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(54) **MULTIPLE FUNCTION ELECTRIC OVEN**

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(57) **ABSTRACT**

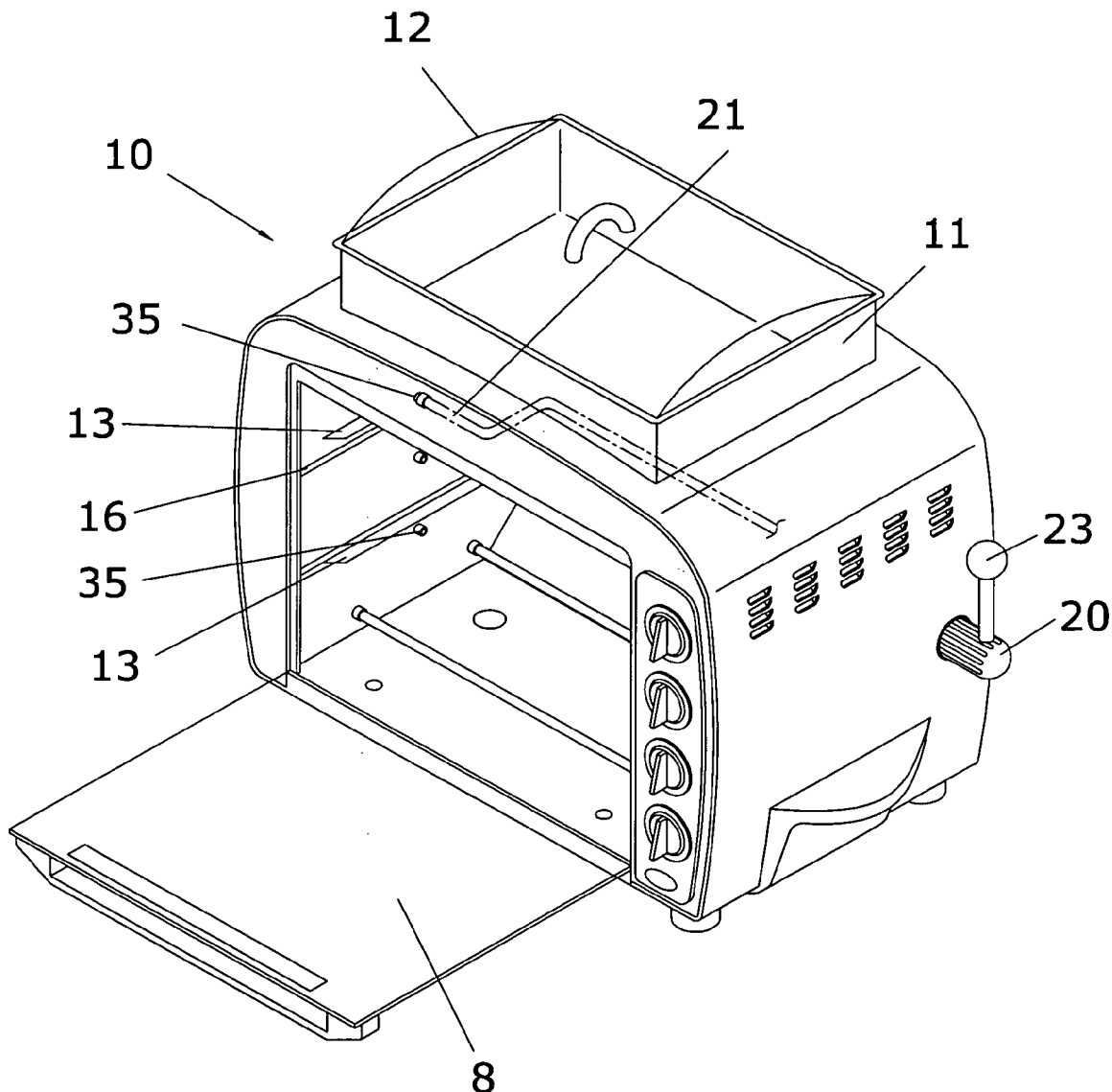
An electric oven includes a rectangular body, a top heat tube and a bottom heat tube are located in the body of the oven. A rotatable heating member is located at a mediate portion of the body and has a rotatable heat tube which is driven by a motor and an operation lever. The rotatable heat tube is rotatable when operating the motor or the operation lever. Two limit switches are located in the body at a horizontal position and an upright position, the limit switches are activated by the operation lever when adjusting the rotatable heat tube. When the rotatable heat tube is located at the upright position, the limit switch at the upright position is activate to stop the motor and activate the rotatable heat tube, so that a large piece of food can be baked in the oven.

