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(71) Applicant: **Electrolux Home Products Corporation N.V.**
1930 Zaventem (BE)

(72) Inventors:
• **Poerner, Harald**
91220 Schnaittach (DE)
• **Hildner, Dietmar**
90765 Fürth (DE)
• **Weber, Tobias**
91596 Burk (DE)

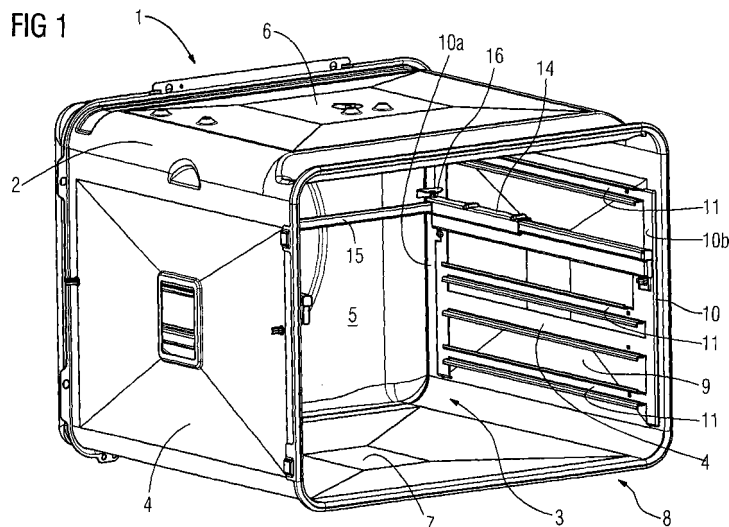
- **Koitzsch, Erhard**
91541 Rotherburg (DE)
- **Kraemer, Kurt**
91628 Steinsfeld (DE)
- **Vetter, Joachim**
91583 Schillingsfürst (DE)
- **Horn, Fritz**
91637 Wörnitz (DE)
- **Kranz, Willi**
91625 Schnelldorf (DE)
- **Wiesinger, Richard**
91608 Geslau (DE)
- **Boeheim, Tobias**
73084 Salach (DE)

(74) Representative: **Hochmuth, Jürgen**
c/o AEG Hausgeräte GmbH
Group Intellectual Property
90327 Nürnberg (DE)

(54) **Support for extractable baking trays and/or baking grids**

(57) The present invention relates to a Support for extractable baking trays (T) and/or baking grids to be arranged in an oven cavity (3) of a baking oven (1), comprising supporting structures (10) to be attached to the side walls (4) of the oven cavity(3), pairs of opposed elongated guiding rails (11), which are disposed one above the other and extend essentially in the horizontal direction

along the side walls (4) of the oven cavity (3), and slide elements (12) or ball cages, which are arranged on the guiding rails (11) and configured in such a way, that a baking tray (T) and/or a baking grid and/or a telescope rail (13) can be attached thereto, wherein the supporting structures (10) are punched and mechanically deformed, in particular bent or embossed metal sheets



Description

TECHNICAL FIELD

[0001] The present invention relates to a support for extractable baking trays and/or baking grids to be arranged in an oven cavity of a baking oven, comprising supporting structures to be attached to the side walls of the oven cavity, pairs of opposed elongated guiding rails, which are disposed one above the other and extend essentially in the horizontal direction along the side walls of the oven cavity, and slide elements or ball cages, which are slidably arranged on the guiding rails and configured in such a way, that a baking tray and/or a telescope rail can be attached thereto.

[0002] Supports for baking ovens of the above mentioned kind are already known in prior art. DE 103 30 348 B4 for example discloses a baking oven having a support for extractable baking trays, which comprises a supporting structure made of a plurality of metal rods and fixed to the side walls of an oven cavity. Attached to the supporting structure are pairs of opposed elongate guiding rails, which are disposed one above the other and extend along side walls of the oven cavity. Each of these guiding rails carries a slide element to be slidably movable along the rail. The slide elements each have upwardly projecting pins, which can be brought into engagement with corresponding openings in a baking tray in order to affix the baking tray to the slide elements. As a consequence, when the baking tray is pushed in or drawn out of the baking oven, the slide elements move along the associated guiding rails facilitating the movements.

[0003] A further baking oven having a support of the above mentioned kind for receiving extractable baking grids is described in EP-A-0 091 666. This support comprises pairs of opposed elongated guiding means, which are disposed one above the other and extend along side walls of the oven cavity. Each guiding means is formed by two parallel metal rods of a supporting structure, which is arranged within the oven cavity. Moreover, the support comprises slide elements, each in the form of a L-shaped metal sheet profile, which are slidably arranged on the guiding rods and are provided with receiving means for receiving a baking grid. The receiving means are made integral with the guiding means and are provided in the form of lugs, which encompass a metal rod of the baking grid to be received. Accordingly, a baking grid can be affixed to the slide elements of the support and can be pushed in or drawn out of the oven cavity by moving the opposed slide elements along the associated guiding means.

