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(54) Intake controlling device of kitchen range hood

(57) An intake controlling device of a kitchen range hood effectively discharges heat and contaminated air effectively through a kitchen range hood and thus maintains an agreeable indoor environment. The intake controlling device of a kitchen range hood includes an inter-

cepting plate installed at a kitchen range hood; and a driving unit installed at the kitchen range hood and selectively moving the intercepting plate to an opening region of the intake of the kitchen range hood.

EP 1 669 679 A1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a kitchen range hood and, more particularly, to an intake controlling device of a kitchen range hood.

2. Description of the Conventional Art

[0002] In general, a kitchen range hood is installed at an upper side of a kitchen range, such as a gas range, an oven range, or the like, in order to exhaust heat, various kinds of smells, steam and gases such as CO₂ or the like generated according to imperfect combustion. The kitchen range hood exhausts a gas or contaminated air and prevents a bad smell.

[0003] Figure 1 is a side view showing a kitchen range hood installed at an upper side of a kitchen range in accordance with a conventional art.

[0004] Figure 2 is an enlarged perspective view of the kitchen range hood in accordance with the conventional art.

[0005] As shown in Figure 2, a conventional kitchen range hood 10 includes an exhaust duct 11; a blower 12 installed in the exhaust duct 11 and including a fan motor (not shown) and an exhaust fan (not shown); a hood cover 15 connected with the exhaust duct 11; and a filter 13 installed in the hood cover 15 and filtering a smell, dust or oil in the air sucked through the intake 14 of the hood cover 15.

[0006] The kitchen range hood 10 is installed spaced apart with a certain interval at an upper side of the kitchen range 20. The exhaust duct 11 discharges externally air sucked through the intake 14.

[0007] However, as for the conventional kitchen range hood 10, because the entire region of the intake 14 is formed smaller than a cooking region of the kitchen range 20, it fails to discharge externally heat and contaminated air generated during a cooking process entirely.

[0008] For example, the conventional kitchen range hood 10 cannot discharge externally the whole of heat and contaminated air generated when cooking by using a front gas burner of the kitchen range 20, so a portion of the heat and contaminated air spreads toward a user positioned in front of the kitchen range hood 10, making the user feel uncomfortable.

[0009] In addition, since the portion of the heat and contaminated air, that has not been discharged externally, remains indoors, the indoor environment is not maintained agreeably.

SUMMARY OF THE INVENTION

[0010] Therefore, an object of the present invention is to provide an intake controlling device of a kitchen range

hood capable of effectively discharging heat and contaminated air effectively through a kitchen range hood and thus maintaining an agreeable indoor environment.

[0011] To achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described herein, there is provided an intake controlling device of a kitchen range hood including: an intercepting plate installed at a kitchen range hood; and a driving unit installed at the kitchen range hood and selectively moving the intercepting plate to an opening region of the intake of the kitchen range hood.

[0012] To achieve the above object, there is also provided a kitchen range hood including: an exhaust duct; a blower installed in the exhaust duct and including a fan motor and an exhaust fan; a hood cover connected with the exhaust duct; a filter installed in the hood cover and filtering air sucked through an intake of the hood cover; and an intake controlling device installed at the hood cover and selectively opening or blocking opening regions of the intake.

[0013] To achieve the above object, there is also provided an intake controlling device of a kitchen range hood including: an intercepting plate installed at a kitchen range hood; sensors installed at the kitchen range hood, sensing a current cooking position of the kitchen range and generating a sense signal; a motor driving unit for generating a motor drive signal for automatically moving the intercepting plate to a specific region of an intake of the kitchen range hood according to the sense signal; and a motor for moving the intercepting plate to a specific region of the intake according to the motor drive signal in order to block the specific region of the intake.

[0014] The foregoing and other objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of the present invention when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

[0016] In the drawings:

Figure 1 is a side view showing a kitchen range hood installed at an upper side of a kitchen range in accordance with a conventional art;

Figure 2 is an enlarged perspective view showing the structure of the kitchen range hood in accordance with the conventional art;

Figure 3 is a side view showing the construction of the kitchen range hood in accordance with the present invention;

Figure 4 shows a detailed construction of an intake controlling device of a kitchen range hood in accordance with a first embodiment of the present invention;

Figure 5 is a circuit diagram showing a detailed construction of a driving unit of the intake controlling device in accordance with the first embodiment of the present invention;

Figure 6 shows a detailed construction of an intake controlling device of a kitchen range hood in accordance with a second embodiment of the present invention;

Figure 7 is a circuit diagram of a controller of the intake controlling device in accordance with the second embodiment of the present invention; and

Figure 8 is a truth table indicating an output value of the controller of the intake controlling device in accordance with the second embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] An intake controlling device of a kitchen range hood capable of effectively discharging heat of a kitchen range hood and contaminated air and maintaining an agreeable indoor environment in accordance with preferred embodiments of the present invention with reference to Figures 3 to 8.

[0018] Figure 3 is a side view showing the construction of the kitchen range hood in accordance with the present invention.

