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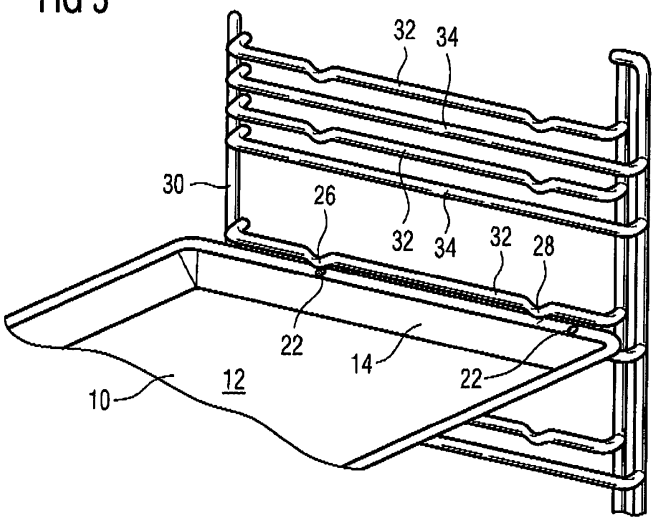
(54) A cooking oven with a foodstuff support and lateral guiding devices

(57) The present invention relates to a cooking oven with at least one slidable foodstuff support (10) and at least one pair of lateral guiding devices (32, 34) for said foodstuff support (10). The foodstuff support (10) includes at least one support embossing (22) formed in a lateral border (20) of said foodstuff support (10). The guiding devices (32, 34) of one pair are arranged at two opposite side walls of an oven cavity. At least one guiding device (32, 34) includes a rear embossing (26) interacting with the support embossing (22), so that the support embossing (22) and the rear embossing (26) form a push-in-stop for the foodstuff support (10) . The at least one guiding device (32, 34) includes a front embossing (28) interacting with the support embossing (22), so that the support embossing (22) and the front embossing (28) form a pull-out-stop for the foodstuff support (10). The rear embossing (26) and the front embossing (28) extend into directions opposite to the direction of the support embossing (22). Further, the present invention relates to a corresponding foodstuff support (10) for the cooking oven. Additionally, the present invention relates to a side grid (30) for a side wall in an oven cavity of the cooking oven.

FIG 5



EP 2 378 208 A1

Description

[0001] The present invention relates to a cooking oven with at least one foodstuff support and at least one pair of lateral guiding devices. Further, the present invention relates to a foodstuff support for the above cooking oven. Additionally, the present invention relates to a side grid for a side wall of an oven cavity.

[0002] The foodstuff support in a cooking oven should be placed in a predetermined position, so that the air circulation is nor disturbed. Further, it would be advantageous that the foodstuff support cannot be pushed against the rear wall of the oven cavity in order to prevent a damage of said rear wall.

[0003] DE 102 18 517 A1 discloses a foodstuff support with a number of stop elements. The stop elements are formed as a broadening in the frame of the foodstuff support. The stop elements prevent an unintentional drawing out of the foodstuff support.

[0004] DE 10 2004 054 801 A1 discloses a grid for a cooking oven. The grid comprises convexities in its outer bars. The convexities act as a pull-out-stop for the grid.

[0005] GB 1 127 805 discloses a guiding device embossed into the side wall of an oven cavity. An element at the foodstuff support acts as a pull-out-stop. The guiding device comprises separately fastened support elements.

[0006] DE 103 14 586 A1 discloses guiding devices for foodstuff supports. The guiding devices are embossed into the side wall of the oven cavity. The geometric form of the guiding device prevents a tilting of the foodstuff supports and may act as a pull-out-stop.

[0007] It is an object of the present invention to provide a cooking oven with a foodstuff support and lateral guiding devices, wherein a pull-out-stop as well as a push-in-stop is realized by low complexity.

[0008] The object of the present invention is achieved by the cooking oven according to claim 1.

[0009] According to the present invention the cooking oven includes at least one slidable foodstuff support and at least one pair of lateral guiding devices for said foodstuff support, wherein:

- the foodstuff support includes at least one support embossing formed in a lateral border of said foodstuff support,
- the guiding devices of one pair are arranged at two opposite side walls of an oven cavity,
- at least one guiding device includes a rear embossing interacting with the support embossing, so that the support embossing and the rear embossing form a push-in-stop for the foodstuff support,
- the at least one guiding device includes a front embossing interacting with the support embossing, so that the support embossing and the front embossing form a pull-out-stop for the foodstuff support, and
- the rear embossing and the front embossing extend into directions opposite to the direction of the support embossing.

