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(54) **AN OVEN WITH COOKING CHAMBER**

EIN OFEN MIT GARRAUM

UN FOUR AVEC CHAMBRE DE CUISSON

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Description

[0001] The present invention relates to an oven comprising a cooking chamber.

[0002] Ovens have a cooking chamber wherein the cooking process is performed. The walls of the cooking chamber are generally manufactured by shaping sheet metals. Then, these walls are joined with each other from their edges by the methods of riveting or welding. The joint points of the walls, being sharp and protruding, cause stain accumulation therein.

[0003] While cleaning the accumulated stain, the user feels uncomfortable with the joint edges that are rough.

[0004] In the oven mentioned in the state of the art Great Britain Patent Document No GB2329467, it is described that by means of the side walls and the base, formed by bending a single piece sheet metal in U-shape, the material required for joining these components is saved.

[0005] In the oven mentioned in the state of the art Great Britain Patent Document No GB2355070, the center portion of a single piece sheet metal is cut out and used as the rear wall, and the bezel, remaining after the center portion is cut out, is used as the front wall.

[0006] Another state of the art embodiment is explained in the German Patent Document No DE19705656.

[0007] Document GB2107160 describes an oven comprising a cooking chamber having a top wall, a bottom wall, side walls, and a casing. The front edges of the walls and the front edges of the casing comprise corresponding bent portions that fit to each other in an interlocking manner to form a seam inside the cooking chamber.

[0008] Documents EP254500 and EP1655544 describe cooking ovens in which the walls are provided with flanges that are joined to each other.

[0009] Postpublished document EP2098787 discloses an oven in which the front edges of a cooking chamber are bent in a U-shape, wherein a frame is attached to the outside of said bent edges.

[0010] Document JP59119118A discloses the provision of a front plate of an oven with a first bent section and a second bent section that form a first curling margin. Second curling margins are formed on a body plate and top board. The joining of the front plate with the body section is performed by curling processing.

[0011] Document US4848311 discloses an oven in which flanges of a frame are immediately attached to the outer wall of a cooking chamber.

[0012] The aim of the present invention is the realization of an oven, the cooking chamber of which can be easily cleaned.

[0013] The oven realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a cooking chamber which is formed by cutting and joining the sheets from metal material and which has bottom, top, side and rear walls, an opening at the front side, which enables the foods that will be cooked to be disposed into the cooking chamber, and a door which provides the cooking chamber inner volume to be isolated from the outer environment by closing the opening.

[0014] The oven, furthermore, comprises a curve which is formed by bending the front edges of the bottom, top and side walls, joined such that an opening will remain in the middle of them, towards the outside of the walls, and a casing which enables the walls to be fixed by being disposed onto the curve.

[0015] Meanwhile, the walls are also fixed to the rear wall from their rear edges. The casing and the walls are joined at the outside of the cooking chamber inner volume, on the curves. Thus, the oil and vapor of the cooked foods do not smear the joint points during cooking.

[0016] By cutting and bending a single piece sheet, the rear wall is formed from its center portion and the casing is formed from the portion remaining around the rear wall. Thus, almost no waste material is generated and the whole sheet is made use of.

[0017] By means of the cooking chamber of the present invention, the cost of the oven decreases and the walls of the oven can be fixed to each other without the need of additional material.

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

Figure 1 - is the perspective view of an oven.
Figure 2 - is the front view of the cooking chamber of an embodiment of the present invention.
Figure 3 - is the exploded view of a cooking chamber.
Figure 4 - is the sideways view of a cooking chamber.
Figure 5 - is the view of detail A in Figure 4.
Figure 6 - is the view of detail B in Figure 4.
Figure 7 - is the view of the rear wall and casing, formed by shaping a bent sheet, before being cut, in an embodiment of the present invention.
Figure 8 - is the view of a cut sheet in an embodiment of the present invention.
Figure 9 - is the schematic view of the rear wall and casing, formed by shaping a sheet, before being cut.
Figure 10 - is the schematic view of the rear wall and casing, formed by shaping a sheet, before being cut.
Figure 11 - is the schematic view of the casing, by folding the edges of which a chamber support is formed.
Figure 12 - is the schematic view of the rear wall, the bottom wall and the casing.
Figure 13 - is the schematic view of the rear wall, the bottom wall and the casing with a gasket mounted thereon.