[0019] With reference to Figure 3, the kitchen range hood 10 includes an exhaust duct 11; a blower 12 installed inside the exhaust duct 11 and including the fan motor (not shown) and an exhaust fan (not shown); a hood cover 15 connected with the exhaust duct 11; a filter 13 installed in the hood cover 15 and filtering a small and oil in the air sucked through an intake 14 of the hood cover 15; and an intake controlling device 100 installed at the hood cover 15 and selectively blocking opening regions of the intake 14.

[0020] The intake controlling device 100 in accordance with the first embodiment of the present invention will now be described with reference to Figure 4.

[0021] Figure 4 shows a detailed construction of an intake controlling device of a kitchen range hood in accordance with a first embodiment of the present invention.

[0022] As shown in Figure 4, the intake controlling device 100 includes an interception plate 102 installed at the hood cover 15 and selectively blocking a specific region (e.g., one of a first opening region, a second region and a central region) of the intake 14; a motor driving unit 103 for generating a motor drive signal for moving the interception plate 102 to the specific region of the intake 14 according to user's selection; and a motor 101 for moving the interception plate 102 to a specific region of

the intake 14 according to the motor drive signal in order to block the specific region of the intake 14.

[0023] By blocking the first or second opening region of the intake 14, an uptake rate of the opening region is increased. For example, when the first opening region of the intake 14 installed at an upper side of the front gas burner 21 is opened and the second opening region of the intake 14 installed at an upper side of a back gas burner 22 is blocked, air is sucked only through the first opening region, making the uptake rate of the kitchen range hood is increased. Thus, because heat and contaminated air generated when cooking by using a gas burner (e.g., the front gas burner) of the kitchen range 20 can be discharged only through the first opening region of the kitchen range hood, the indoor environment can be agreeably maintained.

[0024] Meanwhile, when the second opening region of the intake 14 installed at the upper side of the back gas burner 22 is opened and the first opening region of the intake 14 installed at the upper side of the front gas burner 21 is blocked, air is sucked only through the second opening region, so the uptake rate of the kitchen range hood is increased. Accordingly, heat and contaminated air generated when cooking by using the gas burner 22 (e.g., back gas burner) of the kitchen range 20 are discharged only through the second opening region of the kitchen range hood and thus, the indoor environment can be agreeably maintained.

[0025] The central region is an in-between region of the first and second opening regions.

[0026] Moving the interception plate 102 to a specific region (e.g., one of the first and second regions and the central region) can be implemented in a variable manner according to user's selection.

[0027] An embodiment of the driving unit will be described with reference to Figure 5.

[0028] Figure 5 is a circuit diagram showing a detailed construction of a driving unit of the intake controlling device in accordance with the first embodiment of the present invention.

[0029] As shown in Figure 5, the motor driving unit 103 includes: a user switch (US) for generating a switching signal for moving the interception plate 102 to a specific region (one of the first and second opening regions and the central region) of the intake 14; a front limit switch (SF) for receiving the switching signal of the US, and cutting off power supply to the motor 101 when the interception plate 102 is sensed, in order to move the interception plate 102 to the first opening region of the intake 14; a center limit switch (SC) for receiving the switching signal of the US, and cutting off power supply to the motor 101 when the interception plate 102 is sensed, in order to move the interception plate 102 to the central opening region of the intake 14; and a back limit switch (SB) for receiving the switching signal of the US, and cutting off power supply to the motor 101 when the interception plate 102 is sensed, in order to move the interception plate 102 to the second opening region of the intake 14.

[0030] The motor 101 is driven when the US and the SF are simultaneously turned on, when the US and the SC are simultaneously turned on, or when the US and the SB are simultaneously turned on.

[0031] The intake controlling device of the kitchen range hood in accordance with the first embodiment of the present invention will now be described with reference to Figures 3 to 5. ,

[0032] First, when the US is selected by a user, the motor driving unit 103 moves the interception plate 102 to a specific region of the intake 14 by controlling the motor 101. In this case, the position of the interception plate 102 is determined by the user.

[0033] For example, when a terminal 'F' of the US is selected in order to block the first opening region of the intake 14, power is applied to the motor 101 through the front limit switch (SF) electrically connected with the terminal 'F' of the user switch (US), and the motor 101 is driven by power and moves the interception plate 102 to the first opening region. When the interception plate 102 comes in contact with the front limit switch SF, the SF cuts off power supply to the motor 101. Namely, when the SF contacts with the interception plate 102, the SF is turned off to cut off power applied to the motor 101, and accordingly, the interception plate 102 is stopped at the first opening region of the intake 14 to block it.

[0034] When the user selects a terminal 'C' of the user switch in order to block the central region of the intake 14, power is applied to the motor 101 through the center limit switch (SC) electrically connected with the terminal 'C' and the motor 101 is driven by power and moves the interception plate 102 to the central region. At this time, when the interception plate 102 comes in contact with the center limit switch SC, the SC cuts off power supply to the motor 101. Namely, when the center limit switch SC contacts with the interception plate 102, the SC is turned off to cut off power supply to the motor 101, and accordingly, the interception plate 102 is stopped at the central region of the intake 14 to block it.

[0035] When the user selects a terminal 'B' of the US in order to block the second opening region of the intake 14, power is applied to the motor 101 through the back limit switch SB electrically connected with the terminal 'B' and the motor 101 is driven by power to move the interception plate 102 to the second opening region. At this time, when the interception plate 102 comes in contact with the back limit switch SB, the SB cuts off power supply to the motor 101. Namely, when the SB contacts with the interception plate 102, it cuts off power supply to the motor 101, and accordingly, the interception plate 102 is stopped at the second opening region of the intake 14 to block it.