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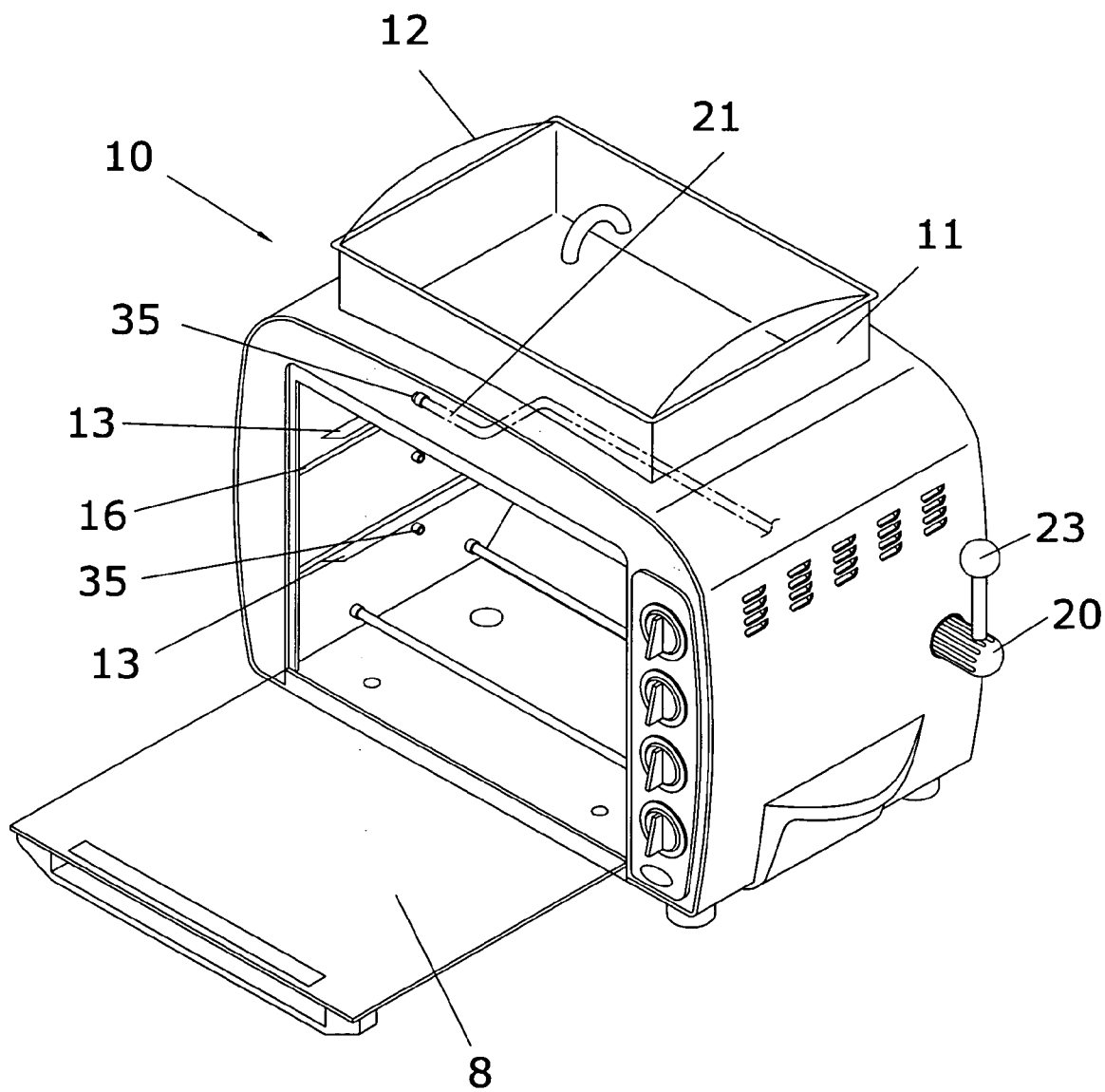


