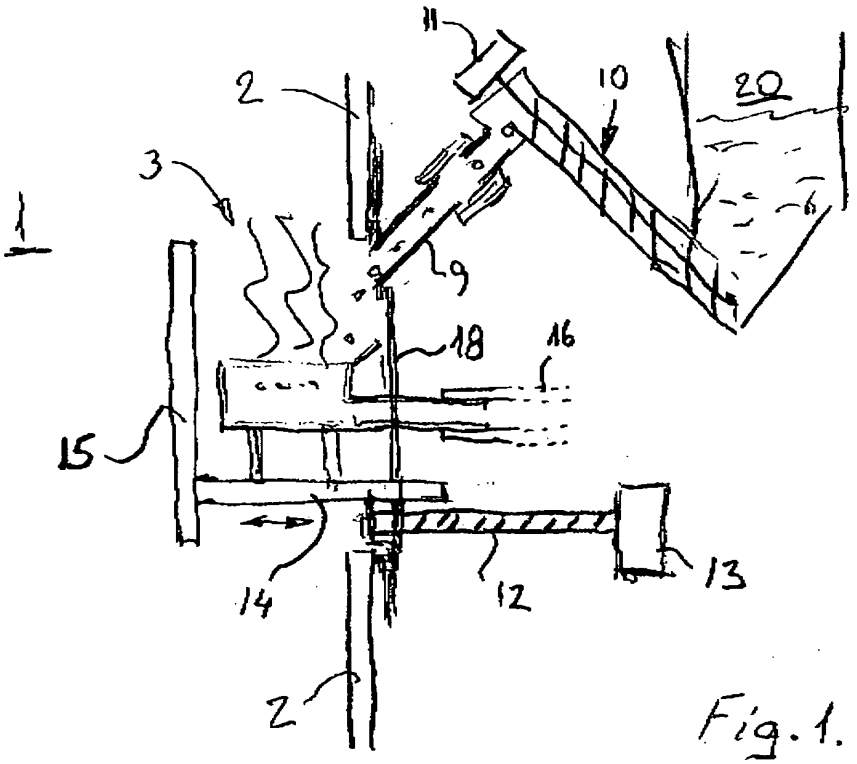


Fig. 1.

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Description

TECHNICAL FIELD

[0001] The present invention relates to a wood burning stove with wood pellet burner of a kind, in which there is provided a possibility of burning either wood logs or wood pellets, and where the burning of wood pellets can be performed in an automated manner.

BACKGROUND ART

[0002] In wood burning stoves with wood pellet burners, it has been known to rearrange the components of the wood pellet burner manually in order to make it possible to burn wood logs, whenever this is desired. A wood burning stove with wood pellet burner of this kind is known from the firm Bioline. In the Bioline construction, a covering has to be placed manually on top of the wood pellet burner in order to be able to burn wood logs in the stove. A corresponding manual removal of the cover is required in order to be able to start the wood pellet burner.

DISCLOSURE OF THE INVENTION

[0003] It is the object of the present invention to provide a wood burning stove with wood pellet burner of the kind referred to above, with which it is possible to change from wood log burning to wood pellet burning and vice versa without manual rearrangement of the components of the wood pellet burner of the stove, and this object is achieved with a wood burning stove with wood pellet burner of said kind, which according to the present invention comprises the features set forth in the attached claim 1. With this arrangement, a simple repositioning of parts of the wood pellet burner is performed in order to change from wood burning to wood pellet burning and vice versa.

[0004] This repositioning can be performed automatically such that an automatic change can be performed when the wood logs in the burning chamber are burned out. Automatic introduction of the wood pellet burner into the burning chamber and starting thereof can be performed without any manual intervention.

SHORT DESCRIPTION OF THE DRAWINGS

[0005] In the following detailed part of the present description, the invention will be explained in more detail with reference to the exemplary embodiment of a wood burning stove with wood pellet burner according to the invention shown in the drawings, in which

Fig. 1 schematically shows an overview of essential parts of the wood burning stove with wood pellet burner in accordance with the present invention, and

Fig. 2 schematically shows an enlarged view of some parts of the wood pellet burner of Fig. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0006] The wood burning stove with a wood pellet burner shown in Fig. 1 comprises a burning chamber 1 provided with a refractory lining 2. A wood pellet burner, generally indicated by the number 3, comprises, as shown in Fig. 2, a fire pot 4 provided with a grate 5 for supporting the burning wood pellets 19, combustion air being supplied from underneath the grate 5 via an air supply tube 6. The wood pellets 19 will be ignited when starting up the wood pellet burner by means of a hot bulb 7 positioned in a separate part of the air supply tube 6 separated from other parts of this air supply tube 6 by means of a separating wall 17, whereby the air supplied via the separated part of the air supply tube containing the hot bulb 7 will have a sufficiently high temperature to ignite the wood pellets 19.

