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(54) **AN OVEN**

OFEN

FOUR

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(73) Proprietor: **Arçelik Anonim Sirketi
34950 Istanbul (TR)**

(72) Inventors:
• **AKDAG, Levent
34950 Istanbul (TR)**
• **KAYIHAN, Asli
34950 Istanbul (TR)**
• **MARASLI, Mehmet
34950 Istanbul (TR)**

(56) References cited:
EP-A1- 0 641 976 WO-A-2007/049197
DE-A1-102004 042 827 DE-A1-102004 046 437
JP-A- 8 270 951

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Description

[0001] The present invention relates to an oven that carries out the cooking more effectively.

[0002] At least one heater and a fan are provided in ovens wherein the cooking process is carried out by convection. The heater and the fan are disposed between the body of the oven and the rear wall of the cooking chamber within this body. The air heated by the heater is activated by the fan and delivered into the cooking chamber through the holes arranged on the rear wall and the food is cooked by means of heat transfer interaction of the air with the food to be cooked. In the state of the art blowing holes are arranged on the rear wall at different positions and of various numbers, shapes and sizes that deliver the air activated by the fan into and suction holes re-aspirating the air in order to provide a homogeneous air distribution in the cooking chamber during the cooking process.

[0003] In the state of the art implementations, hot air is blown such that the entire cooking chamber is heated without taking into consideration the position of the food in the oven. Accordingly, some amount of the hot air having limited thermal energy does not get in direct contact with the food to be cooked and convey a considerable amount of its energy to the side walls and empty regions instead of the food and the duration of cooking hence the energy consumption of the oven is increased.

[0004] In order to avert this type of adversities, various implementations have been developed in state of the art.

[0005] An oven is explained in state of the art Japanese patent application no. JP58193031. The said oven comprises a partition and a cover body that is energized when the partition is disposed in place. When the said partition is fitted in place, the air flow to the portion of the oven without food is cut off by the movement of the cover body, decreasing the volume of the heated cooking chamber and hence efficiency is increased.

[0006] State of the art references DE102004042827 and EP0641976 discloses ovens in accordance with the preamble of the present claim 1.

[0007] In this state of the art known implementation, the utilized volume of the cooking chamber is changed in order to increase oven efficiency and to shorten the cooking duration of the food. The use of an auxiliary partition element is required in order to enable this enhancement.

[0008] Another state of the art document is the Japanese patent application no. JP8270951. In this document, the explanation is given for an opening formed in the back wall for blowing air into the cooking chamber and a vertically slidable moving plate that partially closes this opening with suction holes arranged thereon. The said plate is moved by means of a motor to vary the opening areas of the upper and lower opening parts according to the shape and size of the substance to be cooked.

[0009] In the state of the art German patent no. DE19545993 hot air outlets with an air guidance baffle

that blow air controllably by means of a manual or sensor-controlled system. In the said invention, by utilizing hot air outlets and air guidance baffles with various orientations, sizes and shapes and varied cross-sections aiming to provide guiding the blown air over the food.

[0010] The object of the present invention is to design an oven wherein effective cooking is implemented by means of delivering the hot air only over the food to be cooked.

[0011] The oven designed to fulfill the objective of the present invention comprises more than one shutter that open and close the blowing holes in order to blow hot air only at the level of the food to be cooked in the cooking chamber. The shutters are in the closed position when there aren't any trays containing food in the oven.

[0012] The oven of the present invention comprises a transmitter(s) that transmit the movement of the tray as it is emplaced within, to the shutters situated at the level of its position thereof, providing the shutters to be opened. As the shutters open, air flow is provided from the blowing holes which are in the closed position when there is no tray. Consequently, air is blown only from the blowing holes in the region of the disposed tray to be cooked, providing to transfer almost all the thermal energy of the hot air to the food to be cooked and the possibility of the hot air confronting cold surfaces to transfer the energy thereof is decreased thereby preventing heat loss.

[0013] The oven designed to fulfill the objective of the present invention is illustrated in the attached figures, where:

Figure 1 - is the sideways schematic view of an oven.

Figure 2 - is the perspective view of the rear wall and the tray in an embodiment of the present invention.

Figure 3 - is the perspective view of the rear wall and the tray in an embodiment of the present invention.

Figure 4 - is the perspective view of the rear wall and the tray in yet another embodiment of the present invention.

Figure 5 - is the schematic view of the rear wall in an embodiment of the present invention.