[0019] The elements illustrated in the figures are numbered as follows:

1. Oven
2. Bottom wall

3. Top wall
4. Side wall
5. Rear wall
6. Cooking chamber
7. Opening
8. Door
9. Casing
10. Step
11. Chamber support
12. Carrying means
13. Gasket
101. Curve
102. Base
103. Support means

[0020] An oven (1) comprises a cooking chamber (6) which has a bottom wall (2), a top wall (3), two side walls (4) and a rear wall (5) that are formed by cutting and bending the sheets (L) preferably from metal material, and which is formed by joining the walls (2, 3 and 4) and wherein foods to be cooked are disposed; an opening (7) through which the access to the cooking chamber (6) through between the front edges of the walls (2, 3 and 4) is provided, and a door (8) which provides the opening (7) to be closed and which is opened preferably by bending towards the front (Figures 1, 2 and 3).

[0021] The oven (1), furthermore, comprises

- a curve (101) which is formed by bending the front edge of the walls (2, 3 and 4) towards the outside of the cooking chamber (6), and
- a casing (9) which is mounted onto the curves (101) such that it will

encircle the front edges of the walls (2, 3 and 4), and the line (H), wherein it joins with the curves (101), will remain outside the cooking chamber (6) (Figures 4 and 6).

[0022] A door (8), which is preferably of glass and which separates the cooking chamber (6) from the outer environment by being closed onto the casing (9), is located at the portion that is visible to the user from the front side of the oven (1). In the embodiment of the present invention, the door (8) is closed onto the curve (101) of the walls (2, 3 and 4) which are curved by extending to the outside of both the casing (9) and the cooking chamber (6). The casing (9) is seated onto the curve (101) of the walls (2, 3 and 4). Thus, the joint points of the casing (9) and the walls (2, 3 and 4) remain outside the cooking chamber (6) as much as the width of the curve (101) and stain does not reach there during cooking.

[0023] In the present invention, the oven (1) comprises a U-shaped curve (101) which is oblique such that its orifice portion will face the opposite of the opening (7) and which is formed by bending the front edges of the walls (2, 3 and 4) towards themselves. The curve (101) comprises a base (102) and a support means (103) which is formed by the portions that are bent towards the walls (2, 3 and 4) (Figures 4 and 6).

[0024] In the present invention, the oven (1) comprises an oblique U-shaped curve (101) which is bent such that its orifice portion will face the opposite direction of the opening (7).

[0025] By the walls (2, 3 and 4) being curved towards the outside of the cooking chamber (6) and joining with the casing (9) on their curve (101), the surfaces reached by the user are smooth. Thus, the user is not strained while cleaning the inside of the cooking chamber (6).

[0026] According to the present invention, the oven (1) comprises a step (10), the length of which is equal to the difference between the distance, which is between the opposite walls (2, 3 and 4) and the distance, which is between the opposite walls of the casing (9). The step (10) is closed by the curve (101).

[0027] In the present invention, the oven (1) comprises a chamber support (11) which is formed by bending the casing (9) inner edges towards the cooking chamber (6) such that they will form a horizontal surface and which is fixed by being seated onto the support means (103). The chamber support (11) and the support means (103) enables the casing (9) and the walls (2, 3 and 4), which are sheet-shaped and the frontals of the edges of which face each other vertically, to be joined with each other in the horizontal position, whereto they are brought by being bent. Furthermore, since the edges of the chamber support (11) and of the support means (103) extend towards the opposite direction of the opening (7), they enable the edges not to be visible from the outside of the cooking chamber (6) (Figure 7).

[0028] In an embodiment of the present invention, the oven (1) comprises a carrying means (12) which is formed by bending the rear wall (5) outer edges towards the cooking chamber (6) such that they will form a horizontal surface and whereon the rear edges of the walls (2, 3 and 4) are fixed when the walls (2, 3 and 4) and the rear wall (5) are joined. The edges of the rear wall (5), which is vertical to the walls (2, 3 and 4), are enabled to be joined with the carrying means (12) on the same horizontal plane they are brought to with the carrying means (12) by methods such as spot welding and riveting (Figures 4 and 5).

[0029] In an embodiment of the present invention, the oven (1) comprises a joint line (H) which forms the border whereat the chamber support (11) and the support means (103) are joined facing each other, and which remains outside the cooking chamber (6). The chamber support (11) and the support means (103) are fixed to each other along the joint line (H) by spot welding. Thus, the wall (2, 3 and 4) and the casing (9) join firmly (Figure 6).

[0030] According to the present invention, the chamber support (11) and the support means (103) are fixed to each other by spot welding. The chamber support (11) and the support means (103) are fixed to each other by being welded from the points which are determined by the producer and located on the chamber support (11)

at intervals. Thus, the thermal bridges between the walls (2, 3 and 4) and the casing (9) are decreased.