FIG. 1

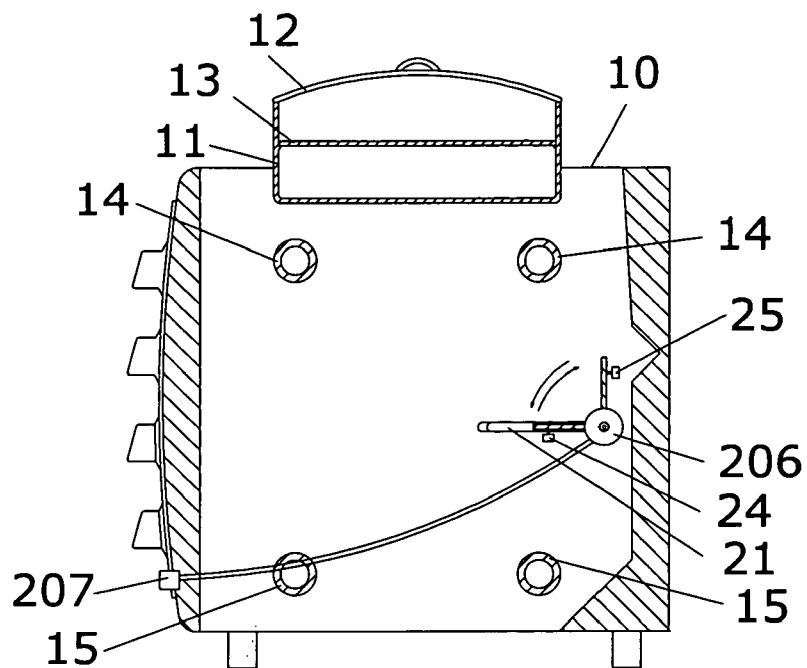


FIG. 2

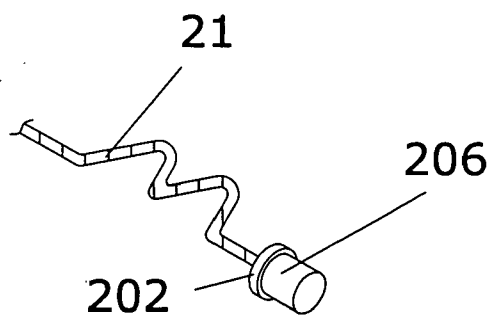


FIG. 3



FIG. 4

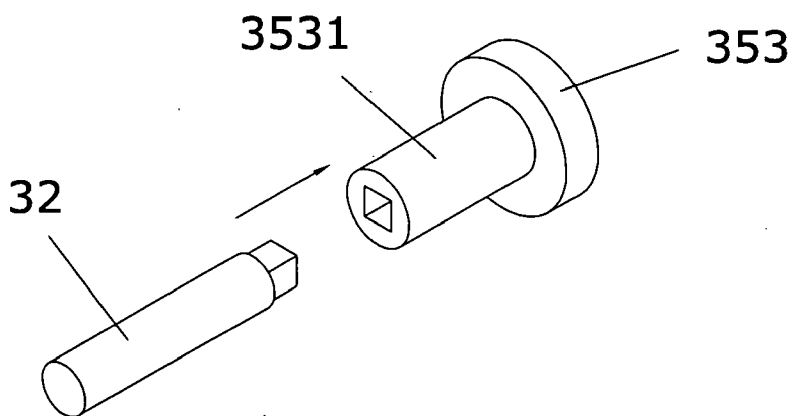


FIG. 5

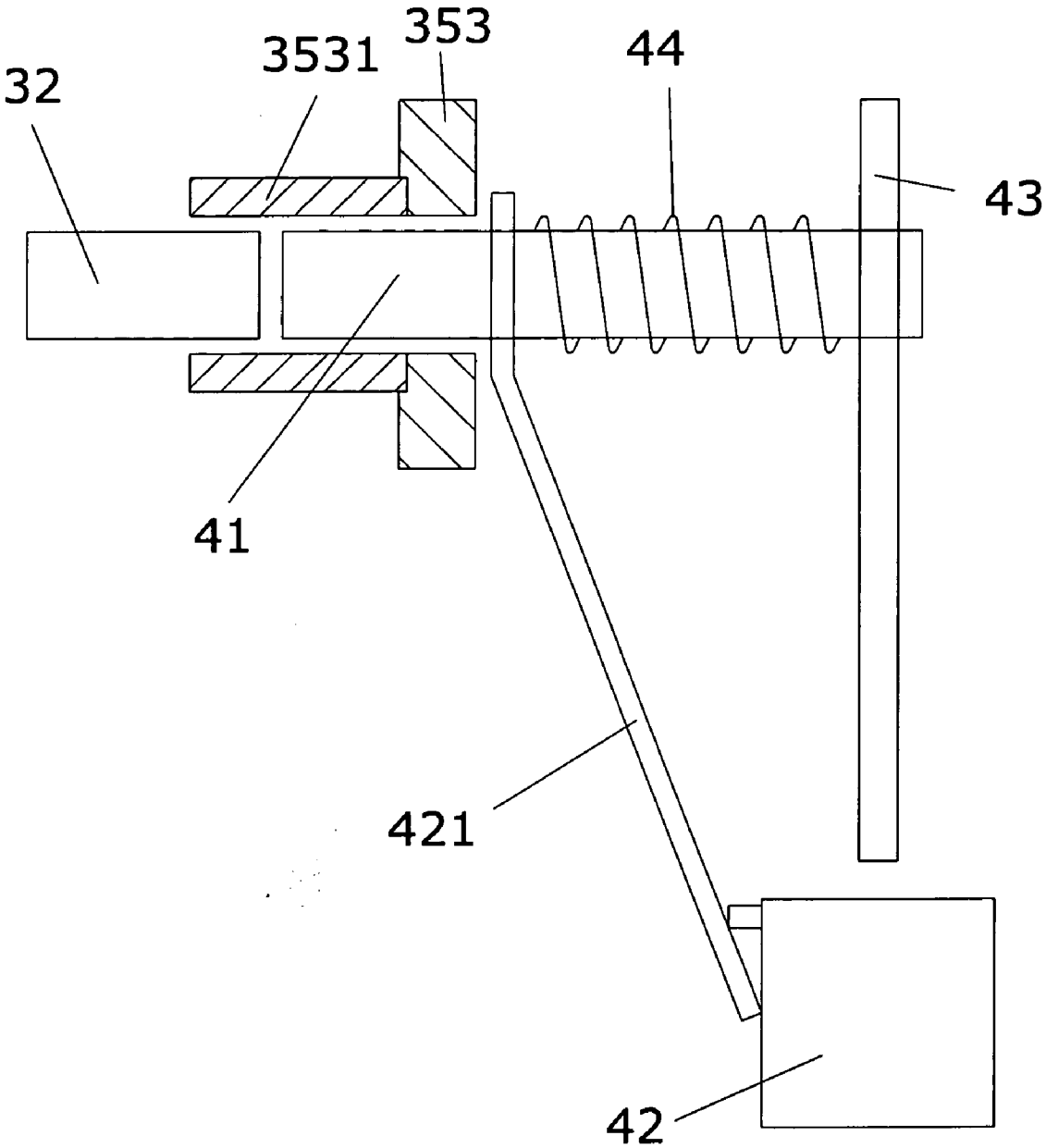


FIG. 6

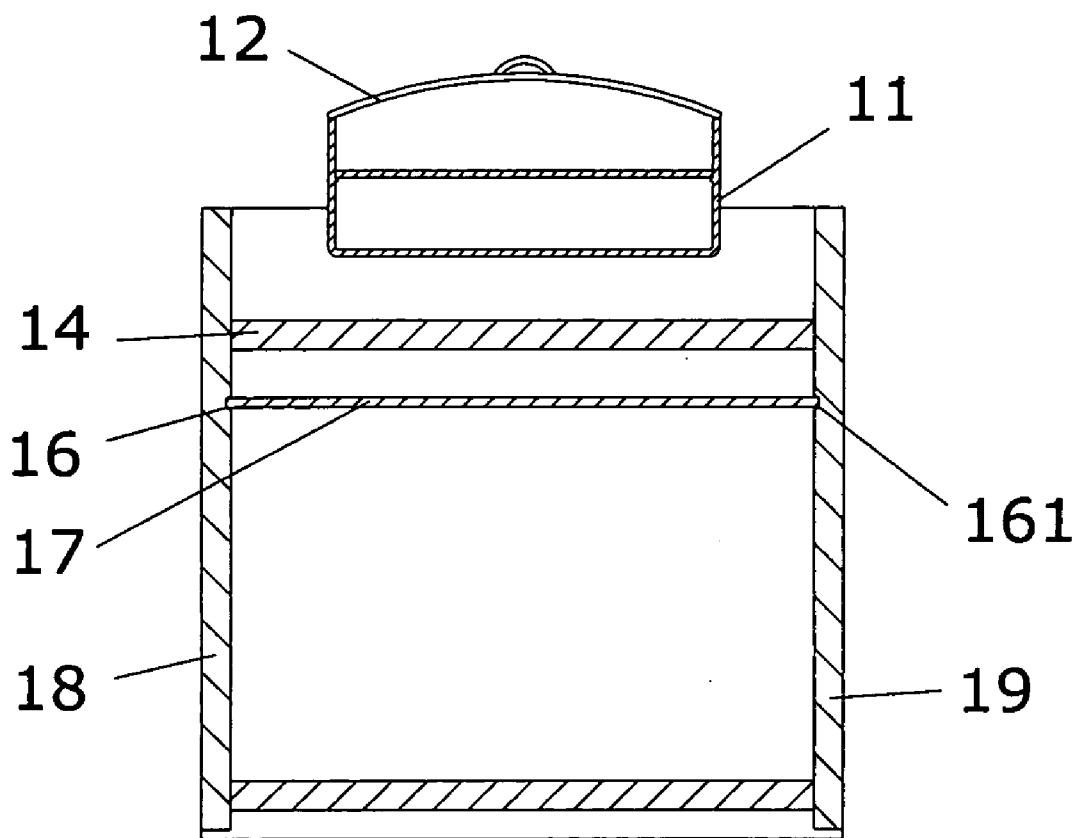


FIG. 7

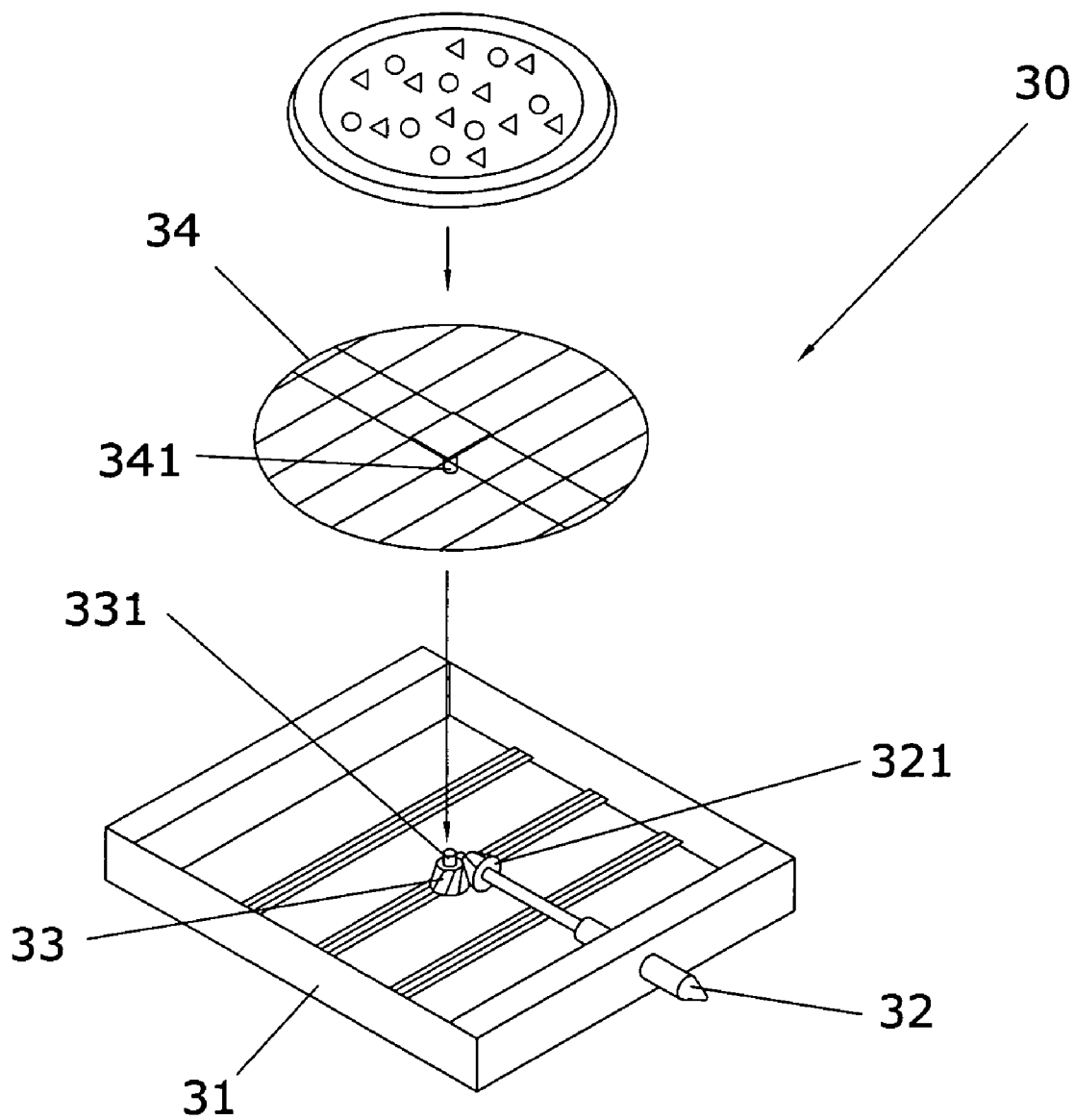


FIG. 8

MULTIPLE FUNCTION ELECTRIC OVEN

BACKGROUND OF THE INVENTION

[0001] (1) Field of the Invention

[0002] The present invention relates to an electric oven and more particularly, to an electric oven with multiple functions and includes a rotatable heat tube.

[0003] (2) Description of the Prior Art

[0004] A conventional electric oven generally includes a top heat tube and a bottom heat tube, and food is put on a rack in the oven so as to be baked by the two heat tubes. An inherent problem for the conventional oven is that the food cannot be heated evenly because there is no heat tube located at the mediate portion in the oven.

[0005] The present invention intends to provide an electric oven having a rotatable heat tube located at the mediate portion in the oven and the rotatable heat tube can be positioned at positions according practical needs so that the food can be evenly heated.

SUMMARY OF THE INVENTION

[0006] The present invention relates to an electric oven which comprises a body a top heat tube and a bottom heat tube located in the body of the oven. A rotatable heating member is located at a mediate portion of the body and has a rotatable heat tube which has one end extending through the body and connected with a driving unit. The driving unit is a motor and an operation lever. A rotary disk is connected to the rotatable heat tube so that the rotatable heat tube is rotatable with the rotary disk. Two limit switches are located in the body at an angular distance and activated by the operation lever so as to respectively activate the rotatable heat tube and stop the motor.