[0036] In this manner, the intake controlling device of the kitchen range hood in accordance with the first embodiment of the present invention freely moves the interception plate to the first opening region, the central region and the second opening region of the intake to increase the uptake rate of the kitchen range hood and thus, com-

pletely discharge heat, contaminated air and gases to outside.

[0037] Preferably, the front limit switch SF is fixedly installed at the left side of the intake controlling device, the center limit switch SC is fixedly installed at the center of the intake controlling device and the back limit switch SB is fixedly installed at the right side of the intake controlling device.

[0038] An intake controlling device capable of completely discharge heat, contaminated gases to outside by increasing the uptake rate of the kitchen range hood by automatically moving the interception plate 102 to one of the first opening region, the central region and the second opening region according to a burner used in the kitchen range, rather than depending on user's selection, in accordance with the second embodiment of the present invention will now be described in detail with reference to Figures 6 to 8.

[0039] Figure 6 shows a detailed construction of an intake controlling device of a kitchen range hood in accordance with a second embodiment of the present invention.

[0040] As shown in Figure 6, an intake controlling device in accordance with the second embodiment of the present invention includes: an interception plate 102 installed at a hood cover 15 and selectively blocking opening regions of an intake 14; sensors 202 and 203 for sensing a current cooking position (e.g., the front burner 21) of the kitchen range 20 and generating a sense signal; a motor driving unit 201 for generating a motor drive signal for automatically moving the interception plate 102 to a specific region (e.g., the second opening region) of the intake 14 according to the sense signal; and a motor 101 for moving the interception plate 102 to a specific region (e.g., the second opening region) of the intake 14 according to the motor drive signal in order to block the specific region (e.g., the first opening region is opened and the second opening region is blocked) of the intake 14.

[0041] Sensing of the current cooking position of the kitchen range 20 can be implemented in various manners. For example, the first temperature sensor 202 is installed corresponding to an upper portion of the front burner 21 of the kitchen range 20, senses a temperature of the front burner 21, and outputs a first temperatures sense signal, and the second temperature sensor 203 is installed corresponding to an upper position of the back burner 22 of the kitchen range 20, senses a temperature of the back burner 22 and outputs a second temperature sense signal. Herein, preferably, an infrared sensor for sensing heat and steam generated from the kitchen range 20 is used as the first and second temperature sensors 202 and 203.

[0042] When the motor driving unit 201 receives the first temperature sense signal, it moves the interception plate 102 to the second opening region. When the motor driving unit 201 receives the second temperature sense signal, it moves the interception plate 102 to the first

opening region. When the motor driving unit 201 receives both first and second temperature sense signals, it moves the interception plate 102 to the central opening region.

[0043] A controller for logically operating the first temperature sense signal, the second temperature sense signal, a switching signal of the front limit switch and a switching signal of the back limit switch and controlling the interception plate 102 can be added to the motor driving unit 201.

[0044] The construction of the controller for logically operating the first temperature sense signal (IF), the second temperature sense signal (IB), a switching signal of the front limit switch (a first interception sense signal (SF1)) and a switching signal of the back limit switch (a second interception sense signal (SB1)) and controlling the interception plate 102 will be described in detail with reference to Figure 7.

[0045] Figure 7 is a circuit diagram of a controller of the intake controlling device in accordance with the second embodiment of the present invention.

[0046] With reference to Figure 7, the controller includes: a first inverter IN1 for inverting the first interception sense signal (SF1); a first AND gate (AN1) for ANDing an output signal of the first inverter (IN1) and the second temperature sense signal (IB) of the second temperature sensor 203; a second inverter IN2 for inverting the second interception sense signal (SB1); a second AND gate (AN2) for ANDing an output signal of the second inverter IN2 and the first temperature sense signal (IF) of the first temperature sensor 202; a third inverter for inverting the second temperature sense signal (IB); a fourth inverter IN4 for inverting the first temperature sense signal (IF); a third AND gate (AN3) for ANDing an output signal of the third inverter IN3 and the first temperature sense signal (IF); a fourth AND gate (AN4) for ANDing an output signal of the fourth inverter (IN4) and the second temperature sense signal (IB); a first OR gate (OR1) for ORing an output signal of the third AND gate (AN3) and an output signal of the fourth AND gate (AN4); a second OR gate (OR2) for ORing an output signal of the first AND gate (AN1) and an output signal of the second AND gate (AN2); a fifth AND gate (AN5) for ANDing an output signal of the first OR gate (OR1) and an output signal of the second OR gate (OR2); and a motor control switch (MS) for outputting a motor drive signal to the motor 101 according to an output signal of the fifth AND gate (AN5).

[0047] When the motor control switch (MS) receives an output signal '1' from the fifth AND gate (AN5), it applies power to the motor 101. When the motor control switch (MS) receives an output signal '0' from the fifth AND gate (AN5), it cuts off power supply to the motor 101.

[0048] The operation of the controller of the intake controlling device 200 will be described in detail with reference to Figures 7 and 8.

