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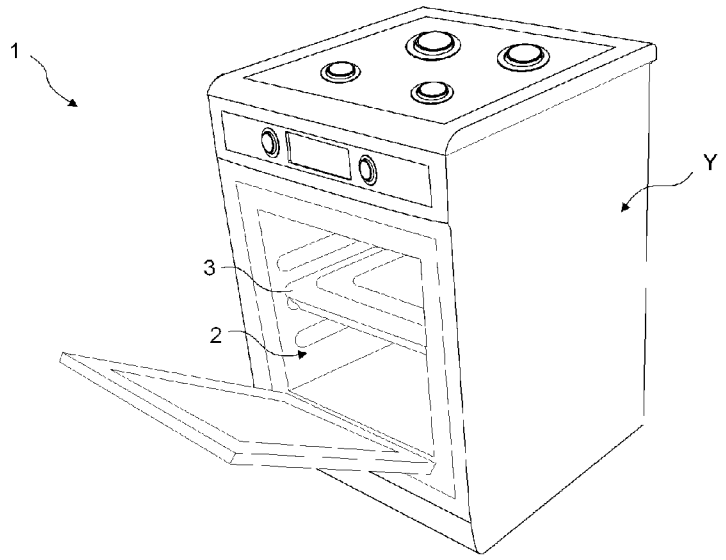
(54) **Title:** AN OVEN

Figure 1



(57) **Abstract:** The present invention relates to an oven (1) comprising a cooking chamber (2) and at least one tray (3) that can be placed one above the other in the cooking chamber (2), containing the food to be cooked therein.

WO 2009/083355 A2

Description

AN OVEN

[0001] The present invention relates to an oven that comprises an illumination means.

[0002] In ovens, illumination means are disposed in the cooking chamber so that the user can monitor the cooking status of the food without opening the door of the oven. Thus, the cooking status can be observed through the glass door without a heat loss. Various implementations are developed in the technique for effectively illuminating the entire cooking chamber by means of illumination means.

[0003] In the state of the art German patent application no DE10301078, an oven is explained. In the said oven, the entire cooking chamber is illuminated by means of the light from a single light source disposed outside the oven muffle and light guides arranged on the cooking chamber walls.

[0004] Another state of the art document is the International patent application no WO2007033908. In this document, leds are used for lighting elements in order to consume less energy and the light from the leds is distributed in the cooking chamber by means of reflectors.

[0005] In the state of the art European patent no EP0922910, effective illumination at various levels in the cooking chamber is maintained by the halogen lamps, light guides and parabolic reflectors.

[0006] However, a great number of illumination elements or expensive light guiding setups need to be used for effectively illuminating the cooking chamber and this increases energy consumption. In case a lesser number of illumination elements are used, some of the trays containing food to be cooked are left in the dark and the cooking status cannot be properly detected without opening the oven door.

[0007] The aim of the present invention is the realization of an oven wherein the interior volume can be effectively illuminated.

[0008] The oven realized in order to attain the aim the present invention is explicated in the claims.

[0009] The oven comprises at least one sensor for detecting the position of the tray in the cooking chamber and at least one illumination means for

illuminating the region wherein the tray is detected. The illumination means are in the closed position when there are no trays with food placed thereon in the oven.

[0010] When the oven is started by placing a tray in the cooking chamber, the sensor detects the position of the tray and the illumination means that will illuminate the section containing the tray is turned on for illuminating that section. Accordingly, the cooking status of the foods can be monitored effectively without requiring to illuminate the entire cooking chamber.

[0011] Support members are provided on the side walls of the cooking chamber at various levels whereon the tray can be placed. In the preferred embodiment of the present invention, the oven comprises at least one sensor and at least one illuminations means at every level wherein there is a support member. In this embodiment, when the sensor at the level the tray is placed detects the presence of the tray, enables the illumination means at that level to be turned on. Thus, only that level whereat a tray is placed is illuminated.