[0014] The elements illustrated in the figures are numbered as follows:

1. Oven
2. Outer cabin
3. Cooking chamber
4. Rear wall
5. Heater
6. Fan
7. Suction hole
8. Blowing hole
9. Shutter
10. Tray
11. Transmitter
12. Presser

[0015] The oven (1) comprises an outer cabin (2), a cooking chamber (3) positioned inside this outer cabin (2), at least one fan (6) disposed in the cooking chamber (3) for activating the air, and at least one heater (5) again disposed in the cooking chamber (3) for heating the air, and a rear wall (4) that divides the volume of the cooking chamber (3) into two such that a region is formed wherein the fan (6) and the heater (5) are situated (Figure 1 and Figure 2).

[0016] The rear wall (4) comprises at least one suction hole (7) providing to aspirate air from the cooking chamber (3) and more than one blowing hole (8), at least two of them arranged at different levels, providing the air activated by the fan (6) to be blown into the cooking chamber (3) (Figure 3).

[0017] The suction holes (7) are situated on the rear wall (4), at the portion corresponding to the area swept by the fan (7). The suction holes (7) are formed in various numbers and shapes and in various combinations on the rear wall (4).

[0018] The oven (1) of the present invention comprises at least one tray (10), which can be disposed inside the cooking chamber (3) one above the other, to contain the food to be cooked thereon. The cooking chamber (3) comprises rails and/or grooves at different levels on the side walls thereof for disposing the tray (10) therein.

[0019] The oven (1) of the present invention comprises more than one shutter (9) disposed behind the blowing holes (8) such that each one will be corresponding to a certain number of blowing holes (8) and functioning to open, close the blowing holes (8). The shutters (9) are in the closed position when a tray (10) is not disposed at the level of the blowing holes (8) that they correspond. The oven (1) comprises a presser (12) for keeping the shutters (9) closed by being disposed behind thereof

[0020] The oven (1) of the present invention comprises at least one transmitter (11) that opens the shutters (9) by transmitting the movement of the tray (10) to the shutters (9) at the level to which it is disposed and hence provides air flow from the blowing holes (8) which are closed by these shutters (9).

[0021] When the tray (10) containing the food to be cooked thereon is disposed into the cooking chamber (3), the transmitter(s) (11) transmit the movement of the tray (10) to the shutter (9) at the level which the tray (10) is disposed and exerts a force sufficient for bringing the shutter (9) to the open position. Hence the shutter (9) opens backwards. The extent of opening and the angle of the shutter (9) depend on the shape of the transmitter (11). Meanwhile the blowing holes (8) at the regions wherein a tray (10) is not disposed are kept in closed position by means of the shutter (9) at that level.

[0022] In an embodiment of the present invention, the transmitter (s) (11) is shaped like a protrusion formed on the surface of the tray (10) facing the rear wall (4), and reaches the shutter (9) by going through the blowing hole (8) at that level and transmits the movement of the tray (10) to the shutter (9) (Figure 3).

[0023] In another embodiment of the present invention, the transmitter (s) (11) is shaped like a protrusion formed on the surface of the shutter (9) facing the cooking chamber (3) and passing through the blowing hole (8) at that level, reaches inside the cooking chamber (3). When a tray (10) is disposed in the oven (1), the transmitter (11) moved by the tray (10) opens the shutter (9) (Figure 4). When the heater (5) and the fan (6) are energized in the oven (1), while the heater (5) heats the air in the vicinity thereof, the fan (6) activates the air heated by the heater (5). The air activated by the fan (6) is blown from only the open blowing holes (8) situated at the level of the disposed tray (10) and accordingly is directed principally towards the tray (10) containing the food to be cooked thereon.

[0024] In the preferred embodiment of the present invention, groups of blowing holes (8) are formed on the rear wall (4) at three different levels. Each group of blowing holes (8) is closed by a different shutter (9). Hence when one tray (10) is disposed in the oven (1), hot air is blown only from the blowing holes (8) at the level of this tray (10), when two trays (10) are disposed, hot air is blown only from the blowing holes (8) at the levels of these two trays (10), and energy is saved since hot air is not blown to the levels wherein a tray (10) is not disposed (Figure 2 and 3).

[0025] In another embodiment of the present invention, each blowing hole (8) group is composed of at least three blowing holes (8) being upper, middle and lower and is closed by only one shutter (9). Tray (10) fitting channels are provided at the level of each blowing hole (8) group, in accordance with the upper, lower and middle levels in this group. The user disposes the tray (10) to one of the upper, lower or middle levels of the blowing hole (8) group depending on the desired cooking. Consequently, only the shutter (9) corresponding to the blowing hole (8) group of the disposed tray (10) is opened and the region of the oven (1) particularly wherein the tray (10) is disposed can be heated. The upper and lower portion of the tray (10) is also heated more intensely as well. When the tray (10) is disposed at the level of the upper situated blowing hole (8) of the blowing hole (8) group, the shutter (9) corresponding to that blowing hole (8) group opens. Since one of the blowing holes (8) of the blowing hole (8) group is at the level of the tray (10), and the other two are below the tray (10), air is mainly in contact with the tray (10) from the bottom. Similarly, when the tray (10) is disposed at the level of the lower situated blowing hole (8) of the blowing hole (8) group, again the shutter (9) corresponding to that blowing hole (8) group is opened. However, this time, since one of the blowing holes (8) of the blowing hole (8) group is at the level of the tray (10), and the other two are above the tray (10), air grazes mainly the upper portion of the tray (10). Consequently, rapid cooking is provided particularly of the upper or lower portion of the tray (10) depending on choice. When a second tray (10) is not disposed in the oven (1), the other blowing hole (8) groups at the other regions of the oven