[0010] The core of the present invention is the double function of the embossing in the foodstuff support. Another central point of the present invention is the interaction between the support embossing on the one hand and the embossings of the guiding device on the other hand. The interaction between the support embossing and the rear embossing of the guiding device allows a push-in-stop. The interaction between the support embossing and the front embossing of the guiding device allows a pull-out-stop. The embossings may be realized by low complexity.

[0011] According to a preferred embodiment of the present invention the foodstuff support is symmetric in relation to a central axis parallel to the sliding direction of said foodstuff support. This symmetric structure allows a double push-in-stop as well as a double pull-out-stop.

[0012] Preferably, the foodstuff support includes a further support embossing formed in the lateral border of said foodstuff support. Thus, the front side and the rear side of the foodstuff support may be exchanged, wherein the push-in-stop and the pull-out-stop functions are maintained.

[0013] Thereby the foodstuff support may be symmetric in relation to a central axis perpendicular to the sliding direction of said foodstuff support. Thus, the support embossing and the further support embossing have the same distance from the rear side and the front side of the foodstuff support, respectively. The front side and the rear side of the foodstuff support can be exchanged by maintaining the geometric properties of the push-in-stop and pull-out-stop functions.

[0014] According to the preferred embodiment of the present invention the rear embossing and the front embossing of the at least one guiding device extend downwards and at least one support embossing of the foodstuff support extends upwards.

[0015] For example, the at least one pair of lateral guiding devices is embossed in the opposite side walls of the oven cavity. This is only one possibility for the lateral guiding devices.

[0016] Alternatively, the at least one pair of lateral guiding devices is formed as at least one pair of side grids attached or attachable at the opposite side walls of the oven cavity.

[0017] Thereby, the guiding device may be formed by an upper horizontal bar and a lower horizontal bar of the side grid.

[0018] Preferably, the rear embossing and the front embossing are formed by a salient in the upper horizontal bar. Said salient is a substantial contribution for the low complexity.

[0019] Alternatively or additionally, the rear embossing and the front embossing are formed by a salient in the lower horizontal bar.

[0020] The present invention relates further to a foodstuff support provided for the cooking oven as described

above.

[0021] At last, the present invention relates to a side grid for the side wall in the oven cavity of the cooking oven.

[0022] Novel and inventive features of the present invention are set forth in the appended claims.

[0023] The present invention will be described in further detail with reference to the accompanied drawings, in which

FIG 1 illustrates a perspective view of a foodstuff support according to a preferred embodiment of the present invention,

FIG 2 illustrates a detailed perspective view of a support embossing at the foodstuff support according to the preferred embodiment of the present invention,

FIG 3 illustrates a detailed side view of the support embossing at the foodstuff support according to the preferred embodiment of the present invention,

FIG 4 illustrates a perspective view of a side grid according to the preferred embodiment of the present invention,

FIG 5 illustrates a perspective view of the side grid and the foodstuff support according to the preferred embodiment of the present invention,

FIG 6 illustrates a detailed perspective view of a rear embossing at the side grid and a support embossing at the foodstuff support according to the preferred embodiment of the present invention, and

FIG 7 illustrates a detailed side view of the rear embossing at the side grid and the support embossing at the foodstuff support according to the preferred embodiment of the present invention.

[0024] FIG 1 illustrates a perspective view of a foodstuff support 10 according to a preferred embodiment of the present invention. In this example the foodstuff support 10 is a baking sheet. Alternatively, the foodstuff support 10 may be a grid or a drip pan.

[0025] The foodstuff support 10 is formed as a one-pieced sheet with a bottom area 12 and relative low side walls 14 extending upwardly from said bottom area 12. The upper edges of the side walls 14 are enclosed by a horizontal border. The horizontal border includes a front border 16, a rear border 18 and two lateral borders 20.