[0012] In an embodiment of the present invention, the sensors are disposed on the side walls of the cooking chamber. In this embodiment, the oven furthermore comprises at least one transparent protector disposed in front of the sensors for preventing thereof from being harmed by the heat inside the cooking chamber.

[0013] The protector preferably extends longitudinally along the side wall of the cooking chamber from the front backwards. Thus, the tray can be placed on the two protectors at the same level disposed on the two opposite side walls.

[0014] In another embodiment of the present invention, the illumination means are disposed on the side walls of the cooking chamber. In this embodiment, the oven furthermore comprises at least one transparent cover placed in front of the illumination means for preventing thereof from being harmed by the heat inside the cooking chamber.

[0015] The cover has light guiding features and preferably extends longitudinally along the side wall of the cooking chamber from the front backwards. Thus, total illumination can be achieved from the front backwards by using

a single illumination means.

[0016] In different embodiments of the present invention, the sensor can be a mechanical, electronic or infrared type sensor.

[0017] By means of the oven in the present invention, the region wherein cooking is performed can be effectively illuminated without turning on a great number of illumination means simultaneously or by using expensive devices.

[0018] The oven realized in order attains the aim of the present invention is illustrated in the attached figures, where:

[0019] Figure 1 – is the perspective view of an oven.

[0020] Figure 2 – is the schematic view of the cooking chamber in an embodiment of the present invention.

[0021] Figure 3 – is the partial section view of the cooking chamber side wall in an embodiment of the present invention.

[0022] The elements illustrated in the figures are numbered as follows:

1. Oven
2. Cooking chamber
3. Tray
4. Sensor
5. Illumination means
6. Support member
7. Protector
8. Cover

[0023] The oven (1) comprises a cooking chamber (2) and at least one tray (3) disposed in the cooking chamber (2) whereon the food to be cooked is placed.

[0024] The oven (1) furthermore comprises at least one sensor (4) for detecting the position of the tray (3) and at least one illumination means (5) for illuminating the position wherein the sensor (4) detected that the tray (3) is placed.

[0025] In the oven (1) of the present invention, when the oven (1) is started by placing a tray (3) in the cooking chamber (2), the position of the tray (3) is detected by the sensor (4). The illumination means (5) that will illuminate

the position wherein the sensor (4) detects the presence of the tray (3) is turned on thereby illuminating the section containing the tray (3). Accordingly, the cooking status of the food in the tray (3) can be monitored readily. On the other hand, unnecessary energy consumption is prevented by not turning on those illumination means (5) that illuminate the sections not containing a tray (3).

[0026] The cooking chamber (2) comprises support members (6) situated at different levels on the side walls (S) thereof for placing the tray (3). The support members (6) can be configured as rails and/or channels in different embodiments of the present invention.

[0027] In the preferred embodiment of the present invention, at least one sensor (4) and at least one illumination means (5) are disposed at the level of each support member (6). Consequently, when a tray (3) is placed on a support member (6), the sensor (4) at that level detects the presence of the tray (3) thereby enables the illumination means (5) at that level to be turned on. Accordingly, every tray (3) placed is illuminated however the sections not containing any trays (3) are not illuminated unnecessarily.

[0028] In an embodiment of the present invention, the sensors (4) are embedded into the insulation material (I) on the cooking chamber (2) side walls (S). In this embodiment, the oven (1) comprises at least one transparent protector (7) disposed in front of the sensor (4) thereby protecting the sensor (4) against the high temperature inside the cooking chamber (2) but not preventing the detecting process.

[0029] In the preferred version of this embodiment, the protector (7) extends longitudinally from the front backwards along the side wall (S) of the cooking chamber (2). In this embodiment, the tray (3) is placed directly on two protectors (7) disposed oppositely on two side walls (S) of the cooking chamber (2). Thus, the tray (3) is supported by means of the protectors (7) without furthermore requiring the use of support members (6).