[0004] The known supports are sometimes considered to be complicated to manufacture and expensive.

[0005] It is accordingly an object of the present invention to provide a support for extractable baking trays and/or baking grids of the above mentioned kind as well as a baking oven comprising such a support, which are easy to manufacture and inexpensive.

[0006] This object is solved by the provision of the support of the above mentioned kind, which is **characterized in that** the supporting structures are punched and mechanically deformed, in particular bent or embossed metal sheets.

[0007] Likewise the guiding rails and/or the telescope rails may be such punched and mechanically deformed metal sheets. In this case, the guiding rails may be U-shaped and encompass the corresponding webs of the supporting structure with the U-open facing to the interior of the oven. Then the guiding rails are preferably attached to the webs by rivets. Alternatively, the guiding rails may be integrally formed with the supporting structure. According to a further embodiment of the present invention, telescope rails are attached to the slide elements or ball cages, which are provided on the guiding rails. In this case, the telescope rails may also be punched and mechanically deformed, in particular bent or embossed metal sheets.

[0008] In a manner known per se the slide elements or roller cages may be provided with receiving means for a baking tray and/or a baking grid. In this case the receiving means are preferably also at least partially punched and mechanically deformed, in particular bent or embossed metal sheet components.

[0009] It is therefore the main idea of the present invention to use a metal sheet components for the supporting structures, which can thus be easily and inexpensively manufactured. The use of the metal sheet components for the supporting structures, the guiding rails, the telescope rails and the receiving means further has the further advantage, that all components may consist of a steel, a stainless steel, alloyed steel, aluminum or aluminum alloys. Also the components may be nickel plated, enamelled or coated. Finally, the provision of the metal sheet components offers the advantage, that the previous ball cages and slide elements may further be used.

[0010] According to a preferred embodiment slide elements made of plastics are used. These slide elements may either be fixedly attached to the guiding rails and configured to slidably carry a baking tray and/or a baking grid and/or a telescope rail, or they may be attached to the guiding rails slidably along the longitudinal direction thereof. In both alternatives the slide elements are preferably clipped to the guiding rails and/or the telescope rails.

[0011] The foregoing and other features of the present invention can be obtained from the subclaims and the following description of an exemplary embodiment of the present invention making reference to the accompanying drawing. In the drawing

Figure 1 is a schematic perspective view of an oven comprising a support for extractable baking trays and/or baking grids according to an embodiment of the present invention;

Figure 2 is a schematic perspective view of the oven

of figure 1 with a baking tray;

Figure 3 is a schematic perspective view of the oven, wherein telescope rails of the support are completely extracted;

Figure 4 is a perspective view corresponding to figure 3, with a baking tray is affixed to the telescope rail;

Figure 5 is a perspective view corresponding to figure 4, wherein the baking tray is completely extracted out of the oven;

Figure 6 is a schematic sectional view through a guiding rail for a support according to the present invention having a telescopic rail slidingly affixed thereto; and

Figure 7 is a sectional view through a guiding rail for a support structure according to the present invention having affixed thereto a system of two telescopic rails.

[0012] Figures 1 to 5 show a baking oven 1 according to the present invention, which is illustrated without its outer shell to simplifying matters. The oven 1 comprises an inner housing 2 with an oven cavity 3, which is defined by two side walls 4, a back wall 5, a top wall 6 and a bottom wall 7. In the front of the housing 2 an opening 8 is provided, which can be opened and closed by means of a not illustrated oven door.

[0013] In the oven cavity 3 a support 9 is arranged for receiving extractable baking trays T or baking grids. The support 9 has a supporting structure 10, which is fixed to the side walls 4. Moreover, the support 9 comprises a pair of opposed elongate guiding rails 11, which are disposed one above the other and extend horizontally along the side walls 4.

[0014] A slide element 12 is provided on each of the guiding rails 11 slidingly along the longitudinal direction thereof. Here the slide elements 11 are made of a plastic material having good sliding properties to guaranty an easy relative movement between the slide elements 12 and the guiding rail 11.

[0015] Alternatively in a manner known per sé a ball cage with rolling elements such as balls may be arranged on the guiding rail.

[0016] Each slide element 12 carries a telescope rail 13, which is fixedly attached to the slide element 12. The telescope rails 13 in turn have each fixed thereto further slide elements 14, which are slidingly moveable along the longitudinal direction of the telescope rails 13 and are interconnected by a connecting bar 15, which extends across the whole widths of the oven. Accordingly, the movement of the slide elements 14 along the telescope rail 13 is synchronized by means of a connecting bar 15. The slide elements 14 comprise a receiving element 16

for holding a baking tray T or a baking grid in the form of a hook element, which extends upwardly from the rear end of the slide element 14 and has a forwardly directed opening for encompass the end portion of the baking tray T facing to the back wall 5.

