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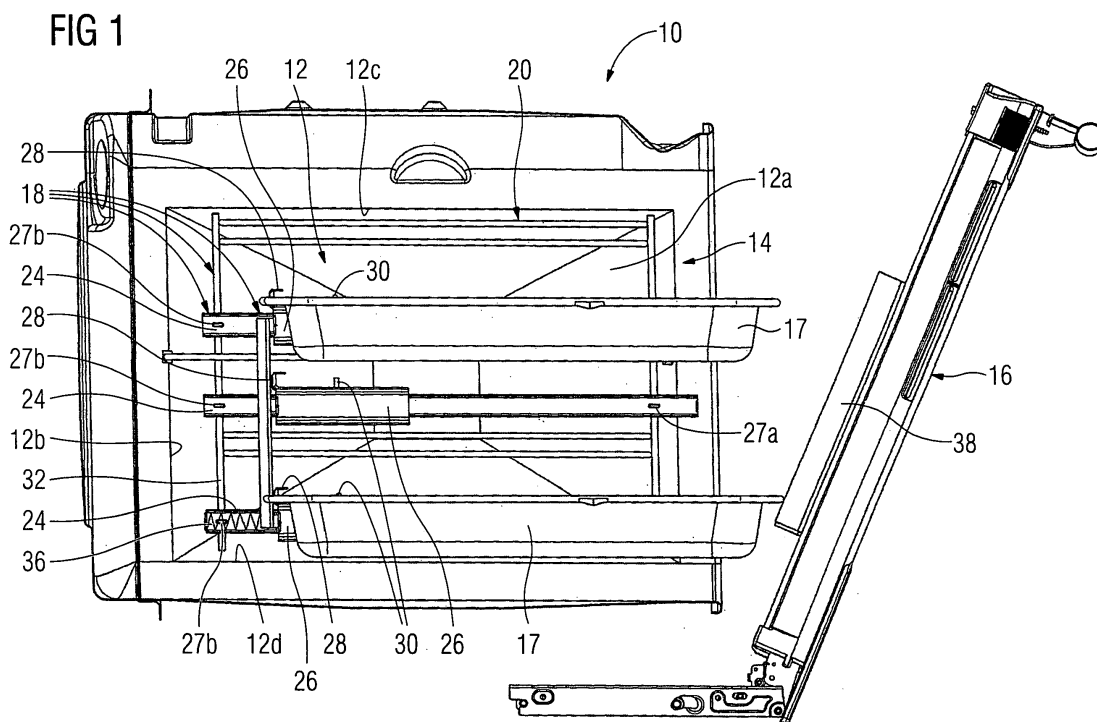
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(54) **Support for extractable baking trays and/or baking grids**

(57) Support for extractable baking trays and/or baking grids to be arranged in an oven cavity of a baking oven, comprising pairs of opposed longish guiding means, which are disposed one above the other and extend along side walls of the oven cavity, and slide elements

comprising receiving means for receiving a baking tray and/or a baking grid and being slidably arranged at the guiding means, wherein stopper means are provided in such a manner, that the extraction sliding movement of the slide elements along the guiding means is stopped before the slide elements project beyond the oven cavity.



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 pairs of opposed longish guiding means disposed one above the other and extending along side walls of the oven cavity, and slide elements comprising receiving means for receiving a baking tray and/or a baking grid and being slidably arranged at the guiding means. Moreover, the present invention relates to a baking oven comprising such a support.

[0002] Supports 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 being fixed to the side walls of an oven cavity. Attached to the supporting structure are pairs of opposed longish rail-shaped guiding means, which are disposed one above the other and extend along side walls of the oven cavity. At each of these guiding means one longish rail-shaped slide element is slidably received such that the slide element is sliding along the guiding means. As receiving means for receiving a baking tray, the slide elements comprise upwardly projecting pins, which are insertable in corresponding openings of a baking tray to be received. Accordingly, the baking tray can be affixed on top of one pair of opposed slide elements and can subsequently be pushed in or drawn out of the baking oven by moving the slide elements along the associated guiding means.