[0031] In this embodiment, the oven (1), furthermore, comprises at least one gasket (13) which is seated between the curve (101) and the casing (9) such that it will prevent the joint line (H) from being visible from the outside. After the gasket (13) is mounted, the gasket (13), the walls (2, 3 and 4) and the casing (9) appear as a flat surface when viewed from the outside. The user cleans the oven (1) easily since there is no recess or protrusion at the joint points. Since the joint line (H), whereto the gasket (13) is mounted, remains outside the cooking chamber (6), the joint line (H) is not affected by the temperature increased during cooking (Figure 13).

[0032] By shaping a single sheet (L) by the deep drawing method and cutting the sheet (L) along a closed rectangular line, the rear wall (5) is formed from the portion remaining inside the line and the casing (9) is formed from the portion remaining outside the rear wall (5) (Figures 7 and 8). Thus, in order to form a rear wall (5) and a casing (9), a single sheet (L) is used instead of two different sheets (L) and thus, a large amount of waste material is prevented from being generated (Figures 9, 10, 11, 12 and 13).

[0033] The oven (1) of the present invention is produced according to the following steps:

- shaping of the bottom wall (2), top wall (3) and side walls (4) in a mould,
- curving of the front edges of the walls (2, 3 and 4) to form curves (101),
- shaping of the rear wall (5) and the casing (9) from a single sheet (L) by the deep drawing method,
- cutting of the sheet (L) along a closed rectangular line such that the portion remaining inside will form the rear wall (5) and the portion remaining outside will form the casing (9),
- bending of the edges of the casing (9) such that a step (10) will remain between the casing (9) and the rear wall (5),
- joining of the walls (2, 3 and 4) with the rear wall (5) and the casing (9).

[0034] By means of the oven (1) of the present invention, at the cooking chamber (6) front portions, whereto the user can reach, no joint protrusion is present. By means of the curves (101) and the casing (9) being joined outside the cooking chamber (6) such that their edges will face the inside of the body (G), the edges are not visible to the user. In the embodiment wherein gasket (13) is used, also the joint points are not visible at all, and dust and stain do not accumulate there.

Claims

1. An oven (1) comprising a cooking chamber (6) which has a bottom wall (2), a top wall (3), two side walls (4) and a rear wall (5) that are formed by cutting and bending the sheets (L) preferably from metal material, and which is formed by joining the walls (2, 3 and 4) with the rear wall (5) and wherein foods to be cooked are disposed; an opening (7) through which the access to the cooking chamber (6) through between the front edges of the walls (2, 3 and 4) is provided, and a door (8) which provides the opening (7) to be closed and which is opened preferably by bending towards the front, further comprising

- a U-shaped curve (101) which is formed by bending the front edge of the walls (2, 3 and 4) towards the outside of the cooking chamber (6),
- a casing (9) which is mounted onto the curve (101) such that it will encircle the front edge of the walls (2, 3 and 4), and the line (H), wherein it joins with the curve (101), will remain outside the cooking chamber (6),
- the U-shaped curve (101) is oblique such that its orifice portion will face the opposite direction of the opening (7)
- the U-shaped curve (101) is formed by bending the front edges of the walls (2, 3 and 4) towards themselves,
- the U-shaped curve (101) comprises a base (102) and a support means (103) that is formed by the wall (2, 3 and 4) portions bent towards themselves,
- a chamber support (11) is formed by bending the casing (9) inner edges towards the cooking chamber (6) such that they will form a horizontal surface and which is fixed by being seated onto the support means (103),
- the joint line (H) which forms the border whereat the chamber support (11) and the support means (103) are joined facing each other, and which remains outside the cooking chamber (6),
- at least one gasket (13) is disposed between the casing (9) and the curve (101),
- a step (10), the length of which is equal to the difference between the distance, which is between the opposite walls (2, 3 and 4) and the distance, which is between the opposite walls of the casing (9), wherein the step (10) is closed by the curve (101),

wherein the chamber support (11) and the support means (13) are fixed to each other by spot welding by being welded from the points located on the chamber support (11) at intervals.

2. A production method which comprises the following steps in order to form the cooking chamber (6) of an oven (1) in Claim 1:

- shaping of the bottom wall (2), top wall (3) and side walls (4) in a mould,

- curving of the front edges of the walls (2, 3 and 4) to form curves (101),
- shaping of the rear wall (5) and the casing (9) from a single sheet (L) by the deep drawing method,
- cutting of the sheet (L) along a closed rectangular line such that the portion remaining inside will form the rear wall (5) and the portion remaining outside will form the casing (9),
- bending of the edges of the casing (9) such that a step (10) will remain between the casing (9) and the rear wall (5),
- joining of the walls (2, 3 and 4) with the rear wall (5) and casing (9).