[0026] Each lateral border 20 includes two support embossings 22 in each case. The one support embossing 22 is arranged in a rear portion of the lateral border 20 and the other support embossing 22 is arranged in a front portion of said lateral border 20. In this embodiment the distance of the support embossing 22 in the rear portion of the lateral border 20 and the rear side of the foodstuff support 10 corresponds with the distance of the support embossing 22 in the front portion of the lateral border 20 and the front side of the foodstuff support 10.

[0027] In this example the foodstuff support 10 comprises all in all four support embossings 22. However, the two support embossings 22 in the rear portions of the lateral borders 20 would be enough. The four support embossings 22 allow a rotation of the foodstuff support 10, wherein the rear side and front side of the foodstuff support 10 are exchanged.

[0028] FIG 2 illustrates a detailed perspective view of a support embossing 22 at the foodstuff support 10 according to the preferred embodiment of the present invention. FIG 2 clarifies the structure of the support embossing 22, which is formed as a salient in the lateral border 20 of the foodstuff support 10.

[0029] FIG 3 illustrates a detailed side view of the support embossing 22 at the foodstuff support 10 according to the preferred embodiment of the present invention. Also in FIG 3 the structure of the support embossing 22 is shown in detail.

[0030] FIG 4 illustrates a perspective view of a side grid 30 according to the preferred embodiment of the present invention. Two symmetric side grids 30 are provided for the side walls of an oven cavity. The side grid 30 is made of horizontal and vertical bars.

[0031] The side grid 30 comprises a number of guiding devices. In this example the side grid 30 comprises five guiding devices. Since two symmetric side grids 30 are attached at side walls of the oven cavity, five pairs of guiding devices are arranged at different levels in the oven cavity. The pair of guiding devices is provided for receiving the slidable foodstuff support 10.

[0032] Each of the guiding devices includes an upper horizontal bar 32 and a lower horizontal bar 34. The lower horizontal bar 34 is provided for supporting the corresponding lateral border 20 of the foodstuff support 10. The upper horizontal bar 32 prevents a tilting of the foodstuff support 10, when a part of said foodstuff support 10 has been extracted from the oven cavity.

[0033] In particular, the upper horizontal bar 32 includes a rear embossing 26 and a front embossing 28. The rear embossing 26 is a buckling in the rear portion of the upper horizontal bar 32, wherein said buckling extends downwards. In a similar way, the front embossing 28 is a buckling in the front portion of the upper horizontal bar 32, wherein the buckling also extends downwards.

[0034] The rear embossing 26 of the side grid 30 and the support embossing 22 of the foodstuff support 10 form a push-in-stop for the foodstuff support 10. In a similar way, the front embossing 28 of the side grid 30 and the support embossing 22 of the foodstuff support 10 form a pull-out-stop for the foodstuff support 10. The pull-out-stop acts, when the foodstuff support 10 is tilting.

[0035] The push-in-stop prevents that the foodstuff support 10 knock a rear wall of the oven cavity. The pull-out-stop prevents that the foodstuff support 10 tumbles down from the oven cavity. Thus, the foodstuff support 10 is slidable along the pair of guiding devices, wherein the support embossing 22 is moveable between the rear embossing 26 and the front embossing 28.

[0036] FIG 5 illustrates a perspective view of the side grid 30 and the foodstuff support 10 according to the preferred embodiment of the present invention. FIG 5 shows that position of the foodstuff support 10 in relationship to the side grid 30, when said foodstuff support 10 has been pushed into the oven cavity. The support embossing 22 of the foodstuff support 10 is aligned at the rear embossing 26 of the side grid 30.

[0037] In FIG 5 the distance between the front border 16 and its closest support embossing 22 is smaller than the distance between the rear border 18 and its closest support embossing 22. Alternatively, the said two distances may be equal. In the case the foodstuff support 10 is symmetric, and the front border 16 and the rear border 18 may be interchanged.

[0038] FIG 6 illustrates a detailed perspective view of the rear embossing 26 at the side grid 30 and the support embossing 22 at the foodstuff support 10 according to the preferred embodiment of the present invention. FIG 6 shows that the support embossing 22 lies against the rear embossing 26. The interaction of the support embossing 22 and the rear embossing 26 forms the push-in stop of the foodstuff support 10.