[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 longish 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 metal rod supporting structure 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 at the guiding means 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] When extracting a baking tray or a baking grid, which is received by one of the above mentioned known supports, out of the oven cavity, the slide elements are at least partially pulled out along with the baking tray or baking grid, for which reason there is a danger of getting burned when touching the slide elements, in particular

after a baking tray or a baking grid has been removed from the slide elements. Moreover, it is difficult to position a baking tray or baking grid on the slide elements, because the slide elements can freely move along the guiding means and thus slip away. This is in particular cumbersome when handling trays or grids, which are loaded with heavy objects, such as a roasting tin.

[0005] It is 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 safe and easy to handle.

[0006] This object is solved by providing a support of the above mentioned kind with stopper means in such a manner, that the extraction sliding movement of the slide elements along the guiding means is stopped before the slide elements project beyond the oven cavity. Accordingly, except for the baking trays and/or the baking grids received by the support, there are no components which can project from the inside of the oven cavity. Therefore, there is no danger of getting burned by projecting components of the support, what renders the support safe and easy to handle.

[0007] Preferably, biasing means are provided, in particular in the form of at least one spring, for biasing the slide elements towards the opening of the oven cavity. Thus, the biasing means automatically move the slide elements towards the opening of the oven cavity when the oven door is opened, such that a baking tray or a baking grid received by the slide elements is automatically extracted. The biasing means are tensioned again when pushing in a baking tray or grid by closing the oven door.

[0008] According to one embodiment of the present invention at least two opposed slide elements are interconnected by means of at least one connecting element in order to achieve a synchronic movement of these slide elements. Moreover, when biasing means are provided, the interconnection of the slide elements is advantageous in that only one biasing means needs to be provided for each pair of slide elements.

[0009] According to another embodiment, all slide elements are interconnected by at least one connecting element, preferably a connecting plate, in order to achieve a synchronic movement of all slide elements. If biasing means are provided, the interconnection of all slide elements is advantageous in that only one biasing means is necessary for biasing all the slide elements towards the opening of the oven cavity.

[0010] According to one embodiment of the present invention the receiving means are at least partially punched and subsequently bent sections of the slide elements, i.e. the receiving means are at least partially made integral with the slide elements.

[0011] The receiving means can comprise hook elements for encompassing an upper side of a baking tray and/or a baking grid in order to prevent a tilting of the tray or grid.

[0012] Moreover, the receiving means can comprise upwardly projecting receiving elements, in particular welding studs, to be inserted into corresponding openings provided in the baking trays and/or baking grids to be received.

[0013] The guiding elements and/or the slide elements are preferably made of plastics and/or aluminum and/or stainless steel.

[0014] Moreover, the present invention provides a baking oven having an oven cavity and an oven door for closing the opening of the oven cavity and comprising a support of the above defined kind.

[0015] According to one embodiment at least one protector, in particular a protector bar or rail, can be provided at the inner side of the oven door for preventing a contact between a baking tray and/or a baking grid and the oven door, wherein the at least one protector is preferably releasably provided.

[0016] The foregoing and other objects of this invention are better understood by referring to the following detailed description of a preferred embodiment of the present invention and the appendent drawing, in which

- Fig. 1 is a sectional view of an oven cavity comprising a support for extractable baking trays and/or baking grids according to an embodiment of the present invention, wherein an oven door for closing the opening of the oven cavity is opened by an opening angle of about 25°;
- Fig. 2 is a sectional view of the oven cavity shown in figure 1, wherein the oven door is opened by an opening angle of about 55°; and
- Fig. 3 is a sectional view of the oven cavity shown in figure 1, wherein the oven door is opened by an opening angle of 90°.

[0017] The baking oven 10, which is illustrated throughout the figures without its outer housing to simplify matters, comprises an oven cavity 12 for receiving food stuff to be cooked. The oven cavity 12 is defined by two side walls 12a, a back wall 12b, a top wall 12c and a bottom wall 12d. In the front of the oven cavity 12 an opening 14 is provided, which can be opened and closed by means of an oven door 16. For receiving extractable baking trays 17 or baking grids (not shown), a support 18 is arranged within the oven cavity 12.

[0018] The support 18 comprises a supporting structure 20, which is made of a plurality of metal rods and is fixed to the side walls 12a of the oven cavity 12. Moreover, the support 18 comprises pairs of opposed longish rail-shaped guiding means 24, which are disposed one above the other, extend along the side walls 12a of the oven cavity 12 and are fixed to the supporting structure 20. At each of the guiding means 24 a rail-shaped slide element 26 is slidably arranged such that it can be moved along the associated guiding means 24. A contacting surface of each guiding means 24 and/or of each slide element 26 may be provided with a slide coating in order to

achieve an easy relative motion between these components. Alternatively, rolling elements, such as balls, may be arranged between each slide element 26 and the associated guiding means 14.