[0049] Figure 8 is a truth table indicating an output value of the controller of the intake controlling device in ac-

cordance with the second embodiment of the present invention.

[0050] When a user is cooking only with the front burner 21 of the kitchen range 20, the first temperature sensor 202 senses heat or steam generated during cooking and outputs a first temperature sense signal as '1'. In this case, the second temperature sensor 203 installed at an upper side of the back burner 22 of the kitchen range 20 does not sense heat and outputs a second temperature sense signal as '0'. At this time, when the interception plate 102 is sensed, the front limit switch (SF) outputs a first interception sense signal as '1', and if the interception plate 102 is not sensed, the front limit switch (SF) outputs the second interception sense signal as '0'.

[0051] The controller receives the first and second temperature sense signals IF and IB and the first and second interception sense signals SF1 and SB1, logically operates them, and outputs a motor drive signal to the motor 1.

[0052] For example, the first inverter IN1 inverts the first interception signal SF1 to output an output signal '1', and the first AND gate AN1 ANDs the first interception sense signal SF1 outputted from the first inverter IN1 and the temperature sense signal IB and outputs an output signal '0'.

[0053] The second inverter IN2 inverts the second interception sense signal SB1 to output an output signal '1' and the second AND gate AN2 ANDs the second interception sense signal SB1 outputted from the second inverter IN2 and the first temperature sense signal IF and outputs an output signal '1'.

[0054] The third AND gate AN3 ANDs the second temperature sense signal '1' inputted after being inverted in the third inverter IN3 and the first temperature sense signal '1', and outputs an output signal '1'.

[0055] The fourth AND gate AN4 ANDs the first temperature sense signal '0' inputted after being inverted in the fourth inverter IN4 and the second temperature sense signal '0', and outputs an output signal '0'.

[0056] The first OR gate OR1 ORs output signals of the third AND gate AN3 and the fourth AND gate AN4 and outputs an output signal '1'.

[0057] The second OR gate OR2 ORs output signals of the first AND gate AN1 and the second AND gate AN2, and outputs an output signal '1'.

[0058] The fifth AND gate AN5 ANDs output signals of the first and second OR gates OR1 and OR2, and outputs an output signal '1' to the motor control switch MS. Then, the motor control signal MS applies power to the motor 101 according to the output signal '1' of the fifth AND gate AN5.

[0059] When the interception plate 102 is sensed by the back limit switch (SB) and the second interception sense signal '1' is outputted, the second AND gate AN2 outputs an output signal '0'. The second OR gate OR2 ORs the output signal '0' outputted from the first AND gate AN1 and the output signal '0' outputted from the second AND gate AN2, and outputs an output signal '0'.

Then, the fifth AND gate AN5 outputs the output signal '0' to the motor control switch MS. Accordingly, the motor control switch MS cuts off power supply to the motor 101 according to the output signal '0' of the fifth AND gate AN5.

[0060] When the controller receives the first temperature sense signal '1' and the second temperature sense signal '1', it stops the motor 101 at the central region of the intake 14 in order to open both the first and second opening regions. Herein, the interception plate 102 of the intake controlling device is initially positioned at the central region.

[0061] As so far described, the intake controlling device of the kitchen range hood of the present invention has many advantages.

[0062] That is, for example, the opening regions of the intake of the kitchen range hood are selectively opened and blocked according to a position where a smell and steam is generated during a cooking process, to thereby increase the uptake rate. Accordingly, performance of discharging heat and contaminated air of the kitchen range hood can be maximized, and thus, an indoor environment can be maintained to be agreeable.

[0063] As the present invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, it should also be understood that the above-described embodiments are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the metes and bounds of the claims, or equivalence of such metes and bounds are therefore intended to be embraced by the appended claims.

Claims

1. An intake controlling device of a kitchen range hood comprising:

an intercepting plate installed at a kitchen range hood; and
a driving unit installed at the kitchen range hood and selectively moving the intercepting plate to an opening region of an intake of the kitchen range hood.

2. The device of claim 1, wherein the interception plate blocks one of a first opening region, a central region and a second opening region of the intake of the kitchen range hood.

3. The device of claim 2, wherein the driving unit comprises:

a motor driving unit for generating a motor drive signal for moving the interception plate to one

of the first opening region, the central region and the second opening region according to user's selection; and

a motor for moving the interception plate to one of the first opening region, the central region and the second opening region based on the motor drive signal,

wherein the central region is an in-between region between the first and second opening regions.

4. The device of claim 3, wherein the motor driving unit comprises:

a user switch for generating a switching signal for moving the interception plate to one of the first and second opening regions and the central region of the intake;

a front limit switch for receiving the switching signal of the user switch, and cutting off power supply to the motor when the interception plate is sensed, in order to position the interception plate at the first opening region of the intake;

a center limit switch for receiving the switching signal of the user switch, and cutting off power supply to the motor when the interception plate is sensed, in order to position the interception plate at the central opening region of the intake; and

a back limit switch for receiving the switching signal of the user switch, and cutting off power supply to the motor when the interception plate is sensed, in order to position the interception plate at the second opening region of the intake.

5. The device of claim 4, wherein the motor is driven when the user switch and the front limit switch are simultaneously turned on, when the user switch and the center limit switch are simultaneously turned on, or when the user switch and the back limit switch are simultaneously turned on.