[0007] Supply of wood pellets 19 to the fire pot 4 is provided from a wood pellet storage 20 by means of a screw conveyor 10 extracting the wood pellets 19 from the wood pellet storage 20 and delivering the wood pellets to a supply tube 9, through which the wood pellets fall down on the chute 8 for receiving the wood pellets and delivering the wood pellets to the fire pot 4 on top of the grate 5. The screw conveyor 10 is driven intermittently by a motor 11 in order to deliver the wood pellets at a suitable rate, said rate possibly being variable, depending on the required heating level.

[0008] The delivery of combustion air via the air supply tube 6 and the flexible tube 16 is provided by means of a fan, not shown in the drawings, said fan possibly being controlled in its velocity in order to deliver a suitable amount of combustion air corresponding to the amount of wood pellets delivered to the fire pot 4.

[0009] The hot bulb 7 is naturally only used for ignition when starting up the wood pellet burner, and as soon as the wood pellets 19 are burning inside the fire pot 4, the hot bulb 7 is no longer supplied with electricity to heat up the combustion air delivered thereby.

[0010] As shown in Fig. 1, the parts of the wood pellet burner comprising the fire pot 4, the back wall 18 and the wall section 15 are movable in a longitudinal direction along the slide bars 14 controlling said sliding movement, and said movement is furthermore controlled by the spindle 12 driven by the motor 13. By this moving mechanism, the wood pellet burner 3 can be moved to the right as seen in Fig. 1, whereby the wall section 15 is brought into alignment with the refractory lining 2 of the burning chamber 1, whereby the burning chamber 1 is freed from all the components of the wood pellet burner 3 and thus can be used for burning wood logs or the like.

[0011] Preferably, the burning chamber 1 is supplied with primary air for the burning of wood logs through a grate at the bottom of the burning chamber and the burning wood delivers heat by the combustion air circulating inside the burning chamber and through suitable chan-

nels connecting to a chimney. The burning chamber may, as is ordinary within the art of wood burning stoves, be provided with a glass door such that the burning wood or burning wood pellets can be viewed from outside.

[0012] Preferably the control of the electrical components, I.e. the hot bulb 7, the spindle motor 13, the screw conveyor motor 11 and the combustion air fan, are controlled automatically in order to secure the correct functioning of the stove. Preferably, different temperature sensors are provided in order to secure this correct functioning of the stove, whereby detection of correct ignition of the wood pallets, the burn out of possible wood logs can be detected correctly in order to automatically shift from wood log burning to wood pellet burning, based on e.g. a thermostat detecting the room temperature close to the stove.

[0013] The control of the insertion and retraction of the wood pellet burner components may comprise detectors for detecting the end positions of the wood pellet burner components, and furthermore in order to avoid faults due to possible blocking of the movement due to residual material inside the burning chamber 1, an over-current detection on the motor 13 for the spindle 12 may be provided such that insertion of the wood pellet burner components into the burning chamber 1 can be stopped without destruction of any of the components and a fault report or signal be set when such fault has been detected.

Claims

1. Wood burning stove comprising

- a burning chamber (1),
- a wood pellet burner (3),

said wood pellet burner (3) being movable between

- a retracted position, in which the components of the wood pellet burner (3) are positioned outside the burning chamber (1), whereby the burning chamber (1) is suitable for burning wood logs etc., and
- an inserted position, in which the main components of the wood pellet burner (3) are positioned inside the burning chamber (1), and the wood pellet burner (3) can be activated to burn wood pellets (19) or similar particulate solid fuel inside the burning chamber (1).

2. Wood burning stove in accordance with claim 1, wherein the wood pellet burner (3) is moved together with a wall section (15), such that the opening, through which the wood pellet burner (3) is inserted into the burning chamber, is closed by said wall section (15) when the wood pellet burner (3) is in the retracted position.

3. Wood burning stove in accordance with claim 1 or 2, wherein a further wall section (18) is moved with the wood pellet burner (3) for closing the opening behind the burner (3) in the inserted position.

4. Wood burning stove in accordance with any of the preceding claims, wherein the movement of the pellet burner (3) is provided by means of a spindle (12) driven by a motor (13).

5. Wood burning stove in accordance with any of the preceding claims, wherein the supply of combustion air for the pellet burner comprises a fan delivering air via a flexible tube (16).

6. Wood burning stove in accordance with any of the preceding claims, wherein the ignition of wood pellets is provided by means of a heat bulb (7) positioned in the combustion air stream upstream of the fire pot (4).

7. Wood burning stove in accordance with claim 6, wherein the heat bulb (7) is positioned in a partial air stream separated from the main air stream by a separating wall (17).