[0019] In order to limit the movement of the slide elements 26 along the associated guiding means 24 stoppers 27a, b are formed at both end portions of each guiding means 24. The stoppers 27a, b are provided as projections which project from the guiding means 24 towards the slide elements 26 and stop their movement at a predetermined position. The stoppers 27a, which are arranged at the front end of each guiding means 24 close to the opening 14 of the oven cavity 12, are positioned in such a manner that the movement of the slide elements 26 along the guiding means 24 is stopped before the slide elements project beyond the oven cavity 12. Accordingly, except for the baking trays 17 and the baking grids received by the support 18, there are no components which can project from the inside of the oven cavity 12. Therefore, there is no danger of getting burned by projecting components of the support 18.

[0020] Each slide element 26 comprises two receiving means for receiving a baking tray 17 or a baking grid, namely a hook element 28 for encompassing an upper side portion of a baking tray 17 or a baking grid, which is formed as a punched and subsequently bent section of the slide element 26, and an upwardly projecting receiving element 30 in the form of a welding stud, which is to be inserted in known fashion into a corresponding opening (not shown) provided in the baking trays 17 and the baking grids to be received.

[0021] All slide elements 26 are interconnected by means of connecting plate 32, which is arranged at the end face of the slide elements 26 facing towards the back wall 12b of the oven cavity 12. Accordingly, the movement of the slide elements 26 along the guiding means 24 is synchronized by means of the connecting plate 32.

[0022] Moreover, the support 18 comprises biasing means in the form of a spring 36, which is arranged at and guided by the bottom guiding means 24. The spring 36 biases the connecting plate 32 and thus the slide elements 26 towards the opening 14 of the oven cavity 12. Accordingly, the slide elements 26 are automatically pushed towards the opening 14 of the oven cavity 12 when opening the oven door 16, as it is shown in the sequence of figures 1 to 3, such that the baking trays 17 held by the slide elements 26 are automatically extracted from the oven cavity 12.

[0023] In order to prevent a contact between the baking trays 17 and the oven door 16 when opening and closing the oven door 16, the latter is provided with a protector rail 38 at its inner side. Thus, a damage of the inner side of the oven door 16, which is often formed by a glass plate, can be avoided. The protector rail 38 is releasably fixed to the oven door 16 by means of screws (not shown).

Claims

1. Support (18) for extractable baking trays (17) and/or baking grids to be arranged in an oven cavity of a baking oven (10), comprising

- pairs of opposed longish guiding means, which are disposed one above the other and extend along side walls (12a) of the oven cavity (12) and

- slide elements (26) comprising receiving means (28, 30) for receiving a baking tray (17) and/or a baking grid and being slidably arranged at the guiding means (24),

characterized in that stopper means (27a) are provided in such a manner, that the extraction sliding movement of the slide elements (26) along the guiding means (24) is stopped before the slide elements (26) project beyond the oven cavity (12).
2. Support (18) according to claim 1, **characterized in that** biasing means (36) are provided, in particular at least one spring, for biasing the slide elements (26) towards the opening (14) of the oven cavity (12).
3. Support (18) according to one of the foregoing claims, **characterized in that** at least two opposed slide elements (26) are interconnected by means of at least one connecting element (32).
4. Support according to claim 3, **characterized in that** all slide elements (26) are interconnected by at least one connecting element, preferably a connecting plate.
5. Support (18) according to one of the foregoing claims, **characterized in that** the receiving means (28, 30) are at least partially punched and subsequently bent sections of the slide elements (26).
6. Support (18) according to one of the foregoing claims, **characterized in that** the receiving means (28, 30) comprise hook elements (38) for encompassing an upper side portion of a baking tray (17) and/or a baking grid.
7. Support (18) according to one of the foregoing claims, **characterized in that** the receiving means (28, 30) comprise upwardly projecting receiving elements (30), in particular welding studs, to be inserted into corresponding openings provided in the baking trays (17) and/or baking grids to be received.
8. Support (18) according to one of the foregoing claims, **characterized in that** the guiding means (24) and/or the slide elements (26) are made of plastics and/or aluminum and/or stainless steel.
9. Baking oven (10) having an oven cavity (12) and an oven door (16) for opening and closing an opening (14) of the oven cavity (12), and comprising a support according to one of the foregoing claims.
10. Support (18) according to claim 9, **characterized in that** at least one protector (38), in particular a protector bar or rail, is provided at the inner side of the oven door (16) for preventing a contact between a baking tray (17) and/or a baking grid and the oven door (16).
11. Support (18) according to claim 10, **characterized in that** the at least one protector is releasably provided.