6. A kitchen range hood comprising:

an exhaust duct;

a blower installed in the exhaust duct and having a fan motor and an exhaust fan;

a hood cover connected with the exhaust duct; a filter installed in the hood cover and filtering air sucked through an intake of the hood cover; and

an intake controlling device installed at the hood cover and selectively opening or blocking opening regions of the intake.

7. The kitchen range hood of claim 6, wherein the intake controlling device comprises:

- an interception plate installed at the kitchen range hood; and
 a driving unit installed at the kitchen range hood and selectively moving the interception plate to the opening regions of the intake of the kitchen range hood.
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8. The kitchen range hood of claim 7, wherein the interception plate blocks one of a first opening region, a central region and a second opening region.
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9. The kitchen range hood of claim 8, wherein the driving unit comprises:
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- a motor driving unit for generating a motor drive signal for moving the interception plate to one of the first opening region, the central region and the second opening region according to user's selection; and
 a motor for moving the interception plate to one of the first opening region, the central region and the second opening region based on the motor drive signal.
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10. An intake controlling device of a kitchen range hood comprising:
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- an intercepting plate installed at a kitchen range hood;
 sensors installed at the kitchen range hood, sensing a current cooking position of the kitchen range and generating a sense signal;
 a motor driving unit for generating a motor drive signal for automatically moving the intercepting plate to a specific region of an intake of the kitchen range hood according to the sense signal; and
 a motor for moving the intercepting plate to a specific region of the intake according to the motor drive signal in order to block the specific region of the intake.
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- 50
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11. The device of claim 10, wherein the specific region is one of the first opening region, the central region and the second opening region, and the central region is an in-between region between the first and second opening regions.
12. The device of claim 11, wherein the sensors comprises:
- a first temperature sensor installed corresponding to an upper position of a first burner of the kitchen range, sensing a temperature of the first burner, and outputting a first temperature sense signal; and
 a second temperature sensor installed corresponding to an upper portion of a second burner
- of the kitchen range, sensing a temperature of the second burner, and outputting a second temperature sense signal,
- wherein the first opening region is positioned corresponding to the upper position of the first burner and the second opening region is positioned corresponding to the upper position of the second burner.
13. The device of claim 12, wherein the motor driving unit moves the interception plate to the second opening region when the first temperature sense signal is received, moves the interception plate to the first opening region when the second temperature sense signal is received, and moves the interception plate to the central region when both first and second temperature sense signals are received.
14. The device of claim 12, wherein the first and second temperature sensors are infrared sensors.
15. The device of claim 13, wherein the motor driving unit comprises:
- a front limit switch for generating a first interception sense signal when the interception plate is sensed, in order to cut off power supply to the motor to thereby position the interception plate at the first opening region of the intake; and
 a back limit switch for generating a second interception sense signal when the interception plate is sensed, in order to cut off power supply to the motor to thereby position the interception plate at the second opening region of the intake.
16. The device of claim 15, further comprising:
- a first inverter IN1 for inverting the first interception sense signal;
 a first AND gate for ANDing an output signal of the first inverter and the second temperature sense signal of the second temperature sensor;
 a second inverter for inverting the second interception sense signal;
 a second AND gate for ANDing an output signal of the second inverter and the first temperature sense signal of the first temperature sensor;
 a third inverter for inverting the second temperature sense signal;
 a fourth inverter for inverting the first temperature sense signal;
 a third AND gate for ANDing an output signal of the third inverter and the first temperature sense signal;
 a fourth AND gate for ANDing an output signal of the fourth inverter and the second temperature sense signal;
 a first OR gate for ORing an output signal of the

third AND gate and an output signal of the fourth AND gate;

a second OR gate for ORing an output signal of the first AND gate and an output signal of the second AND gate;

a fifth AND gate for ANDing an output signal of the first OR gate and an output signal of the second OR gate; and

a motor control switch for applying power to the motor or cutting off power supply to the motor according to an output signal of the fifth AND gate.