(1) are closed by the other shutters (9), accordingly energy is not wasted since the other regions having no disposed trays (10), are not heated (Figure 2 and 3).

[0026] In an embodiment of the present invention, the shutters (9) are secured to the rear wall (4) from their sides close to the side walls of the oven (1), such that they are rotatable around the vertical axis. Consequently the sides of the shutters (9) that open to allow air flow are facing the center. When force is applied by the transmitter (11), the shutters (9) rotate around their sides secured to the rear wall (4), opening to form a bowl such that the fan (6) is left in between. Accordingly, the hot air aspirated from the suction holes (7) to the rear region wherein the fan (6) and the heater (5) are situated, is redirected to the blowing holes (8) again without dispersing to the corners to cause a heat loss (Figure 5).

[0027] In another embodiment of the present invention, the shutters (9) can be configured to stay in closed position due to their material properties, stretch to resume the open position when a force is exerted thereon and when the application of force is aborted to again resume the closed position.

[0028] By means of the oven (1) of the present invention, the hot air received from the place wherein the tray (10) is disposed is conveyed directly to the food to be cooked and hence effective cooking of the food is provided. The time and energy spent for the cooking process is decreased by means of the present invention.

Claims

1. An oven (1) comprising

- an outer cabin (2)
- a cooking chamber (3) positioned inside this outer cabin (2),
- at least one fan (6) disposed in the cooking chamber (3) for activating the air,
- at least one heater (5) disposed in the cooking chamber (3) for heating the air,
- a rear wall (4) that divides the volume of the cooking chamber (3) into two such that a region is formed wherein the fan (6) and the heater (5) are situated, having at least one suction hole (7) providing to aspirate air from the cooking chamber (3) and more than one blowing hole (8), at least two of them arranged at different levels, providing the air activated by the fan (6) to be blown into the cooking chamber (3),
- at least one tray (10) containing the food to be cooked thereon, disposable into the cooking chamber (3) one above the other, **and characterized by**
- more than one shutter (9) disposed behind the blowing holes (8) such that each one will be corresponding to a certain number of blowing holes (8), opening, closing the corresponding blowing

holes (8) and being in closed position when a tray (10) is not disposed at the level of the blowing holes (8) that they correspond **and**

- at least one transmitter (11) that opens the shutters (9) by transmitting the movement of the tray (10) to the shutters (9) at the level to which it is disposed and hence provides air flow from the blowing holes (8) which are closeable by these shutters (9).

2. An oven (1) as in Claim 1, **characterized by** at least one transmitter (11) shaped like a protrusion, formed on the surface of the tray (10) facing the rear wall (4), reaching the shutter (9) by going through the blowing hole (8) at that level and transmitting the movement of the tray (10) to the shutter (9).
3. An oven (1) as in Claim 1, **characterized by** at least one transmitter (11) shaped like a protrusion formed on the surface of the shutter (9) facing the cooking chamber (3) and reaching inside the cooking chamber (3) by passing through the blowing hole (8) at that level and when a tray (10) is disposed in the oven (1), moved by the tray (10) to open the shutters (9).
4. An oven (1) as in Claim 1 to 3, **characterized by** at least one presser (12) that is disposed behind the shutters (9) to keep them at the closed position.
5. An oven (1) as in Claim 1 to 3, **characterized in that** the shutters (9) that stretch to resume the open position when a force is exerted thereon and when the application of force is aborted that can again resume the closed position.
6. An oven (1) as in any one of the above claims, **characterized by** blowing hole (8) groups situated on the rear wall (4) at three different levels, each one closed by a different shutter (9).
7. An oven (1) as in any one of the above claims, **characterized by** more than one blowing hole (8) groups, each group composed of at least three blowing holes (8) being upper, middle and lower and closed by only one shutter (9), when the user disposes the tray (10) to one of the upper, lower or middle levels of the blowing hole (8) group depending on the desired cooking, only opening the shutter (9) that corresponds to the blowing hole (8) group of the disposed tray (10), and as well as heating the region of the oven (1) wherein the tray (10) is disposed, also providing intense heating of the upper or lower portions of the tray (10).
8. An oven (1) as in any one of the above claims, **characterized by** shutters (9) secured to the rear wall (4) from their sides that are close to the side walls of the

oven (1), such that they are rotatable around the vertical axis, the sides thereof that open to allow air flow are facing the center, that rotate around their sides secured to the rear wall (4) when force is applied by the transmitter (11), opening to form a bowl such that the fan (6) is left in between and accordingly the hot air aspirated from the suction holes (7) to the rear region wherein the fan (6) and the heater (5) are situated, is redirected to the blowing holes (8) again without dispersing to the corners causing a heat loss.