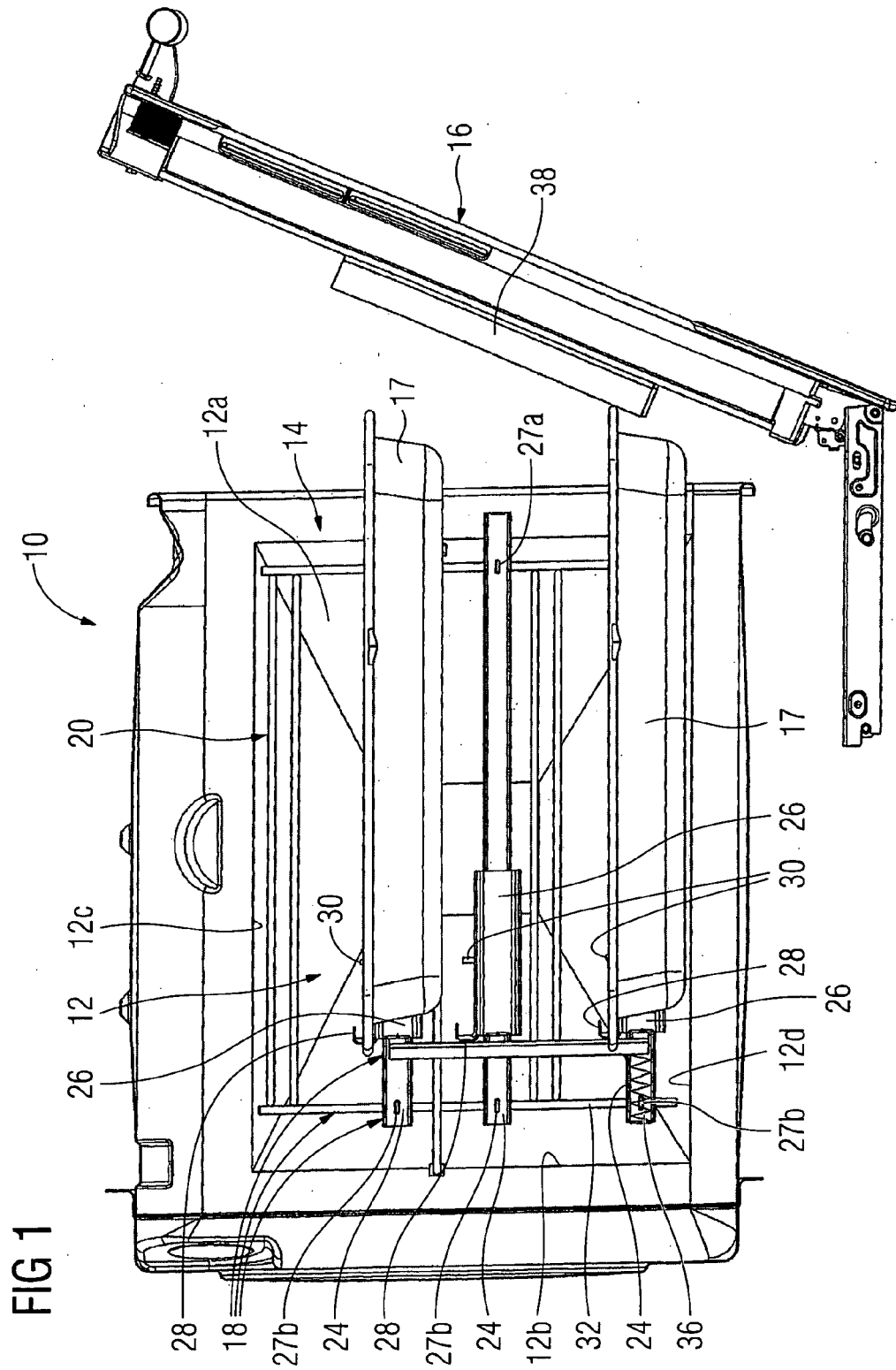