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FIG. 1

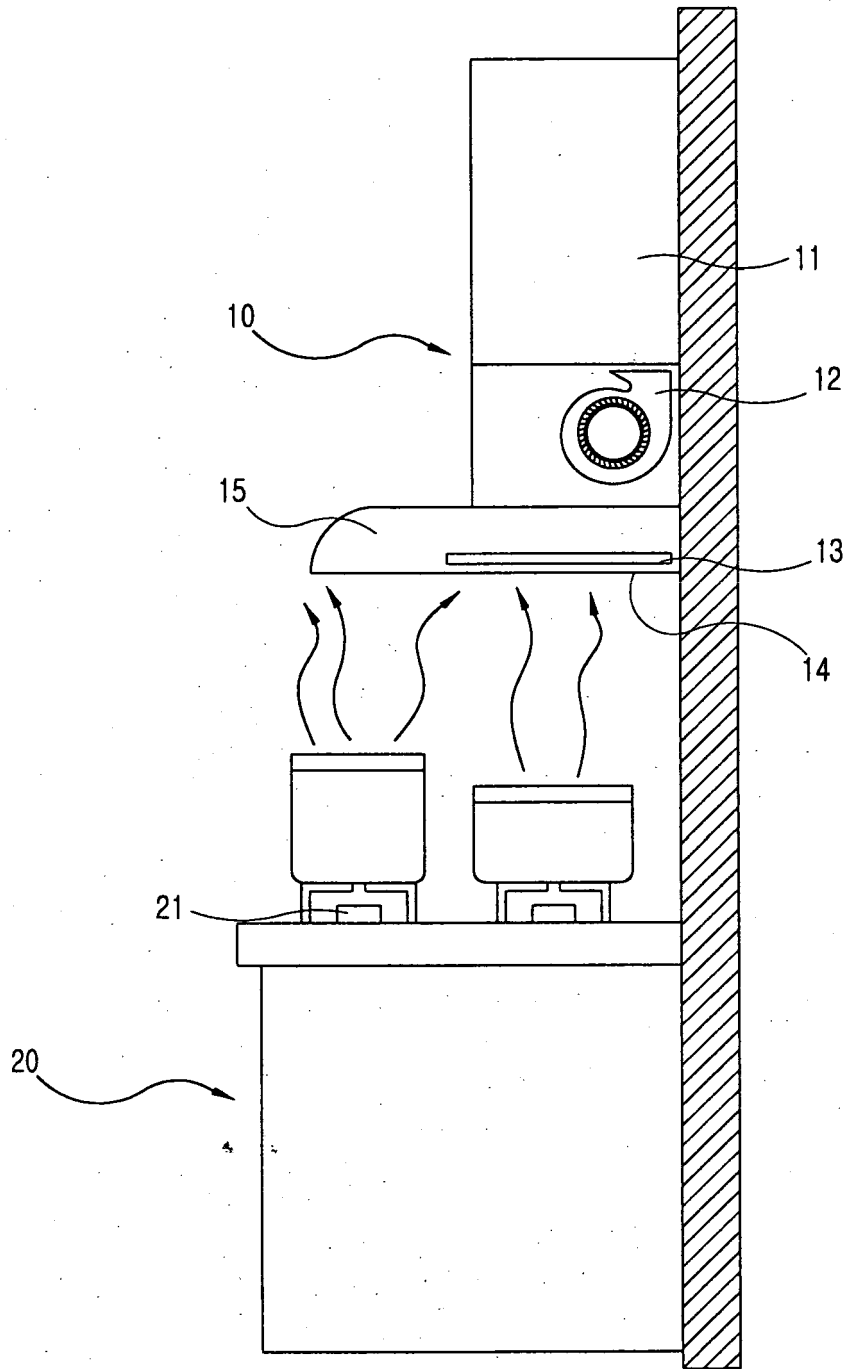


FIG. 2

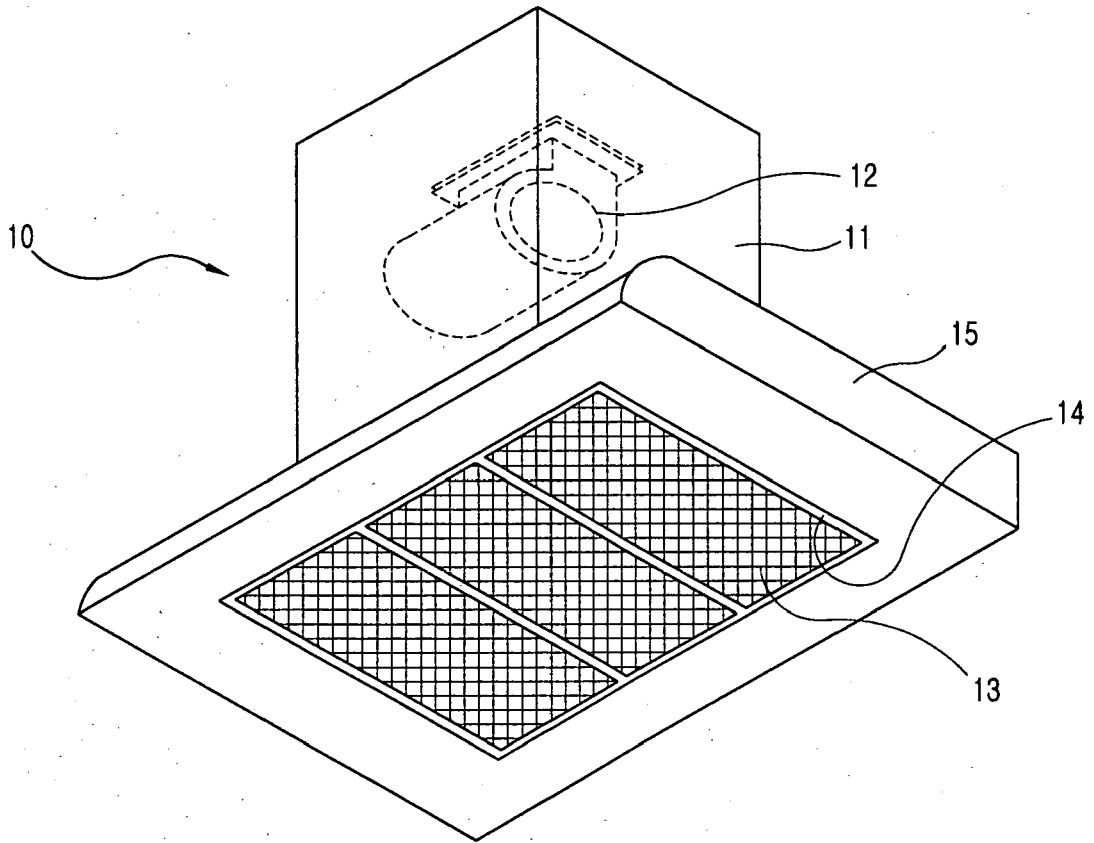


FIG. 3

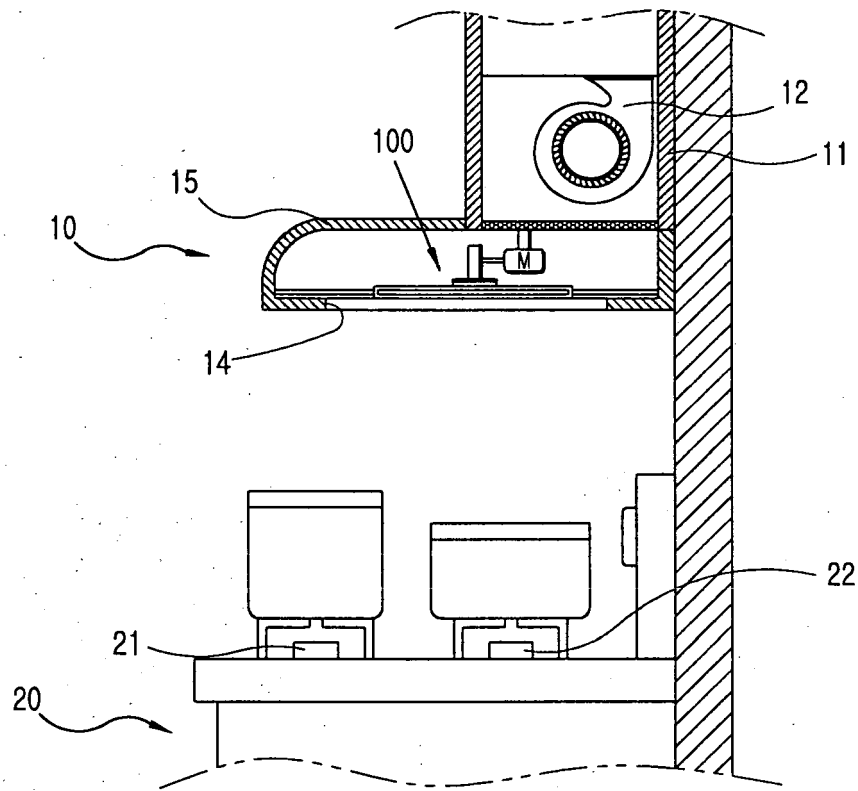


FIG. 4

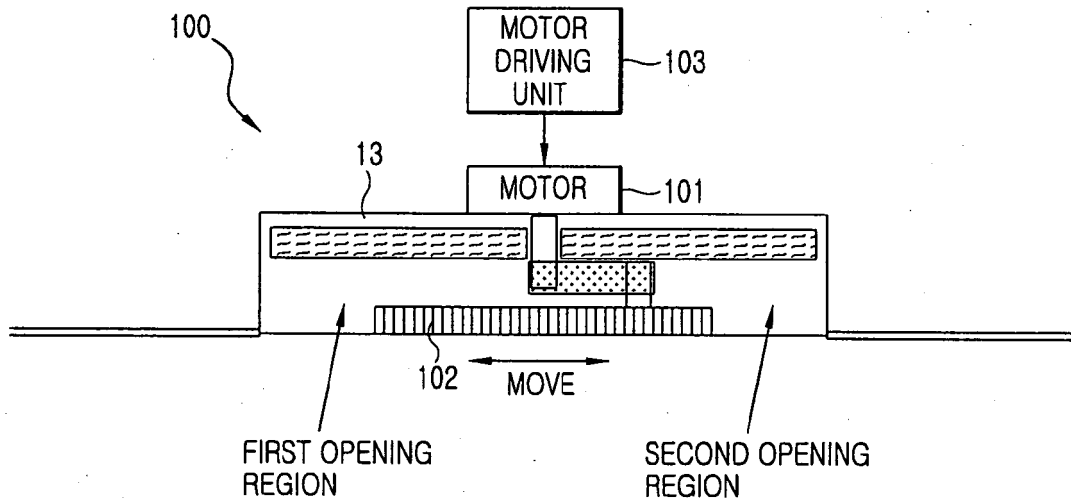


FIG. 5