[0017] From the drawing it is readily obtainable, that the supporting structures 10 are formed as punched and mechanically deformed metal sheet components, which have the guiding rails 11 integrally formed thereon. Likewise the telescope rails 13 and the slide elements 12, 14, which are provided on the guiding rails 11 as well as the telescope rails 13 are formed as punched and mechanically deformed sheet metal components. Specifically the supporting structures 10 are made of metal sheets, which are punched to form a frame with vertical struts 10a and horizontal webs 10b interconnecting the vertical struts 10a, and the material punched out between the threads 10a and the webs 10b has been used to form the guiding rails 11 integrally with the webs 10b.

[0018] Figure 6 shows an exemplary construction for movingly connecting the telescope rail 13 to the guiding rail 11 by means of a slide element 12. The guiding rail 11 has a general U-shape with the open U-side facing horizontally to the interior of the oven 1.

[0019] The slide element 12 has a general T-shape, wherein the upright T-leg has formed thereon a sidewardly directed bulge 12a, which is clipped into the guide rail 11 in order to fix the slide element 12 to the guiding rail 11. The arrangement is chosen in such a way, that the slide element 12 can still easily move relatively to the guiding element 11 in the longitudinal direction thereof. The cross leg 12b of the T-shaped slide element 12 as well as a small cross bar 12c at the lower end of the slide element 12 serve as fixing elements to clips the telescope rail 13 to the slide element 12.

[0020] Figure 7 shows an alternative embodiment, which basically corresponds to the previously described embodiment as far as the configuration of and the connection between the guiding rail 11, the slide element 12 and the telescope rail 13 are concerned.

[0021] However, in this embodiment a further slide rail 14 is attached to the telescope rail 13 and movable relative thereto. The slide element 14 consists of two members 14a, 14b, which are interconnected. Also it is shown, that the inner member 14b carries inwardly directed protrusions 17 for establishing a friction connection with the telescope rail 13 in the rear end position of the slide element 14 on the telescope rail 13.

[0022] List of reference numerals

1	baking oven
2	housing
3	oven cavity
4	side walls
5	back wall
6	top wall
7	bottom wall
8	opening

- 9 support
- 10 supporting structure
- 10a vertical struts
- 10b webs
- 11 guiding rails
- 12 slide elements
- 13 telescope rails
- 14 slide elements
- 14a member
- 14b member
- 15 connecting bar
- 16 receiving element
- 17 protrusion

Claims

1. Support for extractable baking trays (T) and/or baking grids to be arranged in an oven cavity (3) of a baking oven (1), comprising

- supporting structures (10) to be attached to the side walls (4) of the oven cavity(3),
- pairs of opposed elongated guiding rails (11), which are disposed one above the other and extend essentially in the horizontal direction along the side walls (4) of the oven cavity (3), and
- slide elements (12) or ball cages, which are arranged on the guiding rails (11) and configured in such a way, that a baking tray (T) and/or a baking grid and/or a telescope rail (13) can be attached thereto,

characterized in that the supporting structures (10) are punched and mechanically deformed, in particular bent or embossed metal sheets.

2. Support according to claim 1, **characterized in that** the guiding rails (11) punched and mechanically deformed, in particular bent or embossed metal sheets.

3. Support according to claim 2, **characterized in that** the guiding rails (11) are U-shaped and encompass corresponding webs (10b) of the supporting structures (10) with the U-opening facing to the interior of the oven (1).

4. Support according to claim 3, wherein the guiding rails (11) are attached to the webs (10b) by rivets.

5. Support according to claim 2, **characterized in that** the guiding rails (11) are integrally formed with the support structure (10).

6. Support according to any preceding claim, **characterized in that** telescope rails (13) are attached to the slide elements (12) or ball cages, which are provided on the guiding rails (11).

7. Support according to claim 6, **characterized in that** the telescope rails (13) are punched and mechanically deformed, in particular bent or embossed metal sheets.

8. Support according to any preceding claim, **characterized in that** the slide elements (12) or ball cages are provided with receiving means (16) for a baking tray (T) and/or a baking grid.

9. Support according to claim 8, **characterized in that** the receiving means (16) are at least partially punched and mechanically deformed, in particular bent or embossed metal sheet components.

10. Support according to any preceding claim, **characterized in that** at least part of the metal sheet components (10, 11, 13, 16) consists of steel, stainless steel, alloyed steel, aluminum or aluminum alloys.