[0030] In another embodiment of the present invention, the illumination means (5) are embedded into the insulation material (I) on the cooking chamber (2) side walls (S). In this embodiment, the oven (1) comprises at least one transparent cover (8) disposed in front of the illumination means (5)

thereby protecting the illumination means (5) against the high temperature inside the cooking chamber (2) however not preventing the diffusion of the produced light.

[0031] In the preferred version of this embodiment, the cover (8) extends longitudinally from the front to the rear along the side wall (S) of the cooking chamber (2) and is produced of light guiding material. Thus, the tray (3) placed at the level of the cover (8) is effectively illuminated through the depth of the cooking chamber (2) from the front backwards.

[0032] In an embodiment of the present invention, the sensor (4) used is a mechanical or electrical type sensor (4) disposed on the support member (6) and is actuated by placing the tray (3) on the support member (6).

[0033] In the preferred embodiment of the present invention, the sensor (4) is positioned to remain under the tray (3) and thereby detects the side wall or the bottom surface of the tray (3). On the other hand, the illumination means (5) is disposed to be above the tray (3) and illuminates the food on the tray (3).

[0034] In an embodiment of the present invention, the sensor (4) used is a sensor (4) having infrared features and is actuated by placing the tray (3) on the support member (6). In this embodiment, the sensor (4) comprises at least one receiver and at least one transmitter.

[0035] The protector (7) used in this embodiment is preferably an ellipse shaped lens, and one of the two focal points is aligned with the receiver and the other with the transmitter.

[0036] In different embodiments of the present invention, the protector (7) and the covers (8) can be produced of glass or ceramic material.

[0037] In an embodiment of the present invention, the protector (7) and the covers (8) are configured to be detachable so that the oil and food residues accumulated thereon as a result of multiple cooking processes can be cleaned by washing.

[0038] By means of the oven (1) of the present invention, only those places of the cooking chamber (2) wherein cooking is performed are illuminated and accordingly an effective cooking process is performed by consuming less energy.

Claims

1. An oven (1) that comprises
   - a cooking chamber (2),
   - at least one tray (3) disposed in the cooking chamber (2) whereon the food to be cooked is placed,
   and characterized by
   - at least one sensor (4) for detecting the position of the tray (3) and
   - at least one illumination means (5) for illuminating the position wherein the sensor (4) detected that the tray (3) is placed.
2. An oven (1) as in Claim 1, **characterized by** a cooking chamber (2) comprising support members (6) situated at different levels on the side walls (S) thereof for placing the tray (3) and at least one sensor (4) and at least one illumination means (5) disposed at the level of each support member (6).
3. An oven (1) as in Claim 1 or 2, **characterized by** sensors (4) embedded into the insulation material (I) on the cooking chamber (2) side walls (S) and at least one transparent protector (7) disposed in front of the sensor (4) thereby protecting the sensor (4) against the high temperature inside the cooking chamber (2) but not preventing the detecting process.
4. An oven (1) as in Claim 3, **characterized by** a protector (7) extending longitudinally from the front backwards along the side wall (S) of the cooking chamber (2).
5. An oven (1) as in any one of the above Claims, **characterized by** illumination means (5) embedded into the insulation material (I) on the cooking chamber (2) side walls (S) with at least one transparent cover (8) disposed in front of the illumination means (5) thereby protecting the illumination means (5) against the high temperature inside the cooking chamber (2) however not preventing the diffusion of the produced light.
6. An oven (1) as in Claim 5, **characterized by** a cover (8) produced of light guiding material and extending longitudinally from the front backwards along the side wall (S) of the cooking chamber (2).
7. An oven (1) as in any one of the Claims 3 to 6, **characterized by** a sensor (4) having infrared features, comprising at least one receiver and at least one transmitter and a protector (7) which is an ellipse shaped lens having one of

the two focal points aligned with the receiver and the other with the transmitter.

8. An oven (1) as in any one of the Claims 3 to 7, **characterized by** a protector (7) and/or covers (8) configured to be detachable.