Patentansprüche

1. Ein Ofen (1) umfasst einen Garraum (6), der eine Bodenwand (2), eine Deckenwand (3), zwei Seitenwände (4) und eine Rückwand (5) besitzt, die durch Schneiden und Biegen der Bleche (L) gebildet werden und vorzüglicher Weise aus Metallmaterial hergestellt sind und dass sie durch das Verbinden der Wände (2, 3 und 4) mit der Rückwand (5) gebildet ist und darin die zu kochenden Lebensmittel bereitgestellt werden; eine Öffnung (7), durch dessen der Zugang zu dem Garraum (6) zwischen den Vorderkanten der Wände (2,3 und 4) erfolgt und eine Tür (8), durch dessen die Öffnung (7) geschlossen werden kann und durch das Biegen oder Neigen nach vorne geöffnet wird, darüber hinaus umfasst er

- eine LI-förmige Kurve (101), die durch das Biegen der Vorderkante der Wände (2, 3 und 4) zu der Außenseite des Garraums (6) gebildet wird,
- ein Gehäuse (9), das so auf die Kurve (101) montiert ist, dass es die Vorderkante der Wände (2, 3 und 4) und die Geldstrafe (H) umgibt, wobei es sich mit der Kurve (101) verbindet, die außerhalb des Garraums (6) verbleibt,
- die LI-förmige Kurve (101) ist schräg ausgebildet, so dass ihr Öffnungsabschnitt der entgegengesetzten Richtung der Öffnung (7) zugewandt ist
- die U-förmige Kurve (101) wird so gebildet, dass die Vorderkanten der Wände (2, 3 und 4) zu sich selbst gebogen werden,
- die LI-förmige Kurve (101) umfasst eine Basis (102) und eine Stütze (103), die durch die zu sich selbst geneigte Wandteile (2, 3 und 4) gebildet wird,
- ein Kammerträger (11) wird ausgeführt, indem die Innenkanten des Gehäuses (9) in die Richtung des Garraums (6) gebogen werden, so dass sie eine horizontale Oberfläche bilden können, der durch Aufsetzen auf das Trägermittel (103) fixiert wird,
- die Grenze bildende Verbindungslinie (H), an der der Kammerträger (11) und die Stütze (103) einander zugewandt verbunden sind und die außerhalb des Garraums (6) verbleibt,
- mindestens eine Dichtung (13), die zwischen dem Gehäuse (9) und der Kurve (101) angeordnet ist,
- eine Stufe (10), dessen Länge mit der Differenz zwischen dem Abstand der gegenüberliegenden Wänden (2, 3 und 4) und dem Abstand zwischen den gegenüberliegenden Wänden des Gehäuses (9) ist übereinstimmt, wobei diese Stufe (10) die geschlossene durch die geschlossene Kurve (101) ist und das die Stützen (13) durch Punktschweißen aneinander befestigt sind, indem sie von den auf dem Kammerträger (11) angeordneten Punkten in Intervallen verschweißt werden.

2. Ein Herstellungsverfahren, der die folgenden Schritte umfasst, um den Garraum des Ofens (1), wie in Anspruch 1 aufgeführt, zu führen:

- Formen von Bodenwand (2), Deckenwand (3} und Seitenwänden (4) in einer Form,
- Krümmen der Vorderkanten der Wände (2, 3 und 4) für die Bildung von Kurven (101)
- Formen der Rückwand (5) und des Gehäuses (9) aus einem einzigen Blech (L) im Tiefziehverfahren,
- Schneiden der Folie (L) entlang einer geschlossenen rechteckigen Linie, so dass der innen verbleibende Teil die Rückwand (5) und der außen verbleibende Teil das Gehäuse (9) bilden kann,
- Biegen der Kanten des Gehäuses (9), so dass eine Stufe (10) zwischen dem Gehäuse (9) und der Rückwand (5) verbleibt,
- Verbinden der Wände (2, 3 und 4) mit der Rückwand (5) und dem Gehäuse (9).