Patentansprüche

1. Ofen (1), umfassend

- ein Außengehäuse (2),
- eine Zubereitungskammer (3), die in im Inneren des Außengehäuses (2) angeordnet ist,
- wenigstens ein Gebläse (6), das in der Zubereitungskammer (3) zum Aktivieren von Luft angeordnet ist,
- wenigstens eine Heizeinrichtung (5), die in der Zubereitungskammer (3) zum Erwärmen der Luft angeordnet ist,
- eine Rückwand (4), die das Volumen der Zubereitungskammer (3) in zwei Teile teilt, derart, dass eine Region dort gebildet ist, wo das Gebläse (6) und die Heizeinrichtung (5) angeordnet sind, mit wenigstens einem Ansaugloch (7), das dafür sorgt, dass Luft von der Zubereitungskammer (3) angesaugt wird, und mehreren Blaslöchern (8), von denen wenigstens zwei auf unterschiedlichen Höhen angeordnet sind und die dafür sorgen, dass die vom Gebläse (6) aktivierte Luft in die Zubereitungskammer (3) geblasen wird,
- wenigstens eine Ablage (10), die die Nahrung aufnimmt, die darauf zubereitet wird, und in der Zubereitungskammer (3) übereinander angeordnet werden kann, **und gekennzeichnet durch**
- mehrere Verschlüsse (9), die hinter den Blaslöchern (8) angeordnet sind, derart, dass ein jeder einer bestimmten Anzahl von Blaslöchern (8) entspricht, und die die entsprechenden Blaslöcher (8) öffnen und schließen und in der geschlossenen Position sind, wenn eine Ablage (10) nicht auf der Höhe der Blaslöcher (8) angeordnet ist, der sie entsprechen **und**
- wenigstens eine Übertragungseinrichtung (11), die die Verschlüsse (9) öffnet, indem sie die Bewegung der Ablage (10) auf die Verschlüsse (9) auf die Höhe überträgt, auf der diese angeordnet wird, und **dadurch** einen Luftstrom von den Blaslöchern (8) bereitstellt, die von diesen Verschlüssen (9) verschließbar sind.

2. Ofen (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** wenigstens eine Übertragungseinrichtung (11) wie ein Vorsprung geformt ist und an der Fläche der Ablage (10) gebildet ist, die der Rückwand (4) zugewandt ist, und den Verschluss (9) erreicht, indem sie durch das Blasloch (8) auf dieser Höhe tritt und die Bewegung der Ablage (10) auf den Verschluss (9) überträgt.
3. Ofen (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** wenigstens eine Übertragungseinrichtung (11) wie ein Vorsprung geformt ist und an der Fläche des Verschlusses (9) gebildet ist, die der Zubereitungskammer (3) zugewandt ist, und ins Innere der Zubereitungskammer (3) reicht, indem sie durch das Blasloch (8) auf dieser Höhe tritt, und wenn eine Ablage (10) im Ofen (1) angeordnet wird, von der Ablage (10) bewegt wird, um die Verschlüsse (9) zu öffnen.
4. Ofen (1) nach Anspruch 1 bis 3, **gekennzeichnet durch** wenigstens eine Druckeinrichtung (12), die hinter den Verschlüssen (9) angeordnet ist, um sie in der geschlossenen Position zu halten.
5. Ofen (1) nach Anspruch 1 bis 3, **dadurch gekennzeichnet, dass** sich die Verschlüsse (9) strecken, um die offene Position wieder einzunehmen, wenn eine Kraft daraus ausgeübt wird, und wenn die Anwendung der Kraft aufgehoben wird, wieder die geschlossene Position einnehmen können.
6. Ofen (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** Gruppen von Blaslöchern (8), die auf unterschiedlichen Höhen an der Rückwand (4) angeordnet sind und jeweils von einem anderen Verschluss (9) geschlossen werden.
7. Ofen (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** mehrere Gruppen von Blaslöchern (8), wobei jede Gruppe aus wenigstens drei Blaslöchern (8), nämlich einem oberen, mittleren und unteren, gebildet ist und nur von einem Verschluss (9) geschlossen wird, wenn der Benutzer die Ablage (10) abhängig von der gewünschten Garung auf eine von der oberen, unteren oder mittleren Höhe der Gruppe von Blaslöchern (8) anordnet, wobei nur der Verschluss (9) geöffnet wird, der derjenigen Gruppe von Blaslöchern (8) der angeordneten Ablage (10) entspricht, und die Region des Ofens (1) erwärmt wird, in der die Ablage (10) angeordnet ist, und außerdem eine intensive Erwärmung der oberen oder unteren Abschnitte der Ablage (10) bereitstellt.
8. Ofen (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** Verschlüsse (9) von denjenigen ihrer Seite aus an der Rückwand