11. Support according to any preceding claim, **characterized in that** at least part of the metal sheet components (10, 11, 13, 16) are nickel plated, enamelled or coated.

12. Support according to any preceding claim, **characterized in that** the slide elements (12, 13) are made of plastics.

13. Support according to any preceding claim, **characterized in that** the slide elements (12) are fixedly attached to the guiding rails (11) and configured to slideably carry a baking tray (T) and/or a baking grid and/or a telescope rail.

14. Support according to any of claims 1 to 12, **characterized in that** the slide elements (12) are attached to the guiding rail (11) to be movable along the guiding rails (11) in their longitudinal direction.

15. Support according to any preceding claim, **characterized in that** the slide elements (12) are clipped to the guiding rails (11) and/or telescope rails (13).

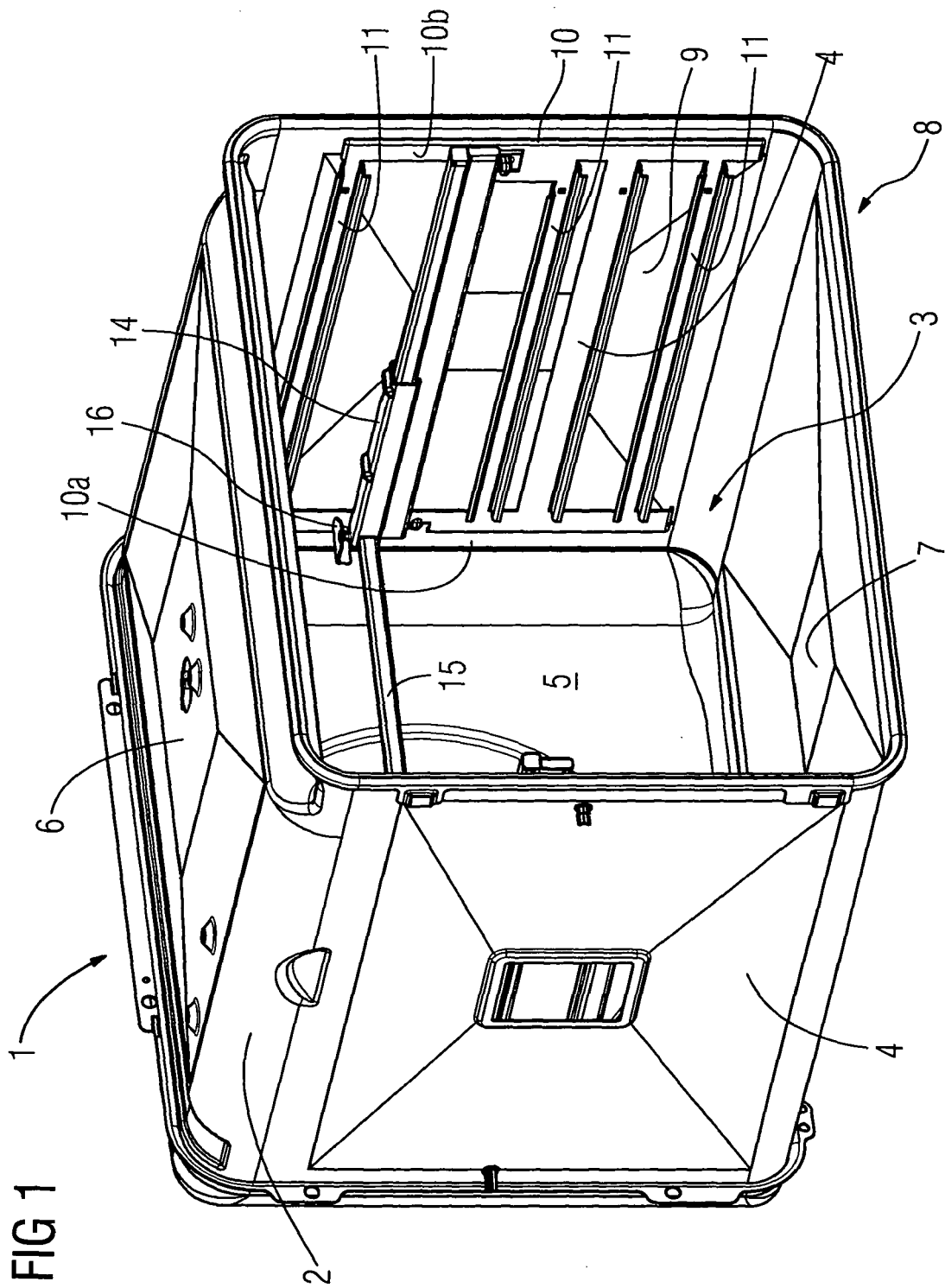


FIG 2

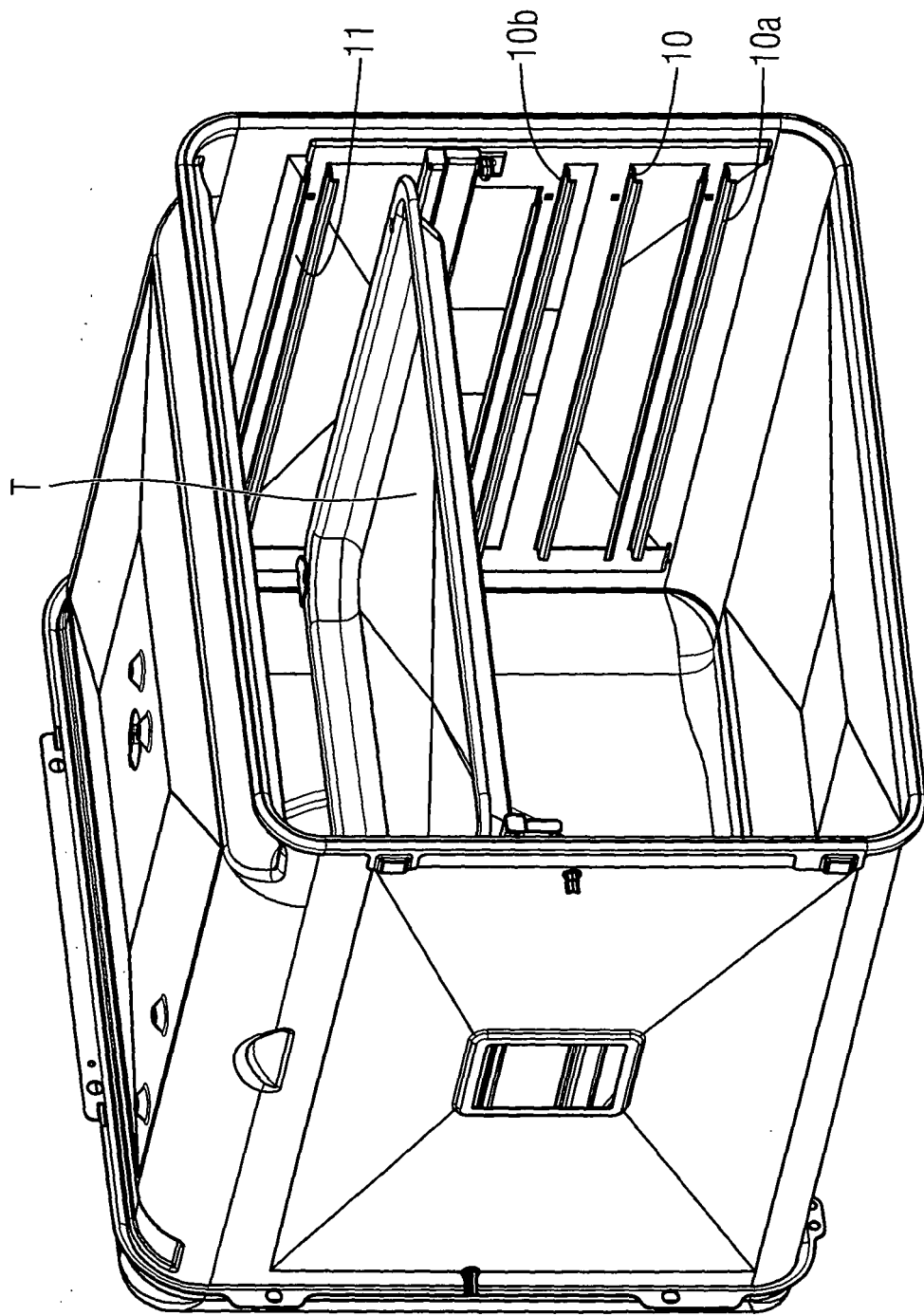


FIG 3

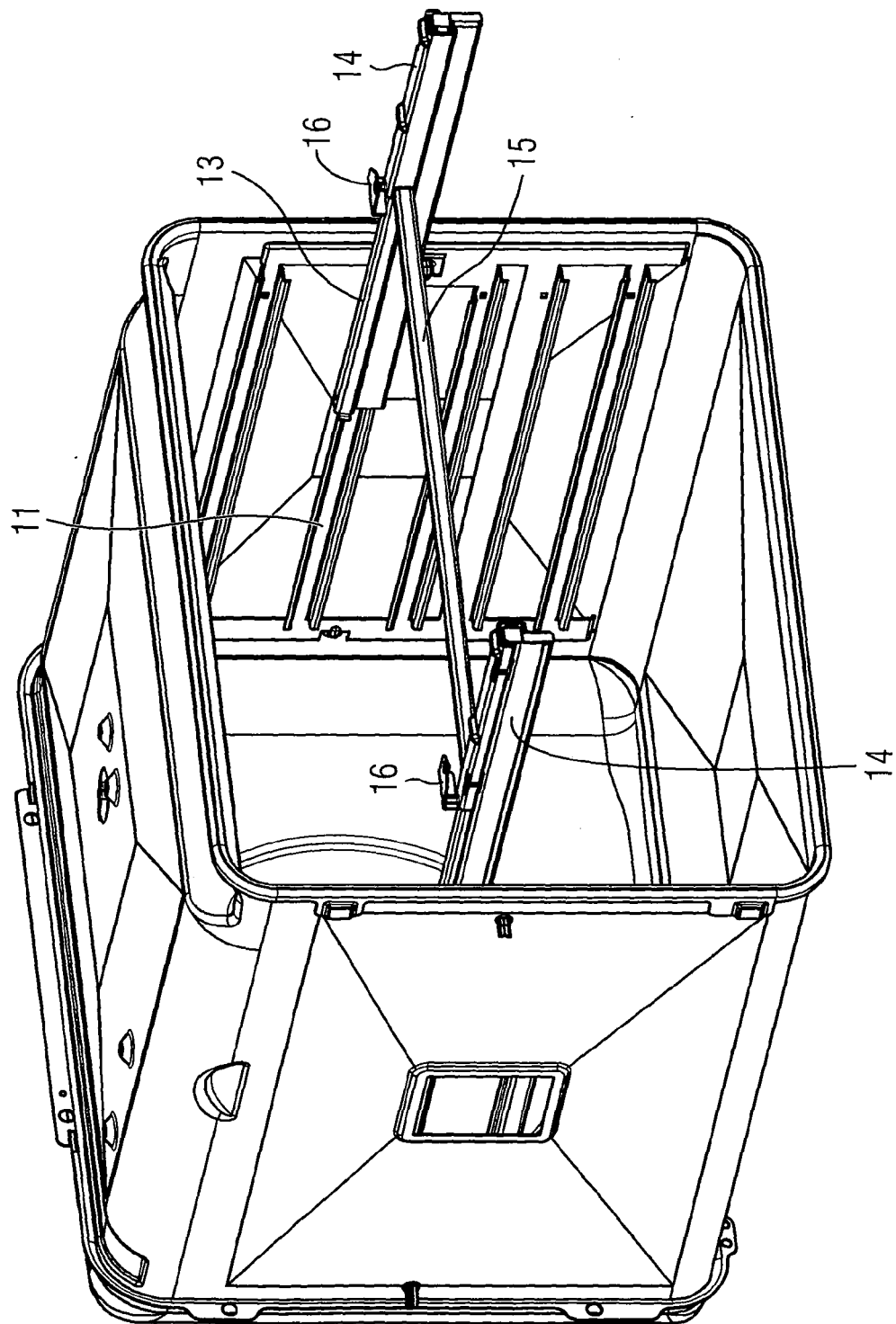


FIG 4

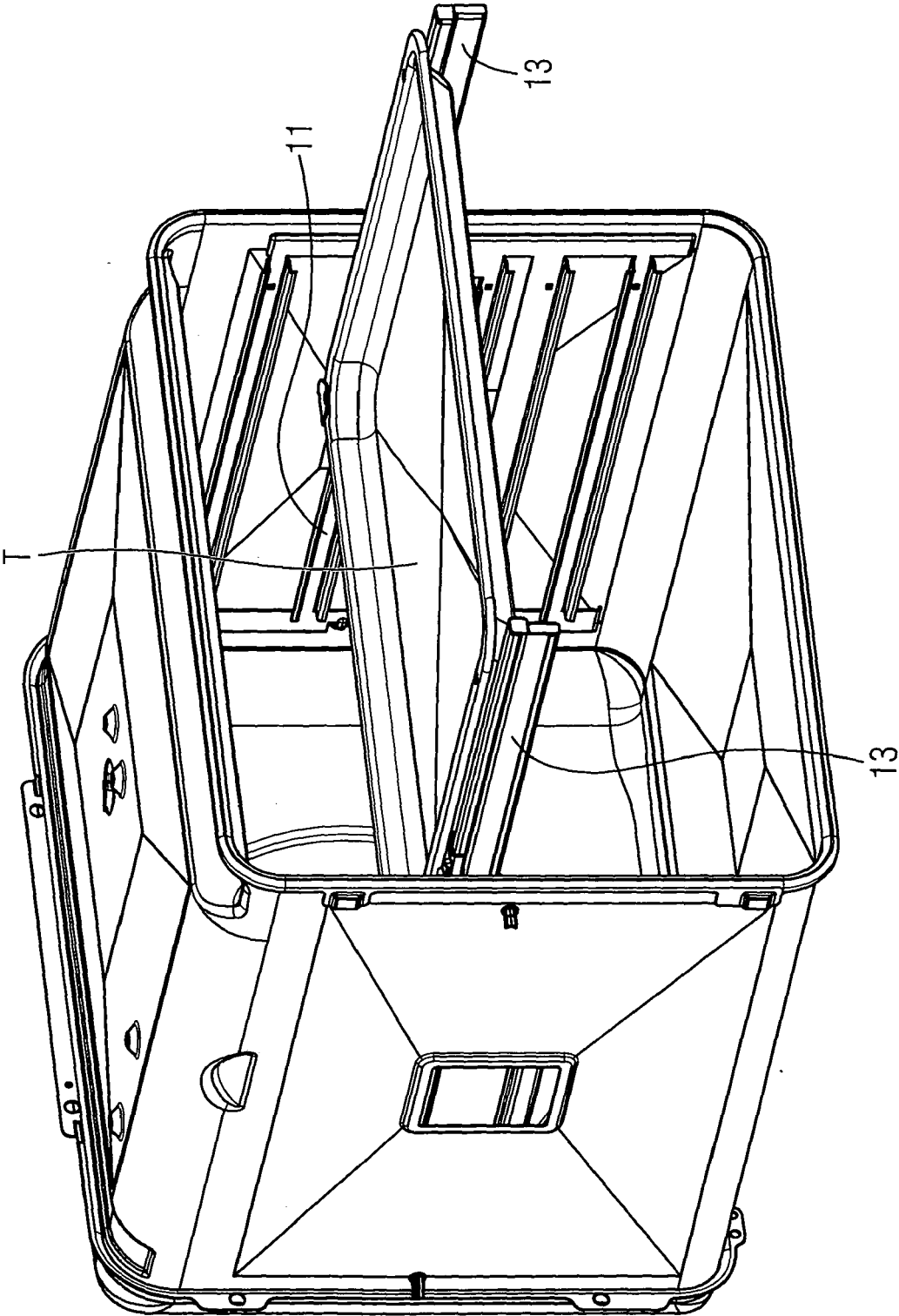


FIG 5

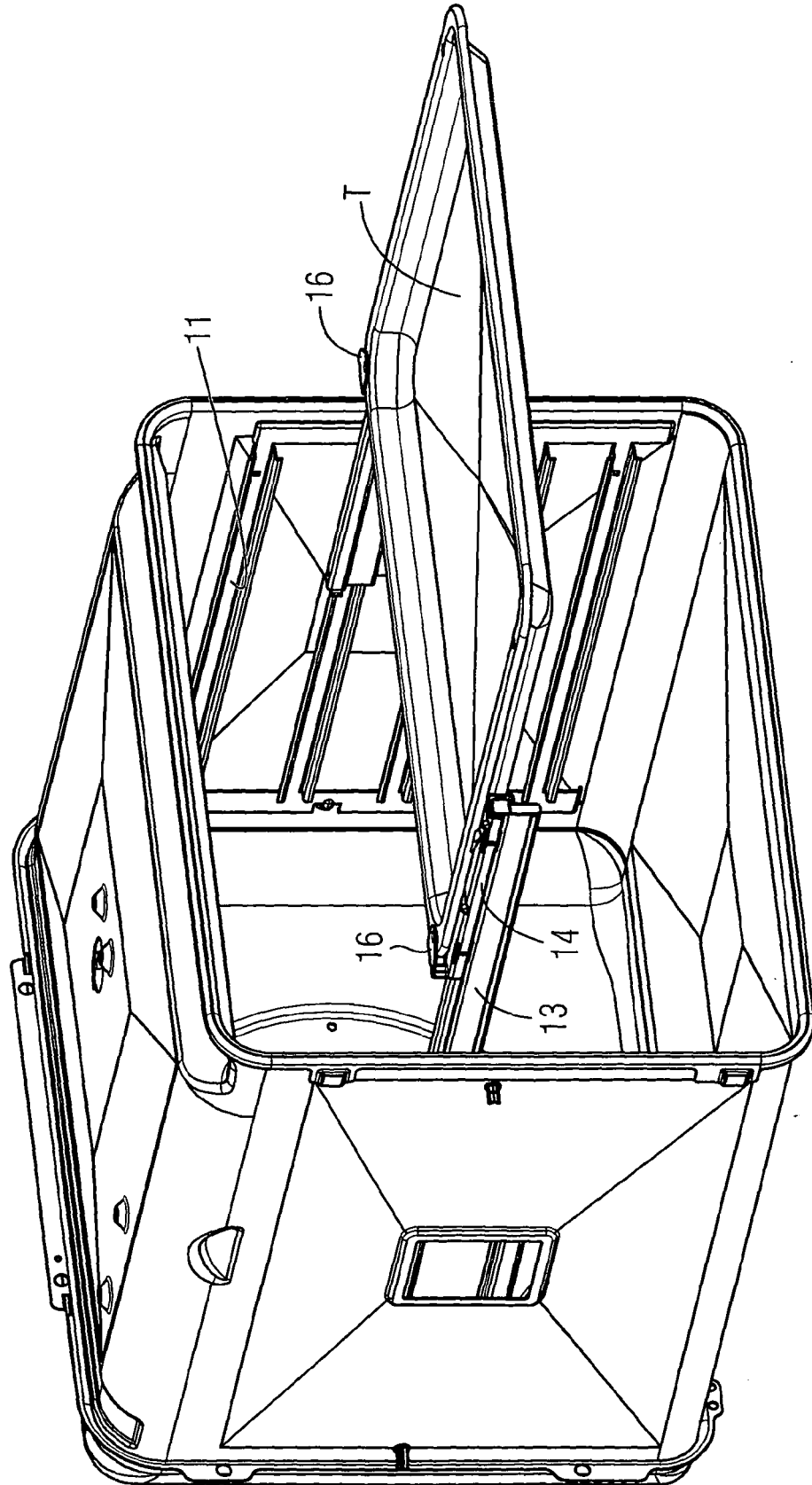


FIG 7

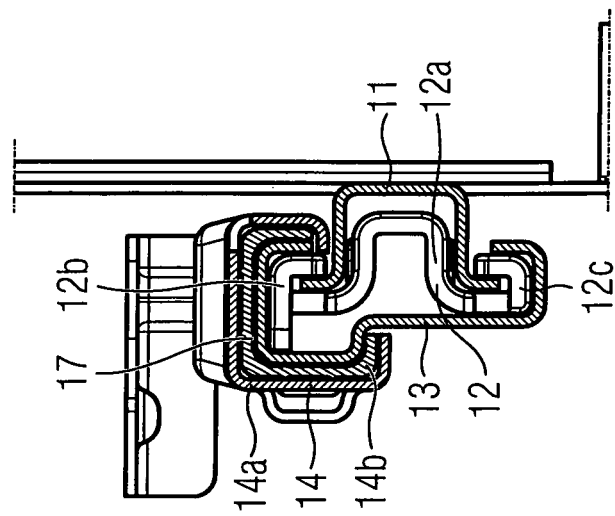