[0007] The primary object of the present invention is to provide an electric oven that has a rotatable heat tube located at a mediate portion thereof so as to evenly heat the food in the oven.

[0008] Another object of the present invention is to provide an electric oven that has a rotatable heat tube located at a mediate portion thereof, the rotatable heat tube can be set at a horizontal position or an upright position, when the rotatable heat tube is set at the upright position, a large piece of food can be received in the oven and baked by the rotatable heat tube.

[0009] The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a perspective view to show the electric oven of the present invention;

[0011] FIG. 2 is a side cross sectional view to show the rotatable heat tube in the electric oven of the present invention;

[0012] FIG. 3 is a perspective view of the rotatable heat tube of the electric oven of the present invention;

[0013] FIG. 4 shows four gears are engaged with each other and connected with motors;

[0014] FIG. 5 is an exploded view to show the gear with a connection tube and a shaft from the baking member is to be connected with the connection tube;

[0015] FIG. 6 is a partial cross sectional view to show the rod cooperated with the gear and a connection plate on the rod so as to activate the limit switch;

[0016] FIG. 7 is a cross sectional view to show the oven with the debris collection tray in the oven, and

[0017] FIG. 8 is an exploded view to show the baking member used in the electric oven of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] Referring to FIGS. 1 to 3, the electric oven 10 of the present invention comprises a rectangular body with an interior space defined therein and a door 8 is pivotably connected to an open side of the body. A control panel is located at the front side of the oven 10. A top heat tube 14 and a bottom heat tube 15 are located in the body of the oven 10 and connected between the left sidewall 18 and the right sidewall 19 (FIG. 7) of the body. A top opening is defined through a top of the body and located above the top heat tube 14. A griddle 11 is engaged with the top opening and a cover 12 is mounted onto the griddle 11. The griddle 11 can cook food by using the top heat tube 14. Two support plates 13 are connected to the left and right sidewalls 18, 19 and two grooves 16, 161 (FIG. 7) are defined in the left and right sidewalls 18, 19.

[0019] A rotatable heating member 20 is located at a mediate portion of the body and includes a rotatable heat tube 21 which has one end extending through the body and connected with a driving unit. The driving unit is a motor 206 and an operation lever 23, the user can use either of the motor 206 or the operation lever 23 as needed. A rotary disk 203 is connected to the rotatable heat tube 21 so that the rotatable heat tube 21 is rotatable with the rotary disk 203. The rotatable heat tube 21 includes multiple bent sections so that the rotatable heat tube 21 is an M-shaped heat tube. Two limit switches 24, 25 are located in the body at an angular distance such as a 90 degrees angle is located between the two limit switches 24, 25.

[0020] Referring to FIGS. 4 to 6, two motors 35 are connected to the left sidewall 18 and the right sidewall 19 of the body of the oven 10 and multiple gears 351-344 are connected to the two motors 35. Each gear 351-354 has a connection tube 3531 which has a connection hole. A baking member 30 is connected with the connection tube of one of the gears 351-354.

[0021] Referring to FIG. 8, the baking member 30, for example, includes a baking tray 31 and a shaft 32 extends from the baking tray 31 so as to be engaged with the connection hole of the connection tube of the gear. A first bevel gear 33 is located at a center of the baking tray 31 and a second bevel gear 321 is engaged with the first bevel gear 33 and connected to the shaft 32. A grid 34 includes a protrusion 341 extending from an underside thereof and the first bevel gear 33 includes a recess 331 in a top thereof, the protrusion 341 is engaged with the recess 331. The baking tray 31 is supported on the two support plates 13 on the left and right sidewalls 18, 19 of the body. When the shaft 32 is rotated by the gear 351/352/353/354, the second bevel gear 321 drives the first bevel gear 33 which rotates the grid 34 to let the food on the grid 34 to be evenly heated.