(4) gesichert sind, die nah zu den Seitenwänden des Ofens (1) sind, derart, dass sie um die vertikale Achse drehbar sind, diejenigen ihrer Seiten, die den Luftstrom zulassen, der Mitte zugewandt sind, sie sich um ihre Seiten drehen, die an der Rückwand (4) gesichert sind, wenn von der Übertragungseinrichtung (11) Kraft darauf angewandt wird, sich derart öffnen, dass sie eine Mulde bilden, derart, dass das Gebläse (6) dazwischen bleibt, und dadurch die heiße Luft, die durch die Ansauglöcher (7) zur hinteren Region angesaugt wird, in der das Gebläse (6) und die Heizvorrichtung (5) angeordnet sind, erneut zu den Blaslöchern (8) umgelenkt wird, ohne in die Ecken verteilt zu werden und einen Wärmeverlust zu verursachen.

Revendications

1. Un four (1) comprenant

- une cabine externe (2),
- une chambre de cuisson (3) qui est positionnée dans ladite cabine externe (2),
- au moins un ventilateur (6) qui est disposé dans la chambre de cuisson (3) pour remuer l'air,
- au moins un dispositif de chauffage (5) qui est disposé dans la chambre de cuisson (3) pour chauffer l'air,
- une paroi arrière (4) qui divise le volume de la chambre de cuisson (3) en deux de telle sorte qu'une région est formée où le ventilateur (6) et le dispositif de chauffage (5) sont disposés, qui présente au moins un trou d'aspiration (7) permettant l'aspiration de l'air à partir de la chambre de cuisson (3) et plus d'un trou de soufflage (8), au moins deux d'entre elles disposés à des niveaux différents, permettant le soufflage de l'air remué par le ventilateur (6) dans la chambre de cuisson (3),
- au moins une plaque (10) contenant les aliments à cuire sur celui-ci, qui peut être disposée dans la chambre de cuisson (3) l'une au-dessus de l'autre, **et caractérisé par**
- plus d'un volet (9) qui est disposé derrière les trous de soufflage (8) de telle sorte que chacun correspond à un certain nombre de trous de soufflage (8), qui ouvre/ferme les trous de soufflage (8) correspondants et qui reste dans la position fermée lorsqu'une plaque (10) n'est pas présente au niveau des trous de soufflage (8) auxquels ils correspondent **et**
- au moins un transmetteur (11) qui ouvre les volets (9) en transmettant le mouvement de la plaque (10) aux volets (9) au niveau auquel il est disposé et donc permet l'écoulement d'air à partir des trous de soufflage (8) qui peuvent être fermés par ces volets (9).

2. Un four (1) selon la Revendication 1, **caractérisé par** au moins un transmetteur (11) en forme d'une protubérance, qui est formé sur la surface de la plaque (10) faisant face à la paroi arrière (4), atteignant le volet (9) en passant par le trou de soufflage (8) à ce niveau et transmettant le mouvement de la plaque (10) au volet (9).

3. Un four (1) selon la Revendication 1, **caractérisé par** au moins un transmetteur (11) en forme d'une protubérance, qui est formé sur la surface du volet (9) faisant face à la chambre de cuisson (3), atteignant l'intérieur de la chambre de cuisson (3) en passant par le trou de soufflage (8) à ce niveau et qui est déplacé par la plaque (10) pour ouvrir les volets (9) lorsqu'une plaque (10) est disposée dans le four (1).

4. Un four (1) selon la Revendication de 1 à 3, **caractérisé par** au moins un poussoir (12) qui est disposé derrière les volets (9) pour les maintenir dans la position fermée.

5. Un four (1) selon la Revendication de 1 à 3, **caractérisé en ce que** les volets (9) s'étirent afin de reprendre la position ouverte lorsqu'une force est exercée sur ceux-ci et reprendre de nouveau la position fermée lorsque la force appliquée est supprimée.

6. Un four (1) selon l'une quelconque des revendications précédentes, **caractérisé par** des groupes de trous de soufflage (8) qui sont situés sur la paroi arrière (4) à trois niveaux différents, chacun fermé par un volet (9) différent.

