# GAS-FIRED CLOTHES DRYER WITH SWITCHABLE SMOKE EXHAUST PORT POSITIONS

## Technical Field

The present utility model relates to the technical field of gas-fired clothes dryers, in particular to a gas-fired clothes dryer with switchable smoke exhaust port positions.

## Background Art

Gas-fired clothes dryers utilise high-temperature hot air generated by gas combustion to quickly dry clothes. Compared with traditional drying methods, the clothes drying time is greatly shortened. Some high-end gas-fired clothes dryers are also equipped with intelligent control systems, which can automatically adjust the drying temperature and time according to materials and humidities of the clothes, ensuring that the clothes are dried evenly without being damaged by overheating, and meanwhile, energy consumption is saved.

For example, the patent with the publication number CN222575066U discloses a clothes dryer integrating a hot water function, which belongs to the technical field of household appliances. The clothes dryer comprises a clothes dryer body and a water heater; the clothes dryer body comprises a housing, a drum rotatably mounted in the housing, a smoke duct in communication with the air inlet hole of the drum, an air exhaust device, a first gas burner in communication with the smoke duct, a motor, a first gas pipe and a smoke exhaust pipe; a first control valve is disposed at a gas outlet of the first gas pipe; the gas outlet of the first gas pipe is in communication with a gas inlet end of the first gas burner; one end of the smoke exhaust pipe is in communication with the air outlet of the air exhaust device; the water heater comprises a second gas burner, a heat exchanger and a second gas pipe; the heat exchanger is disposed at an upper end of the second gas burner; a smoke outlet of the heat exchanger is in communication with the smoke duct; a gas outlet of the second gas pipe is in communication with the gas inlet end of the second gas burner; a gas inlet of the second gas pipe is in communication with the first gas pipe; and a second control valve is disposed on the second gas pipe.

The above-mentioned technology has the following problems: the hot smoke

generated after combustion in the first gas burner enters the drum through the smoke duct, and the motor drives the drum to rotate, ensuring that the clothes are evenly exposed to the hot smoke; and the air exhaust device discharges the hot smoke in the drum through the smoke exhaust pipe, since the position of the air outlet of the air exhaust device is fixed, when the clothes dryer is installed indoors, if the position of the air outlet is far away from the outdoors, the smoke exhaust pipe needs to be lengthened so that the smoke exhaust pipe is capable of extending to the outdoors. During actual installation, the smoke exhaust pipe will occupy the space above the clothes dryer, thereby increasing the occupied indoor space.

Therefore, a gas-fired clothes dryer with switchable smoke exhaust port positions is proposed to solve the above technical problems.

**Summary of the Utility Model**

To solve the above technical problems, the purpose of the present utility model is to provide a gas-fired clothes dryer with switchable smoke exhaust port positions, which can allow different smoke exhaust ports to be switched according to the indoor installation position, so that the position of the smoke exhaust pipe is close to the outdoors, thereby reducing the space occupied by the smoke exhaust pipe.

The technical solution adopted by the present utility model to solve the problem is as follows: a gas-fired clothes dryer with switchable smoke exhaust port positions, comprising a main body, wherein a drum with a front opening is rotatably connected inside the main body, a gas-fired unit is disposed below the drum, the gas-fired unit is used for delivering hot smoke to the inside of the drum, an air exhaust device in communication with the drum is disposed at the rear of the drum, a smoke exhaust duct in communication with the air exhaust device is disposed above the air exhaust device, several smoke exhaust ports in communication with the smoke exhaust duct are disposed on the smoke exhaust duct, and the smoke exhaust ports are used for being in communication with a smoke exhaust pipe in communication with the outside.

As a further improvement of the above technical solution, the smoke exhaust ports are respectively disposed at the top and side ends of the smoke exhaust duct.

As a further improvement of the above technical solution, sealing covers are

detachably connected to the smoke exhaust ports.

As a further improvement of the above technical solution, the smoke exhaust duct is arc-shaped.

As a further improvement of the above technical solution, an air exhaust hole in communication with the air exhaust device is disposed at a rear side of the drum; the air exhaust device comprises an air inlet in communication with the air exhaust hole and an air outlet in communication with the smoke exhaust duct; an impeller is disposed at the air inlet, and a transmission shaft of the impeller extends to an outer side of the air exhaust device; a rotating motor is disposed below the drum; and a first transmission belt is further included, an end of the first transmission belt is in transmission connection with the rotating motor, and the other end of the first transmission belt is in transmission connection with the transmission shaft of the impeller.

As a further improvement of the above technical solution, a second transmission belt is further included, the second transmission belt is sleeved on the drum, and the second transmission belt is in transmission connection with the rotating motor.

As a further improvement of the above technical solution, the gas-fired unit comprises a gas channel, a burner grate and a combustion chamber; a gas valve is disposed on the gas channel; a gas inlet of the gas channel is disposed at an outer side of the main body; a gas outlet of the gas channel is in communication with the burner grate; the burner grate is disposed inside the combustion chamber; and the combustion chamber is in communication with the drum.