Figure 1

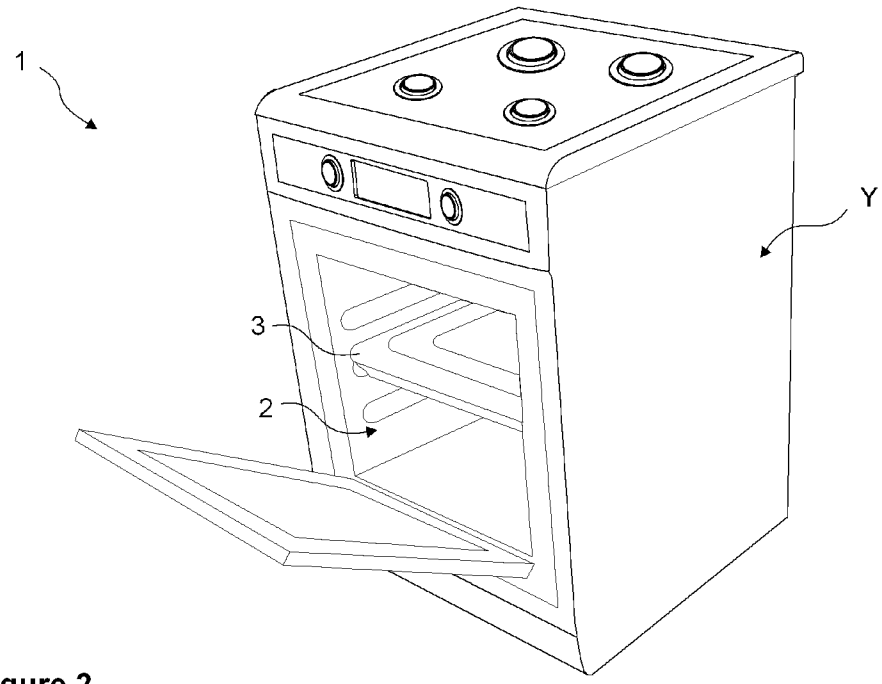


Figure 2

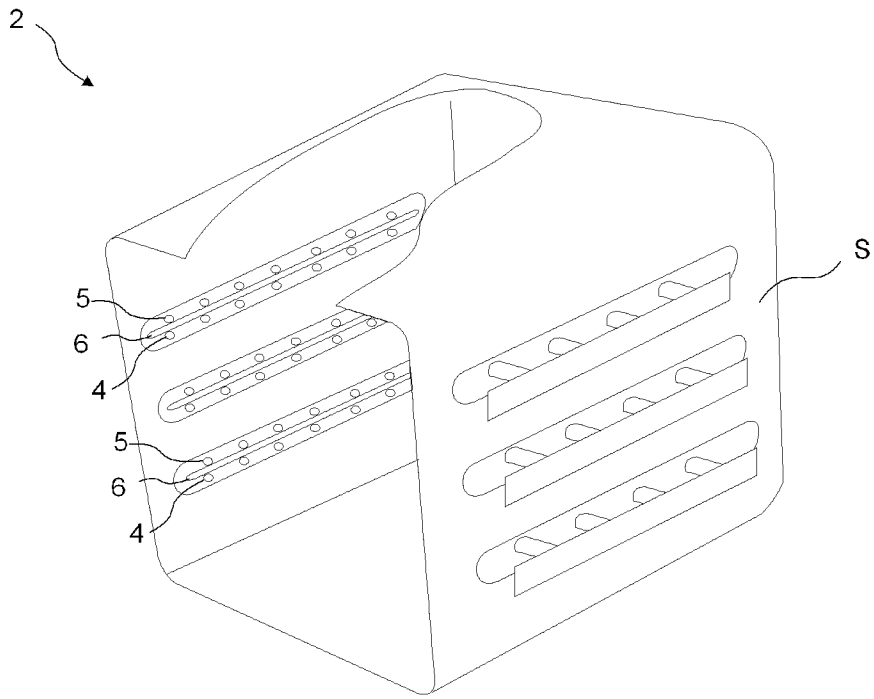


Figure 3