7. Un four (1) selon l'une quelconque des revendications précédentes, **caractérisé par** plus d'un groupe de trous de soufflage (8), chaque groupe composé d'au moins trois trous de soufflage (8), à savoir supérieur, intermédiaire et inférieur, et fermé par seulement un volet (9), lorsque l'utilisateur place la plaque (10) à un des niveaux supérieur, intermédiaire ou inférieur du groupe de trous de soufflage (8) en fonction du processus désiré, seulement ouvrant le volet (9) correspondant au groupe de trous de soufflage (8) de la plaque (10) placée, et ainsi que chauffant la région du four (1) lorsque la plaque (10) est disposée, permettant le chauffage intense des parties supérieure ou inférieure de la plaque (10).

8. Un four (1) selon l'une quelconque des revendications précédentes, **caractérisé par** des volets (9) fixés à la paroi arrière (4) à partir de leurs côtés qui sont proches des parois latérales du four (1), de telle sorte qu'ils peuvent être tournés autour de l'axe vertical, dont les côtés s'ouvrent pour permettre l'écoulement d'air font face au centre, qui tournent autour de leurs côtés fixés à la paroi arrière (4) lorsqu'une

force est appliquée par le transmetteur (11), s'ouvrant pour former un bol de telle sorte que le ventilateur (6) reste entre les deux et en conséquence l'air chaud aspiré par les trous d'aspiration (7) à la région arrière, où le ventilateur (6) et le dispositif de chauffage (5) sont situés, est redirigé vers les trous de soufflage (8) à nouveau sans disperser vers les coins, provoquant une perte de chaleur.