The beneficial effects of the present utility model are as follows: the clothes dryer can adjust the position of the smoke exhaust pipe installed on the smoke exhaust port according to the indoor installation condition, so that the position of the smoke exhaust pipe is close to the outdoors, thereby reducing the indoor space occupied by the smoke exhaust pipe.

**Brief Description of the Drawings**

The present utility model is further explained and illustrated below in conjunction with the description of the drawings and the specific embodiments.

FIG. 1 is a front view of a clothes dryer of the present utility model;

FIG. 2 is a rear view of the clothes dryer of the present utility model;

FIG. 3 is a first top view of the clothes dryer of the present utility model;

FIG. 4 is a sectional view of part A-A of FIG. 3;

FIG. 5 is a second top view of the clothes dryer of the present utility model;

FIG. 6 is a sectional view of part B-B of FIG. 5;

FIG. 7 is a first exploded view of the present utility model;

FIG. 8 is a second exploded view of the present utility model;

FIG. 9 is a structural view of a gas-fired unit of the present utility model; and

FIG. 10 is a sectional view of the gas-fired unit of the present utility model.

In the figures: 1-main body, 2-drum, 21-air exhaust hole, 3-gas-fired unit, 31-gas channel, 32-burner grate, 33-combustion chamber, 34-gas valve, 4-air exhaust device, 41-air inlet, 42-air outlet, 43-impeller, 5-smoke exhaust duct, 51-smoke exhaust port, 52-sealing cover, 6-smoke exhaust pipe, 7-rotating motor, 71-first transmission belt, 72-second transmission belt.

**Detailed Description of Embodiments**

This section will describe the specific embodiments of the present utility model in detail. The preferred embodiments of the present utility model are shown in the accompanying drawings. The function of the accompanying drawings is to supplement the textual description of the specification with graphics, enabling visual and intuitive understanding of each technical feature and the overall technical solution of the present utility model by people. However, this shall not be construed as limiting the scope of protection of the present utility model.

In the description of the present utility model, it should be understood that orientations or positional relationships indicated by directional references, such as "upper", "lower", "front", "rear", "left", "right" and the like are based on the orientations or positional relationships shown in the accompanying drawings and are merely for the convenience of describing the utility model and simplifying the description, rather than indicating or implying that the referred device or element must have a specific orientation and be constructed and operated in a specific orientation, and thus shall not be construed as limitations to the present utility model.

In the description of the present utility model, "several" means one or more, "plurality" means two or more, "greater than", "less than", and "more than" are understood as excluding the number itself, and "above", "below", "within" and the like are understood as including the number itself. If there is a description that "first" and "second" are merely for the purpose of distinguishing technical features, it should not be understood as indicating or implying the relative importance, or implicitly indicating the number of the indicated technical features, or implicitly indicating the sequence of the indicated technical features.

In the description of the present utility model, unless explicitly defined otherwise, words such as "arrange", "install" and "connect" shall be understood in a broad sense. Those skilled in the art may reasonably determine the specific meanings of the above words in the present utility model in combination with the specific contents of the technical solution.

Referring to FIG. 1 to FIG. 10, a gas-fired clothes dryer with switchable smoke exhaust port positions comprises a main body 1, a drum 2 with a front opening is rotatably connected inside the main body 1, a gas-fired unit 3 is disposed below the drum 2, the gas-fired unit 3 is used for delivering hot smoke to the inside of the drum 2, an air exhaust device 4 in communication with the drum 2 is disposed at the rear of the drum 2, a smoke exhaust duct 5 in communication with the air exhaust device 4 is disposed above the exhaust device 4, several smoke exhaust ports 51 in communication with the smoke exhaust duct 5 are disposed on the smoke exhaust duct 5, and the smoke exhaust ports 51 are used for being in communication with a smoke exhaust pipe 6 in communication with the outside;

The smoke exhaust pipe 6 is detachably connected to the smoke exhaust port 51. The clothes dryer can adjust the position of the smoke exhaust pipe 6 installed on the smoke exhaust port 51 according to the indoor installation condition, so that the position of the smoke exhaust pipe 6 is close to the outdoors, thereby reducing the indoor space occupied by the smoke exhaust pipe 6.

In a preferred embodiment, in order to provide more installation positions of the smoke exhaust pipe 6, the smoke exhaust ports 51 are respectively disposed at the top

and side ends of the smoke exhaust duct 5.

In a preferred embodiment, sealing covers 52 are detachably connected to the smoke exhaust ports 51, and the sealing covers 52 can prevent hot smoke from leaking from the positions of other smoke exhaust ports 51.

In a preferred embodiment, the smoke exhaust duct 5 is arc-shaped to match a shape of the air exhaust device 4.