8. Wood burning stove in accordance with any of the preceding claims, wherein the supply of wood pellets (19) to the fire pot (4) is provided by means of a screw conveyor (10) extracting the wood pellets (19) from a wood pellet storage (20) and delivering the wood pellets (19) to a supply tube (9) debouching above the fire pot (4).

9. Wood burning stove in accordance with any of the preceding claims, wherein the control of the wood pellet burner is performed in dependence on sensors detecting temperatures in different positions inside and outside the wood burning stove and position sensors detecting the position of the movable pellet burner (3), said control controlling any of the following:

- speed of pellet supply,
- speed of combustion air fan,
- insertion/retraction of wood pellet burner (3),
- activation of heat bulb (7), etc.

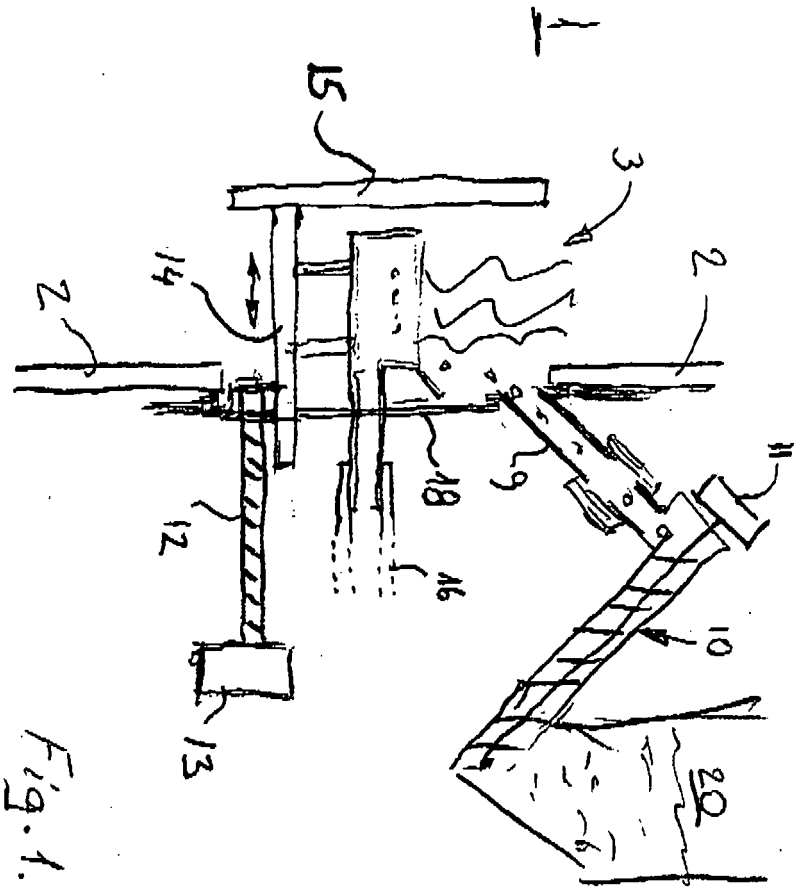


Fig. 1

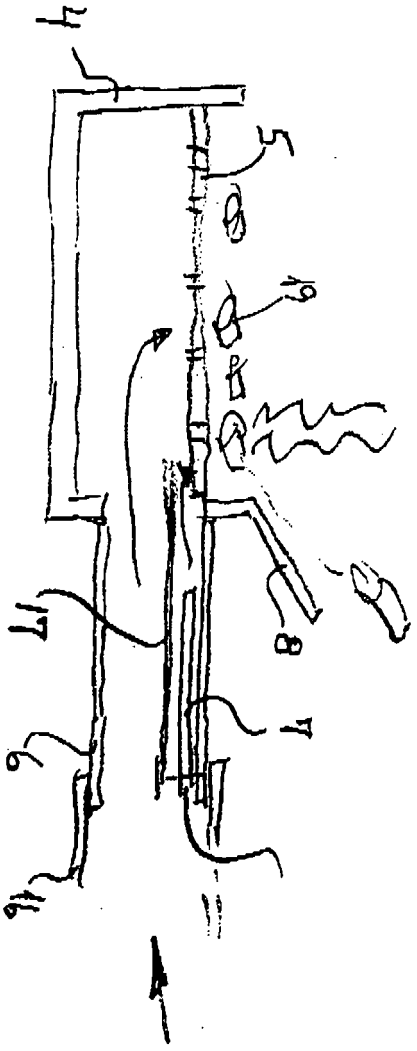


Fig. 2.

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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 4965

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	3 September 2008	Mougey, Maurice

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	3 September 2008	Mougey, Maurice

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