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Figure 1

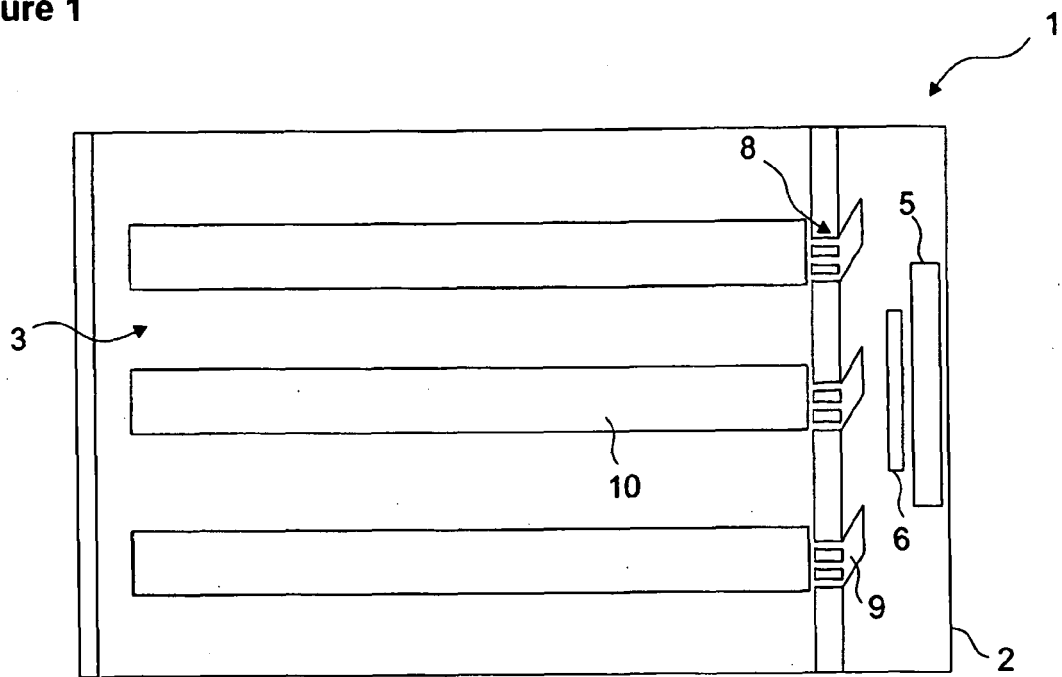


Figure 2

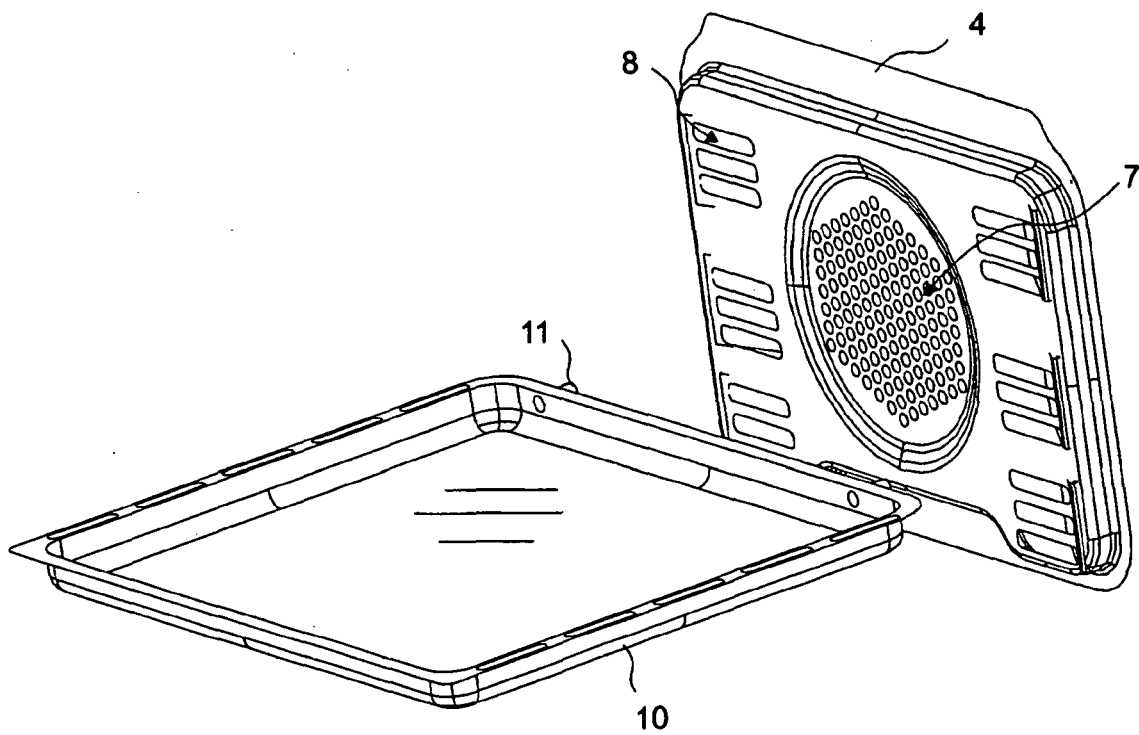


Figure 3

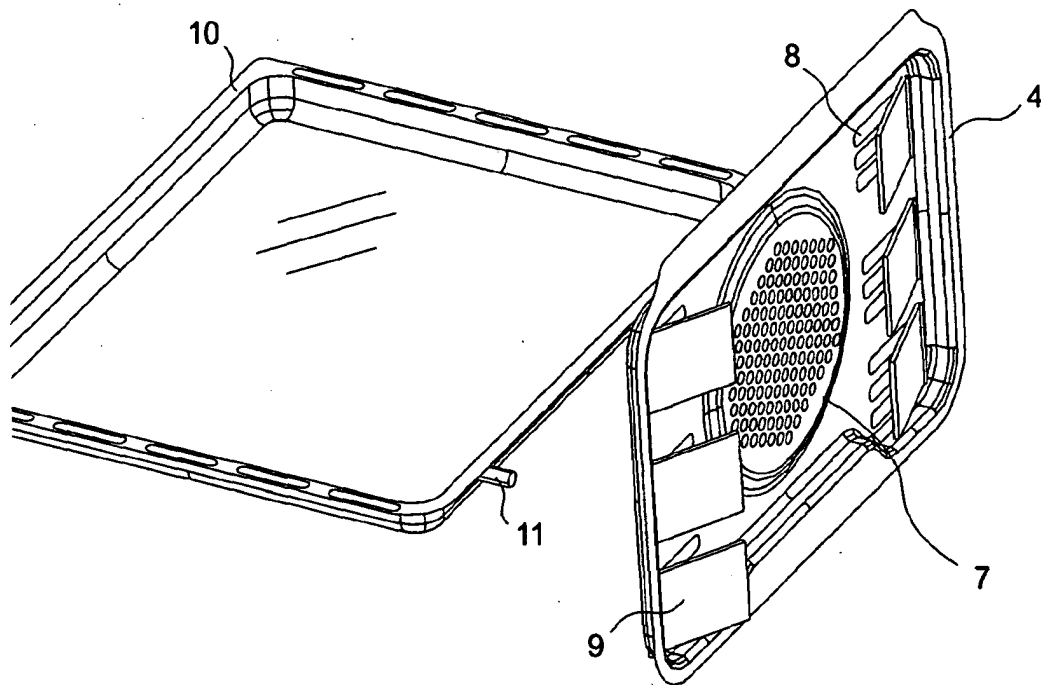


Figure 4