[0039] FIG 7 illustrates a detailed side view of the rear embossing 26 at the side grid 30 and the support embossing 22 at the foodstuff support 10 according to the preferred embodiment of the present invention. FIG 7 clarifies that the support embossing 22 lies against the rear embossing 26, so that the interaction of the support embossing 22 and the rear embossing 26 forms the push-in stop of the foodstuff support 10.

[0040] In order to remove the foodstuff support 10 from the oven cavity the pull-out-stop may be overcome by drawing out said foodstuff support 10, wherein the foodstuff support 10 has to be held in a substantially horizontal position by the user. Otherwise the pull-out-stop acts, when the foodstuff support 10 is tilting.

[0041] Although illustrative embodiments of the present invention has been described herein with reference to the accompanying drawings, it is to be understood that the present invention is not limited to that precise embodiment, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and modifications are intended to be included within the scope of the invention as defined by the appended claims.

List of reference numerals

[0042]

10	foodstuff support
12	bottom area
14	side wall
16	front border
18	rear border
20	lateral border
22	support embossing
26	rear embossing
28	front embossing
30	side grid
32	upper horizontal bar
34	lower horizontal bar

Claims

1. A cooking oven with at least one slidable foodstuff support (10) and at least one pair of lateral guiding devices (32, 34) for said foodstuff support (10), wherein:

- the foodstuff support (10) includes at least one support embossing (22) formed in a lateral border (20) of said foodstuff support (10),
- the guiding devices (32, 34) of one pair are arranged at two opposite side walls of an oven cavity,
- at least one guiding device (32, 34) includes a rear embossing (26) interacting with the support embossing (22), so that the support embossing (22) and the rear embossing (26) form a push-in-stop for the foodstuff support (10),
- the at least one guiding device (32, 34) includes a front embossing (28) interacting with the support embossing (22), so that the support embossing (22) and the front embossing (28) form a pull-out-stop for the foodstuff support (10), and
- the rear embossing (26) and the front embossing (28) extend into directions opposite to the direction of the support embossing (22).

2. The cooking oven according to claim 1, **characterized in, that** the foodstuff support (10) is symmetric (10) in relation to a central axis parallel to the sliding direction of said foodstuff support (10).

3. The cooking oven according to claim 1 or 2, **characterized in, that**
the foodstuff support (10) includes a further support embossing (22) formed in the lateral border (20) of said foodstuff support (10).

4. The cooking oven according to claim 3,
characterized in, that
the foodstuff support (10) is symmetric (10) in relation to a central axis perpendicular to the sliding direction of said foodstuff support (10).

5. The cooking oven according to any one of the preceding claims,
characterized in, that
the rear embossing (26) and the front embossing (28) of the at least one guiding device (32, 34) extend downwards and at least one support embossing (22) of the foodstuff support (10) extends upwards.

6. The cooking oven according to any one of the preceding claims,
characterized in, that
the at least one pair of lateral guiding devices (32, 34) is embossed in the opposite side walls of the oven cavity.

7. The cooking oven according to any one of the preceding claims,
characterized in, that
the at least one pair of lateral guiding devices (32, 34) is formed as at least one pair of side grids (30) attached or attachable at the opposite side walls of the oven cavity.

8. The cooking oven according to claim 7,
characterized in, that
the guiding device is formed by an upper horizontal bar (32) and a lower horizontal bar (34) of the side grid (30).

9. The cooking oven according to claim 8,
characterized in, that
the rear embossing (26) and the front embossing (28) are formed by a salient in the upper horizontal bar (32).

10. The cooking oven according to claim 8 or 9,
characterized in, that
the rear embossing (26) and the front embossing (28) are formed by a salient in the lower horizontal bar (34).

11. A foodstuff support for a cooking oven,
characterized in, that
the foodstuff support (10) is provided for a cooking oven according to any one of the claims 1 to 10.

12. A side grid for a side wall in an oven cavity of a cooking oven,
characterized in, that
the side grid (30) is provided for a cooking oven according to any one of the claims 7 to 10.