[0022] As shown in FIG. 6, the connection tube 3531 receives a first end of a rod 41 and a control plate 421 is connected to the rod 41 which is cooperated with a switch 42. A fixed plate 421 is connected to a second end of the rod 41. A spring 44 is mounted to the rod 41 and located between the

control plate 421 and the fixed plate 421. Therefore, when the shaft 32 is inserted into the connection hole of the connection tube 3531, the rod 41 is pushed and the connection plate 421 activates the limit switch 42 so that the motor 35 rotates the gear 353 to rotate the grid 34. When the shaft 32 is pulled out from the connection hole of the connection tube 3531, the spring 44 pushes the connection plate 421 together with the rod 41 so that the limit switch 42 is de-activated so that the motor 35 stops. In this embodiment, there are four gears 351-354 so that four baking members 30 can be respectively connected to the gears 351-354.

[0023] As shown in FIG. 7, when using the top heat tube 14 to cook food in the griddle 11, a debris connection tray 17 can be slidably engaged with the grooves 16, 161 to collect grease or debris.

[0024] Referring to FIG. 3 again, the two limit switches 24, 25 are located at a horizontal position and an upright position in the body. A control switch 207 is located on the control panel and controls the motor 206 to rotate the rotatable heat tube 21 clockwise or counter clockwise. When the rotatable heat tube 21 is rotated by either using the motor 206 or the operation lever 23 to the horizontal position, the limit switch 24 at the horizontal position is touched to stop the motor 206 and activate the rotatable heat tube 21. Similarly, when the rotatable heat tube 21 is rotated to the upright position, the limit switch 25 at the upright position is touched to stop the motor 206 and activate the rotatable heat tube 21. The heat tube 21 at the horizontal position can heat the food more even than the conventional oven with only top and bottom heat tubes. When the heat tube 21 is rotated to the upright position, the space is suitable to receive a large piece of food while the mediate portion of the food can be heated.

[0025] While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

What is claimed is:

1. An electric oven comprising:

a body with an interior space defined therein and a door is pivotably connected to an open side of the body, a top heat tube and a bottom heat tube located in the body of the oven, a rotatable heating member located at a mediate portion of the body and having a rotatable heat tube

which has one end extending through the body and connected with a driving unit, the driving unit being a motor and an operation lever, a rotary disk connected to the rotatable heat tube so that the rotatable heat tube is rotatable with the rotary disk, two limit switches located in the body at an angular distance and being activated by the operation lever so as to respectively activate the rotatable heat tube and stop the motor.

2. The oven as claimed in claim 1, wherein two motors are connected to the right sidewall and the left sidewall of the body of the oven and multiple gears are connected to the two motors, each gear has a connection tube which has a connection hole, a baking member has a shaft which is connected to the connection hole.

3. The oven as claimed in claim 2, wherein the baking member includes a baking tray and the shaft extends from the baking tray, a first bevel gear is located at a center of the baking tray and a second bevel gear is engaged with the first bevel gear and connected to the shaft, a grid is connected to the first bevel gear on the baking tray, the baking tray is supported on two support plates on the right and left sidewalls of the body.

4. The oven as claimed in claim 3, wherein the grid includes a protrusion extending from an underside thereof and the first bevel gear includes a recess in a top thereof, the protrusion is engaged with the recess.

5. The oven as claimed in claim 2, wherein the connection tube receives a first end of a rod and a control plate is connected to the rod which is cooperated with a switch, a fixed plate connected to a second end of the rod, a spring is mounted to the rod and located between the control plate and the fixed plate.

6. The oven as claimed in claim 1, wherein a top opening is defined through a top of the body and located above the top heat tube, a griddle is engaged with the top opening and a cover is mounted onto the griddle, two grooves are defined in the right and left sidewalls of the body and a debris connection tray is slidably engaged with the grooves.

7. The oven as claimed in claim 1, wherein the two limit switches are located at a horizontal position and an upright position in the body.

8. The oven as claimed in claim 1, wherein the rotatable heat tube includes multiple bent sections.

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