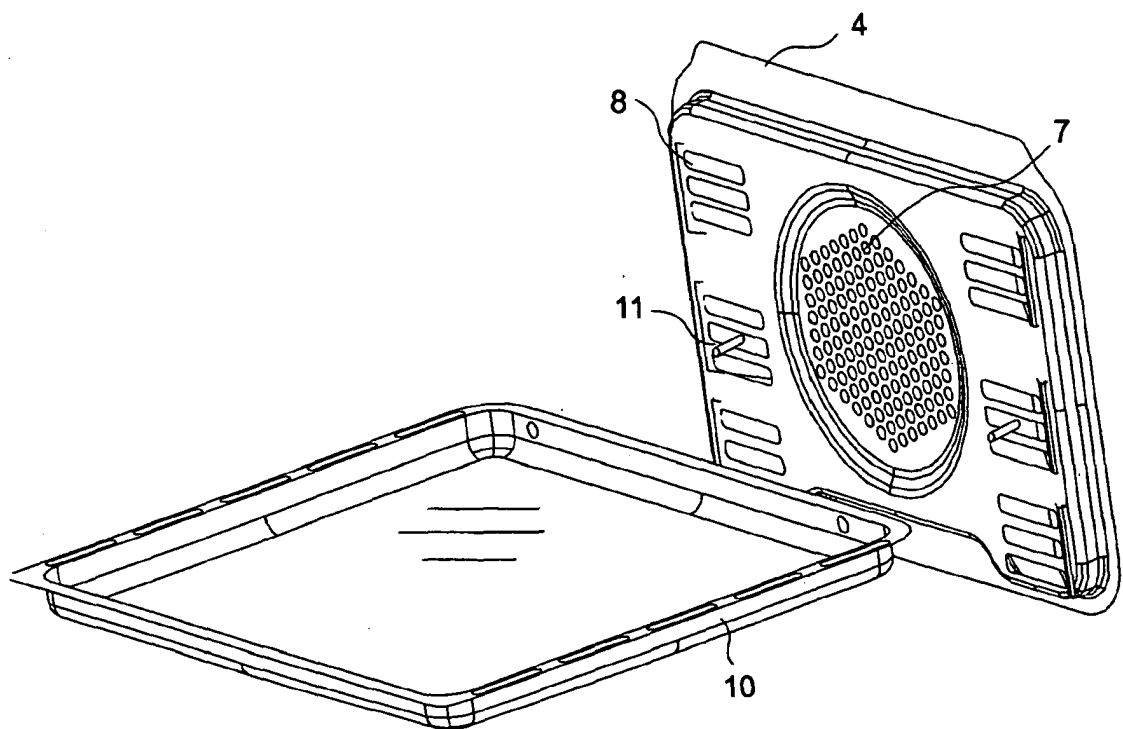
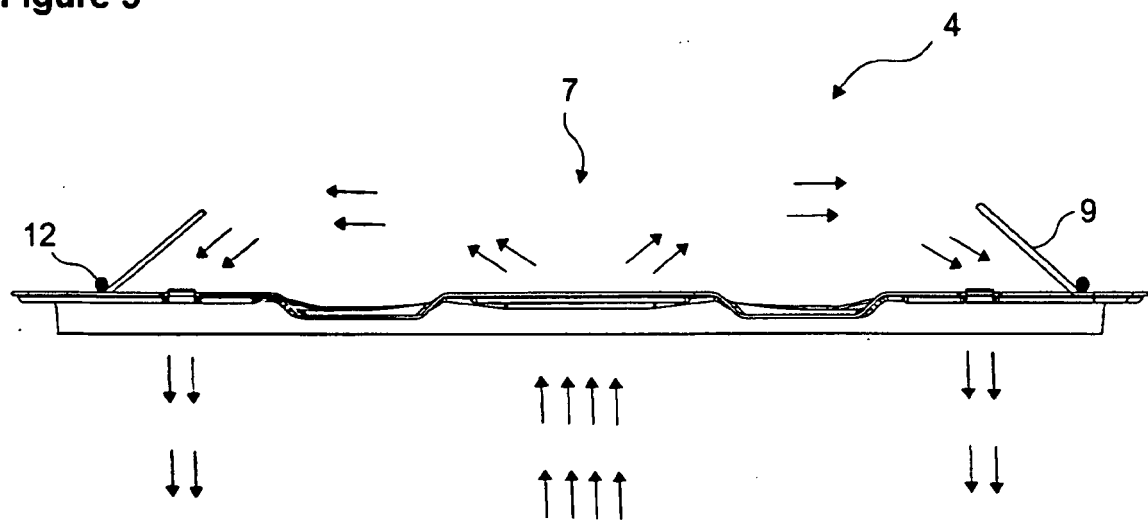


Figure 5



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 58193031 B [0005]
- DE 102004042827 [0006]
- EP 0641976 A [0006]
- JP 8270951 B [0008]
- DE 19545993 [0009]