FIG 1

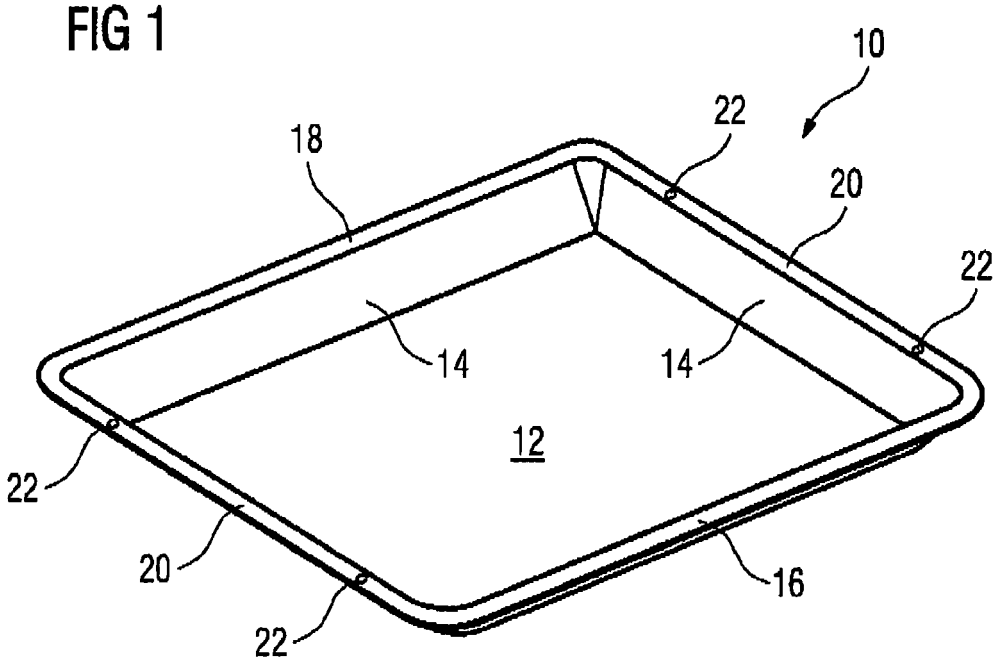


FIG 2

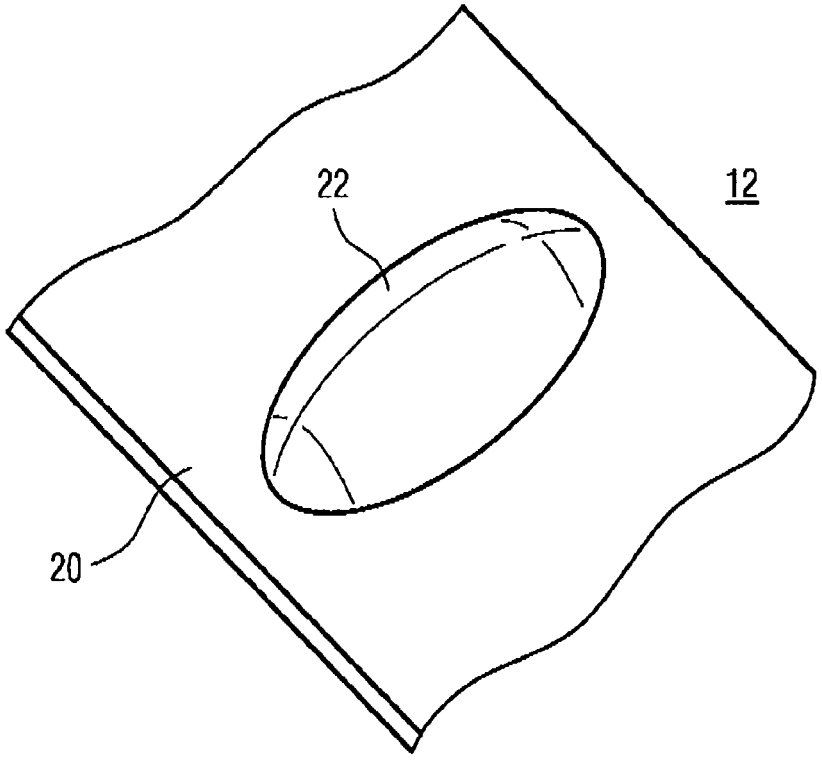


FIG 3

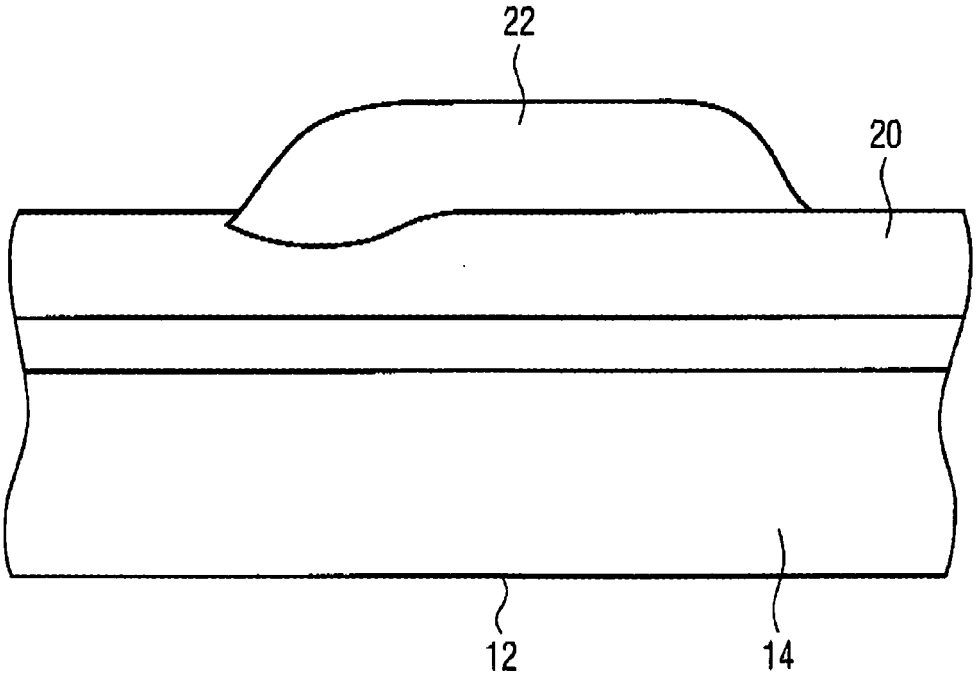


FIG 4

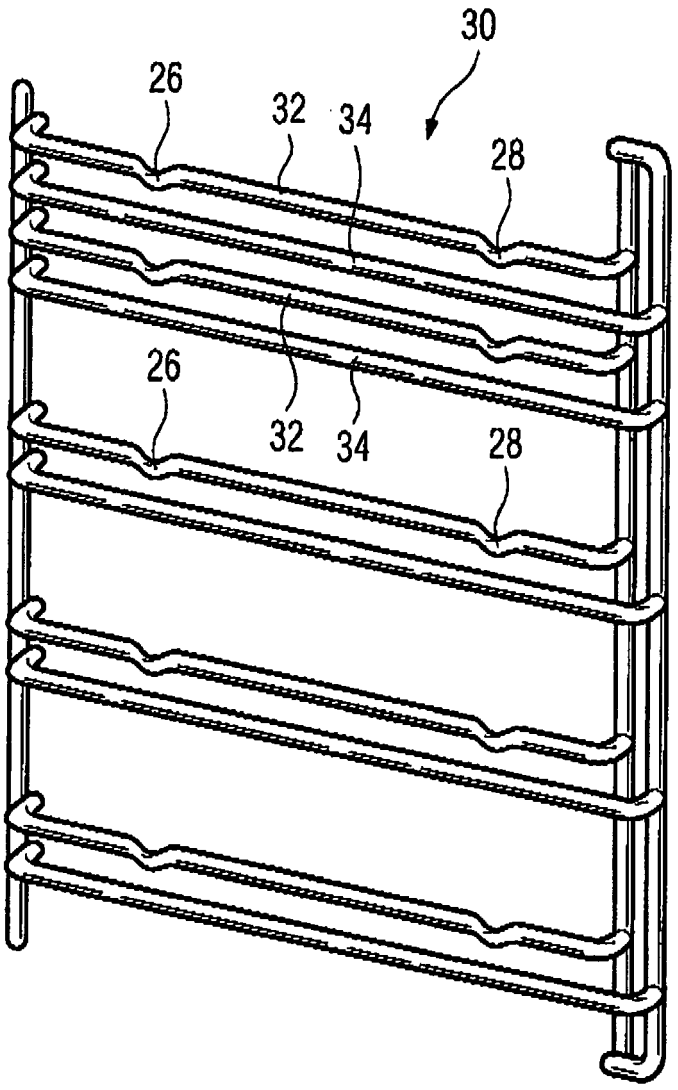


FIG 5

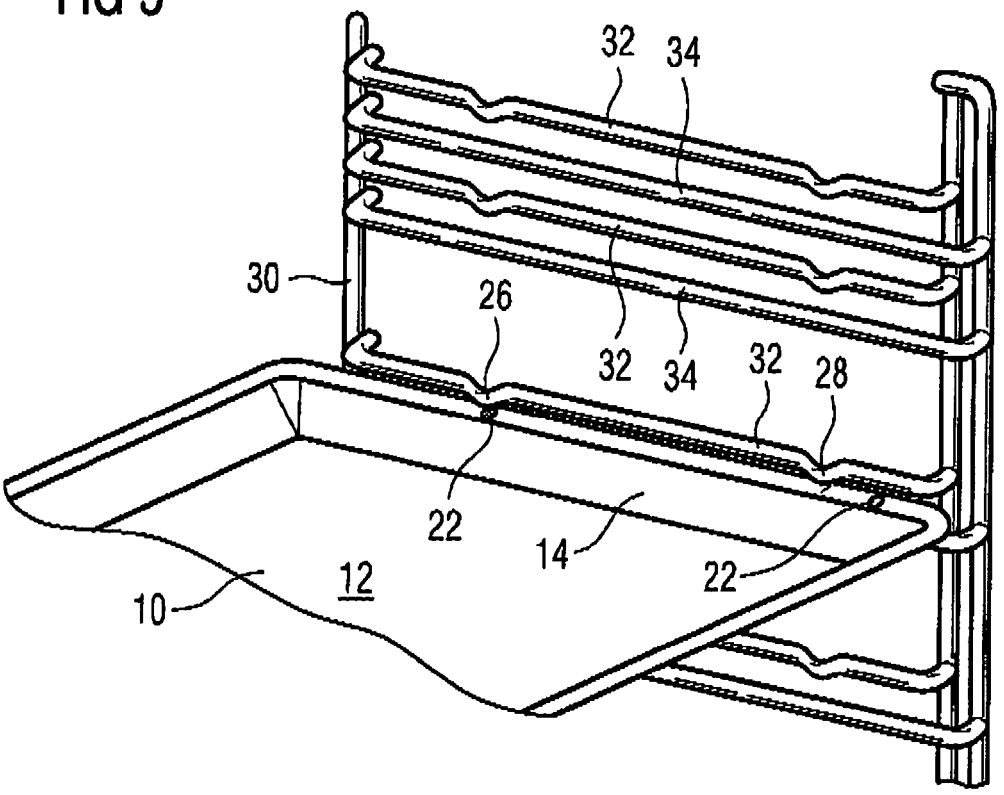


FIG 6

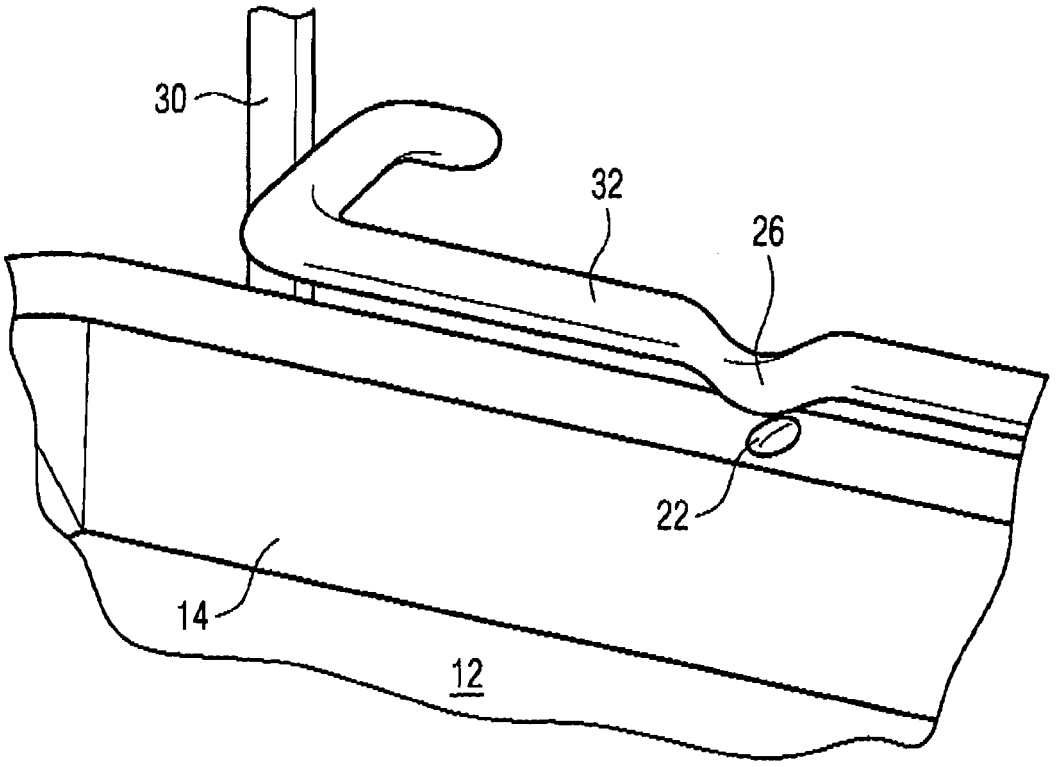