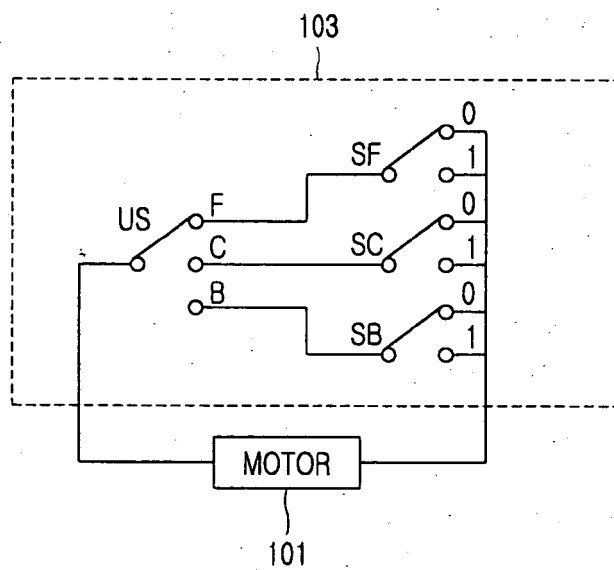


FIG. 6

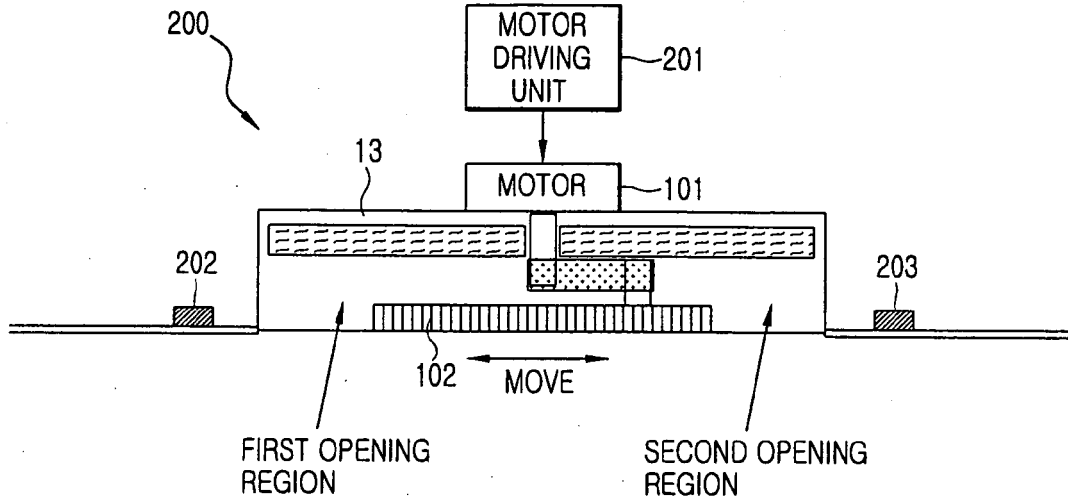


FIG. 7

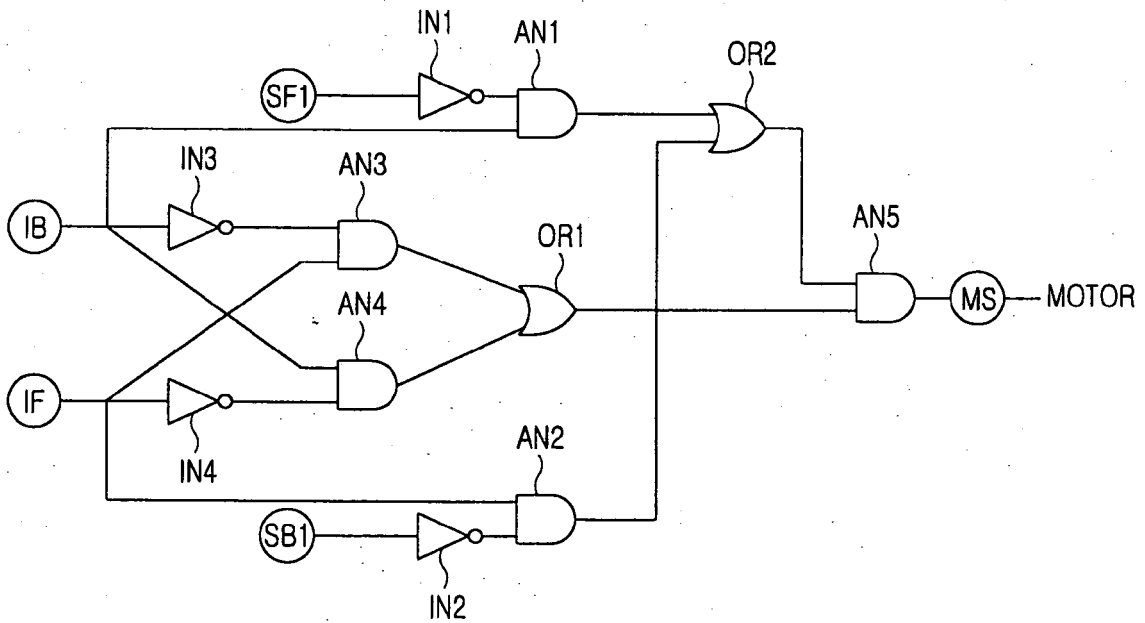


FIG. 8

	OPERATION OF FRONT BURNER			OPERATION OF BACK BURNER			OPERATION OF FRONT AND BACK BURNERS	
IF	1	1	1	0	0	0	1	0
IB	0	0	0	1	1	1	1	0
SF	0	1	0	0	0	1		
SB	0	0	1	0	1	0		
MS	1	1	0	1	1	0	0	0



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Place of search The Hague		Date of completion of the search 3 April 2006	Examiner Vanheusden, J
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