Revendications

1. Un four(1)comprenant une chambre de cuisson (6) laquelle présente une paroi inférieure (2), une paroi supérieure (3), deux parois latérales (4) et une paroi arrière (5) qui sont formées par coupage et pliage des plaques (L) de préférence en matériel métallique, et lequel est formé à partir de l'assemblage des parois (2, 3 et 4) à la paroi arrière (5) et dans lequel les aliments à cuire sont placés ; une ouverture (7) à travers laquelle l'accès à la chambre de cuisson (6) est prévu entre les bordures avant des parois (2, 3 et 4), et une porte (8) qui permet de fermer l'ouverture (7) et qui s'ouvre de préférence en se pliant vers l'avant, comprenant en outre

- une courbe en forme de U (101) qui se forme

par pliage de la bordure avant des parois (2, 3 et 4) vers l'extérieur de la chambre de cuisson (6),
- un carter (9) qui est monté sur la courbe (101) de manière à encercler la bordure avant des parois (2, 3 et 4), et la ligne (H), dans laquelle il se joint à la courbe (101), de manière à rester à l'extérieur de la chambre de cuisson (6),
- la courbe en forme de U (101) est oblique de sorte que sa partie formant l'orifice fera face à la direction opposée de l'ouverture (7)
- la courbe en forme de U (101) est formée par pliage des bordures avant des parois (2, 3 et 4) sur eux-mêmes,
- la courbe en forme de U (101) comprend une base (102) et un moyen de support (103) qui se forme par le pliage des parties des parois (2, 3 et 4) sur eux-mêmes,
- un support de chambre (11) qui est formé par le pliage des bordures intérieurs du carter (9) vers la chambre de cuisson (6) de manière à ce qu'elles forment une surface horizontale et qui est fixé en étant assis sur le moyen de support (103),
- la ligne de jonction (H) laquelle forme le bord où le support de chambre (11) et le moyen de support (103) se joignent en se faisant face, et laquelle reste à l'extérieur de la chambre de cuisson (6)
- au moins un joint (13) est disposé entre le carter (9) et la courbe (101),
- un échelon (10) dont la longueur est égale à la différence entre la distance qui se situe entre les parois opposées (2, 3 et 4) et la distance qui se situe entre les parois opposées du carter (9), où l'échelon (10) est fermée par la courbe (101),

dans lequel le support de chambre (11) et le moyen de support (13) sont fixés l'un à l'autre par soudure par points en étant soudés à intervalles réguliers à partir des points situés sur le support de chambre (11).

2. Une méthode de production qui comprend les étapes suivantes afin de former la chambre de cuisson (6) d'un four (1) selon la Revendication 1 :

- façonnage de la paroi inférieure (2), de la paroi supérieure (3) et des parois latérales (4) dans un moule,
- courbure des bordures avant des parois (2, 3 et 4) pour former des courbes (101),
- façonnage de la paroi arrière (5) et du carter (9) à partir d'une seule plaque (L) par procédé d'emboutissage profond,
- découpage de la plaque (L) le long d'une ligne rectangulaire fermée de telle sorte que la partie restant à l'intérieur va former la paroi arrière (5) et la partie restant à l'extérieur va former le carter (9),
- pliage des bordures du carter (9) de manière à laisser un échelon (10) entre le carter (9) et la paroi arrière (5),
- jonction des parois (2, 3 et 4) avec la paroi arrière (5) et le carter (9).