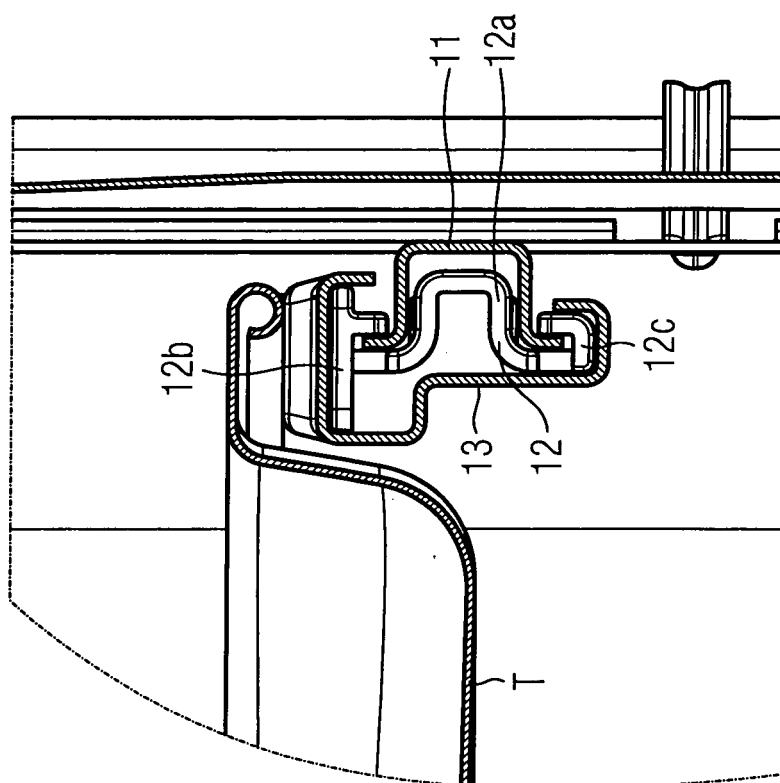


FIG 6





EUROPEAN SEARCH REPORT

Application Number
EP 09 00 5962

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Place of search The Hague		Date of completion of the search 8 September 2009	Examiner Meyers, Jerry
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