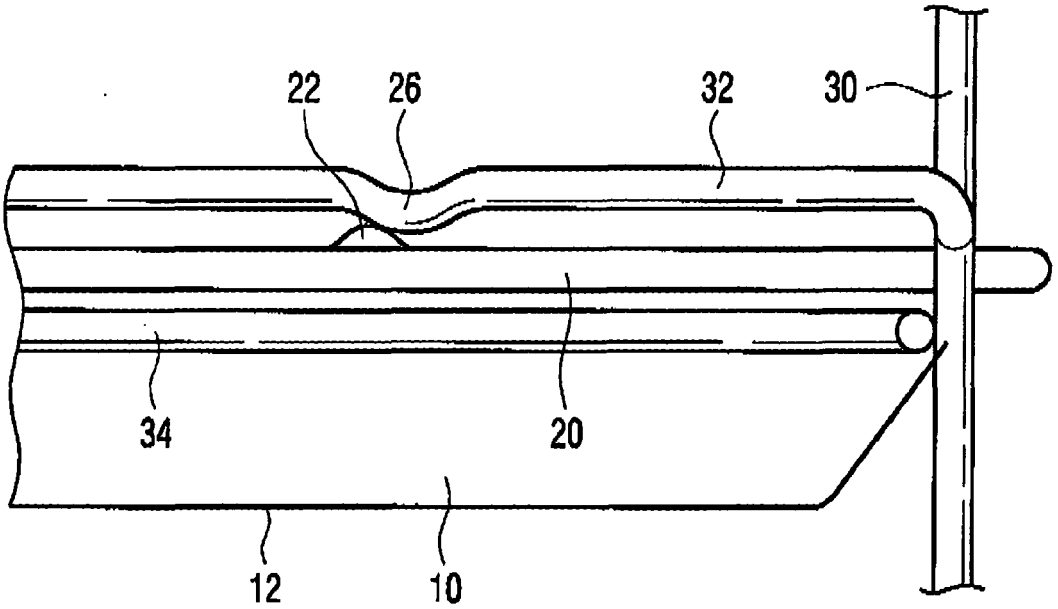


FIG 7



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EUROPEAN SEARCH REPORT

Application Number
EP 10 00 3517

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X Y	WO 2008/072868 A1 (PARK YOON SIK [KR]) 19 June 2008 (2008-06-19) * abstract; figures 1-9 * * paragraphs [0004], [0015], [0041], [0044] *	1,2,4-6, 11,12 3,7-10	INV. F24C15/16
X Y	GB 2 388 186 A (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 5 November 2003 (2003-11-05) * abstract; figures 1-3 * * paragraphs [0020], [0021] *	11 3,7,8	
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Y	WO 2007/077163 A1 (ARCELIK ANONIM SIRKETI [TR]; MAMATOGLU MURAT [TR]; KALAYCI CEMALETTIN) 12 July 2007 (2007-07-12) * abstract; figure 3 *	9,10	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	22 October 2010	Moreno Rey, Marcos

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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