Figure 1

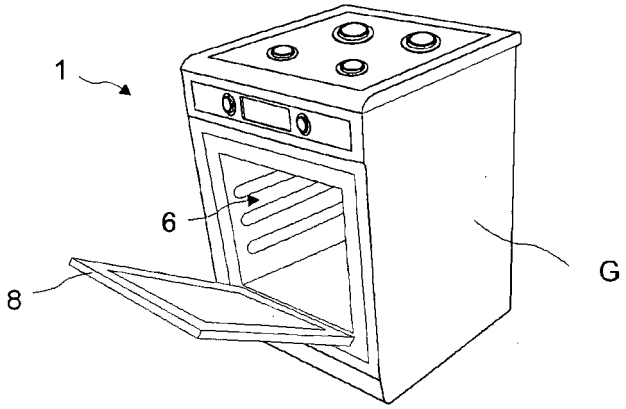


Figure 2

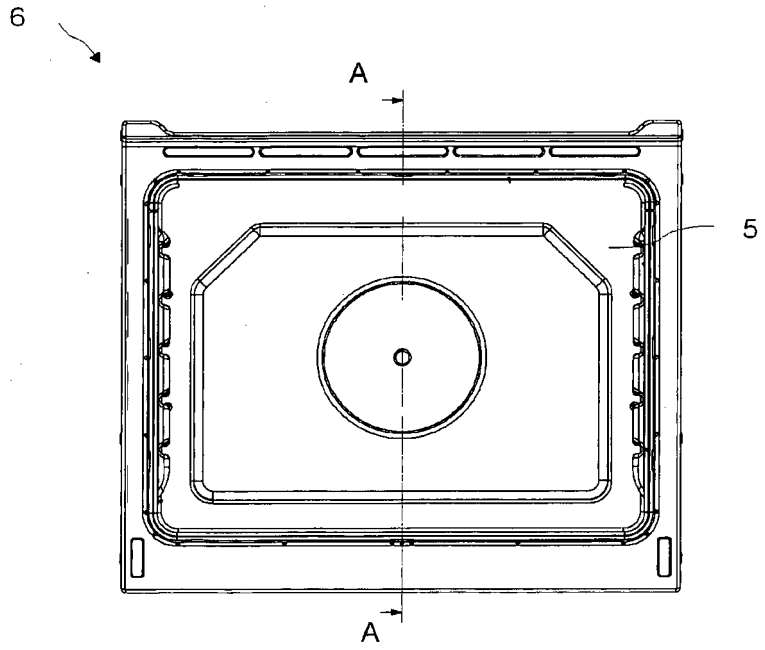


Figure 3

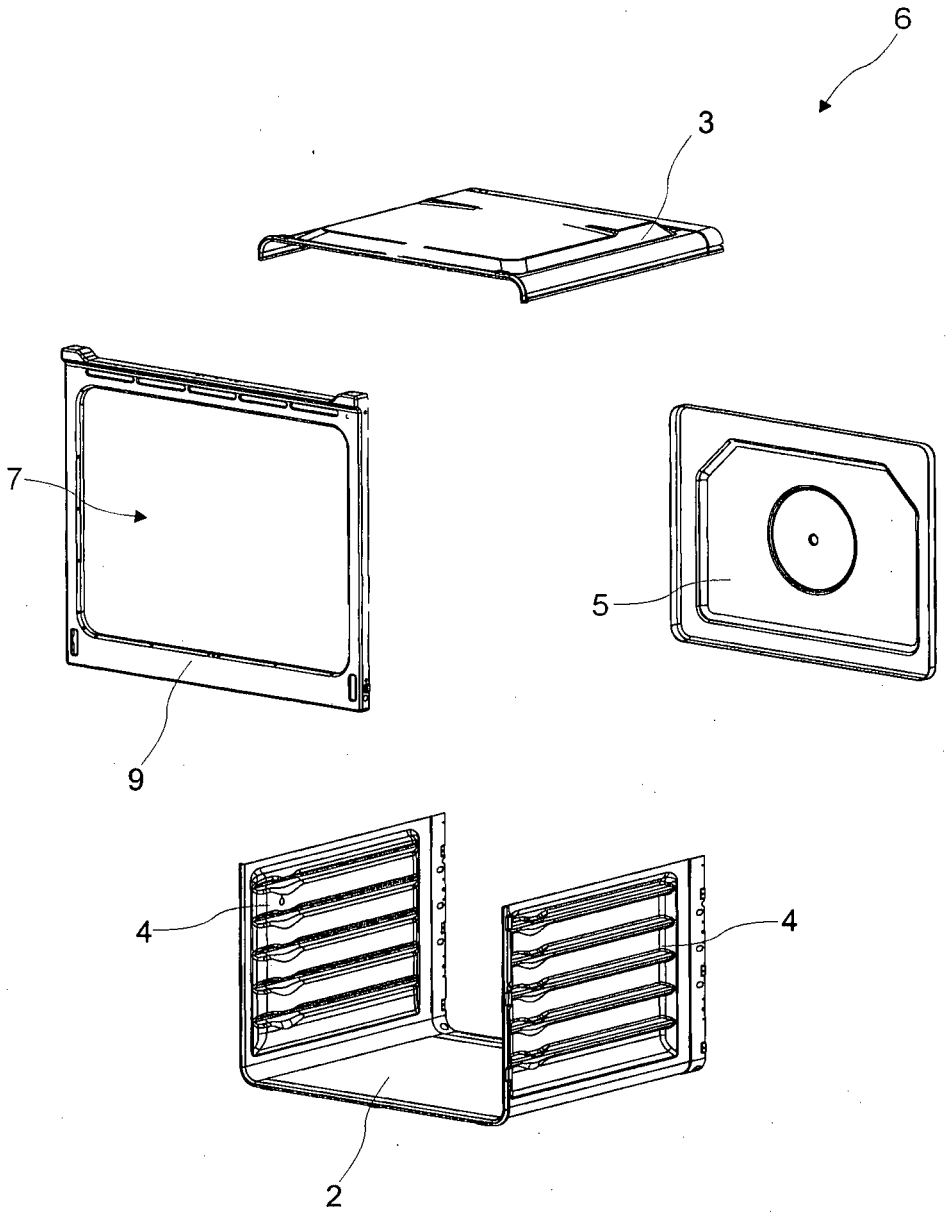


Figure 4

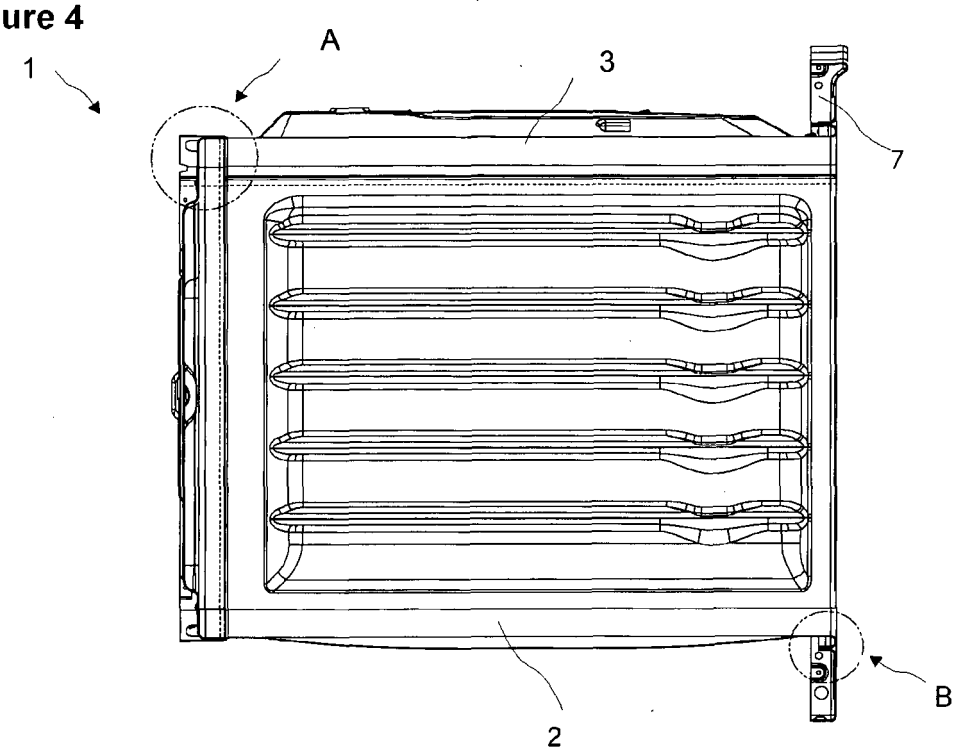


Figure 5

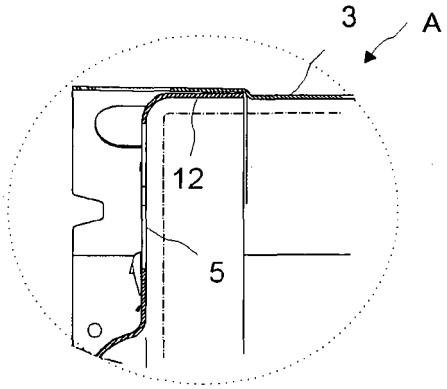