In a preferred embodiment, an air exhaust hole 21 in communication with the air exhaust device 4 is disposed at a rear side of the drum 2. The air exhaust device 4 comprises an air inlet 41 that is in communication with the air exhaust hole 21 and an air outlet 42 that is in communication with the smoke exhaust duct 5. An impeller 43 is disposed at the air inlet 41, and a transmission shaft of the impeller 43 extends to an outer side of the air exhaust device 4;

a rotating motor 7 is disposed below the drum 2, a first transmission belt 71 is further included, an end of the first transmission belt 71 is in transmission connection with the rotating motor 7, and the other end of the first transmission belt 71 is in transmission connection with the transmission shaft of the impeller 43; and

in use, the rotating motor 7 can drive the first transmission belt 71 to rotate, thereby rotating the impeller 43, the impeller 43 can drive the hot smoke inside the drum 2 to pass through the air exhaust hole 21, the air inlet 41 and the smoke exhaust duct 5 in sequence, and finally the hot smoke can be discharged to the outside from the smoke exhaust pipe 6 at the smoke exhaust ports 51.

In a preferred embodiment, a second transmission belt 72 is further included, the second transmission belt 72 is sleeved on the drum 2, the second transmission belt 72 is in transmission connection with a rotating motor 7, and the rotating motor 7 can drive the second transmission belt 72 to rotate the drum 2.

In a preferred embodiment, the gas-fired unit 3 comprises a gas channel 31, a burner grate 32 and a combustion chamber 33. A gas valve 34 is disposed on the gas channel 31. The gas inlet of the gas channel 31 is disposed at an outer side of the main body 1, and the gas outlet of the gas channel 31 is in communication with the burner grate 32. The burner grate 32 is disposed inside the combustion chamber 33, and the combustion

chamber 33 is in communication with the drum 2;

in use, gas can enter from the gas channel 31, and is finally ignited at the burner grate 32, thereby generating hot smoke in the combustion chamber 33; the hot smoke can eventually enter the drum 2, thereby drying the clothes inside the drum 2; and the gas valve 34 can adjust an amount of gas entering the gas channel 31, thereby controlling a flame of the burner grate 32.

The above are merely preferred embodiments of the present utility model, and are not intended to limit the patent scope of the present utility model. Under the inventive concept of the present utility model, any equivalent structural transformation made by using the contents of the specification and drawings of the present utility model, or direct or indirect application in other related technical fields, shall be included in the patent protection scope of the present utility model.

## Claims

1. A gas-fired clothes dryer with switchable smoke exhaust port positions, characterized in that it comprises:

a main body (1), wherein a drum (2) with a front opening is rotatably connected inside the main body (1), a gas-fired unit (3) is disposed below the drum (2), the gas-fired unit (3) is used for delivering hot smoke to the inside of the drum (2), an air exhaust device (4) in communication with the drum (2) is disposed at the rear of the drum (2), a smoke exhaust duct (5) in communication with the air exhaust device (4) is disposed above the air exhaust device (4), several smoke exhaust ports (51) in communication with the smoke exhaust duct (5) are disposed on the smoke exhaust duct (5), and the smoke exhaust ports (51) are used for being in communication with a smoke exhaust pipe (6) in communication with the outside.

2. The gas-fired clothes dryer with switchable smoke exhaust port positions according to claim 1, characterized in that

the smoke exhaust ports (51) are respectively disposed at the top and side ends of the smoke exhaust duct (5).

3. The gas-fired clothes dryer with switchable smoke exhaust port positions according to claim 2, characterized in that

sealing covers (52) are detachably connected to the smoke exhaust ports (51).

4. The gas-fired clothes dryer with switchable smoke exhaust port positions according to claim 3, characterized in that

the smoke exhaust duct (5) is arc-shaped.

5. The gas-fired clothes dryer with switchable smoke exhaust port positions according to claim 1, characterized in that

an air exhaust hole (21) in communication with the air exhaust device (4) is disposed at a rear side of the drum (2), the air exhaust device (4) comprises an air inlet (41) in communication with the air exhaust hole (21) and an air outlet (42) in communication with the smoke exhaust duct (5), and an impeller (43) is disposed at the air inlet (41), and a transmission shaft of the impeller (43) extends to an outer side of the air exhaust device (4); and

a rotating motor (7) is disposed below the drum (2), a first transmission belt (71) is further included, an end of the first transmission belt (71) is in transmission connection with the rotating motor (7), and the other end of the first transmission belt (71) is in transmission connection with the transmission shaft of the impeller (43).

6. The gas-fired clothes dryer with switchable smoke exhaust port positions according to claim

5, characterized in that

it further comprises a second transmission belt (72), wherein the second transmission belt (72) is sleeved on the drum (2), and the second transmission belt (72) is in transmission connection with the rotating motor (7).

7. The gas-fired clothes dryer with switchable smoke exhaust port positions according to claim 6, characterized in that

the gas-fired unit (3) comprises a gas channel (31), a burner grate (32) and a combustion chamber (33), a gas valve (34) is disposed on the gas channel (31), a gas inlet of the gas channel (31) is disposed at an outer side of the main body (1), a gas outlet of the gas channel (31) is in communication with the burner grate (32), the burner grate (32) is disposed inside the combustion chamber (33), and the combustion chamber (33) is in communication with the drum (2).