Figure 6

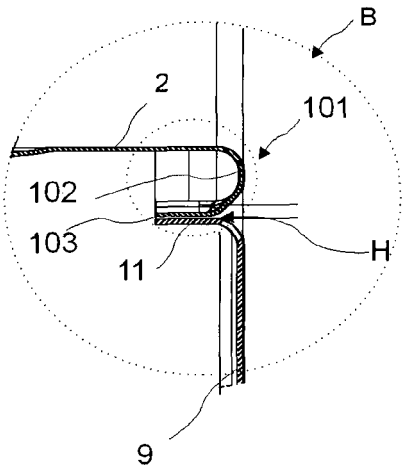


Figure 7

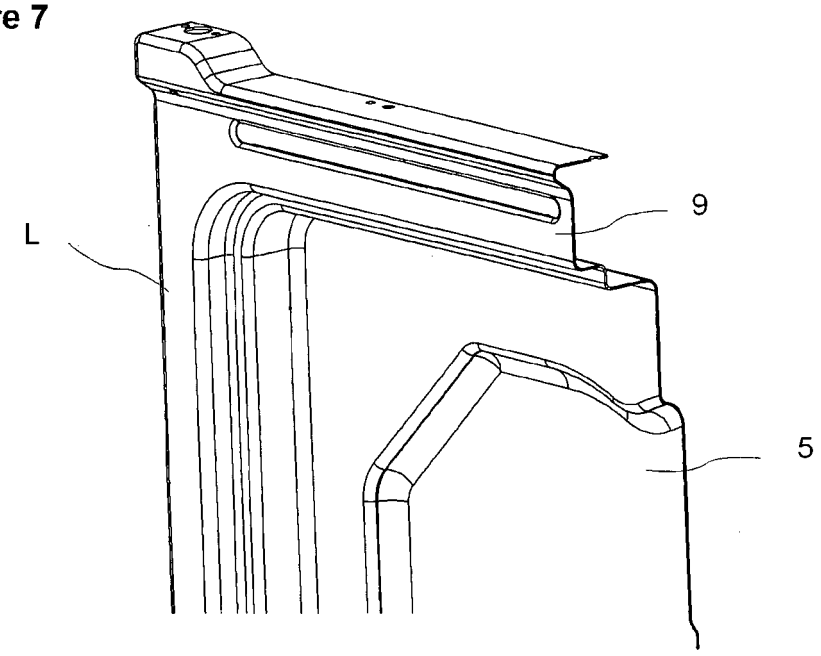


Figure 8

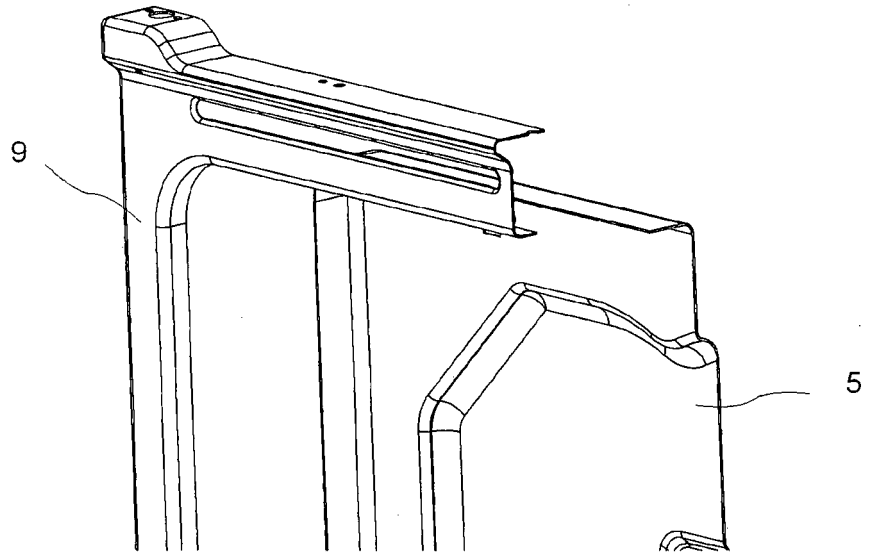


Figure 9

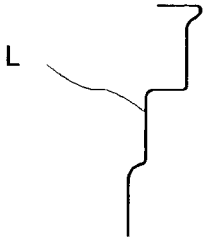


Figure 10

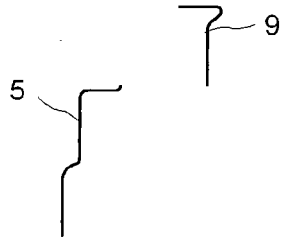


Figure 11

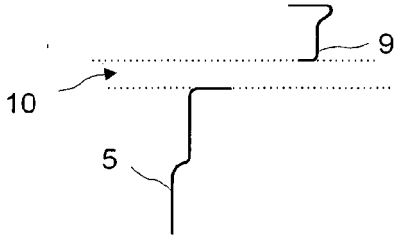


Figure 12

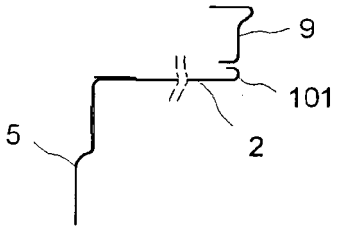
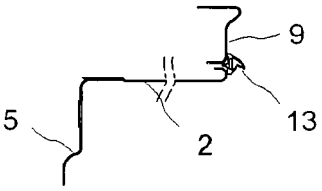


Figure 13



REFERENCES CITED IN THE DESCRIPTION

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