FIG 2

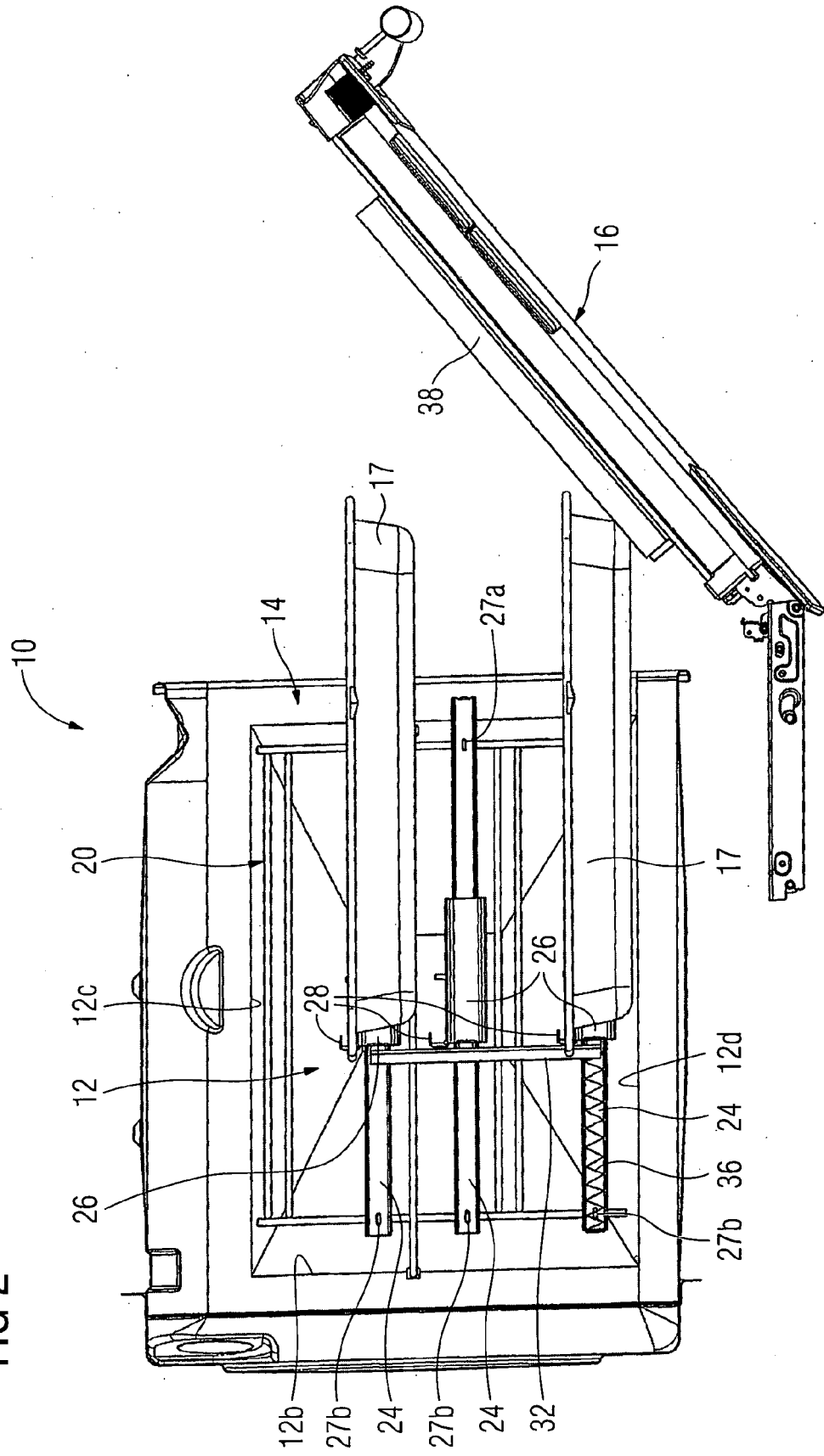
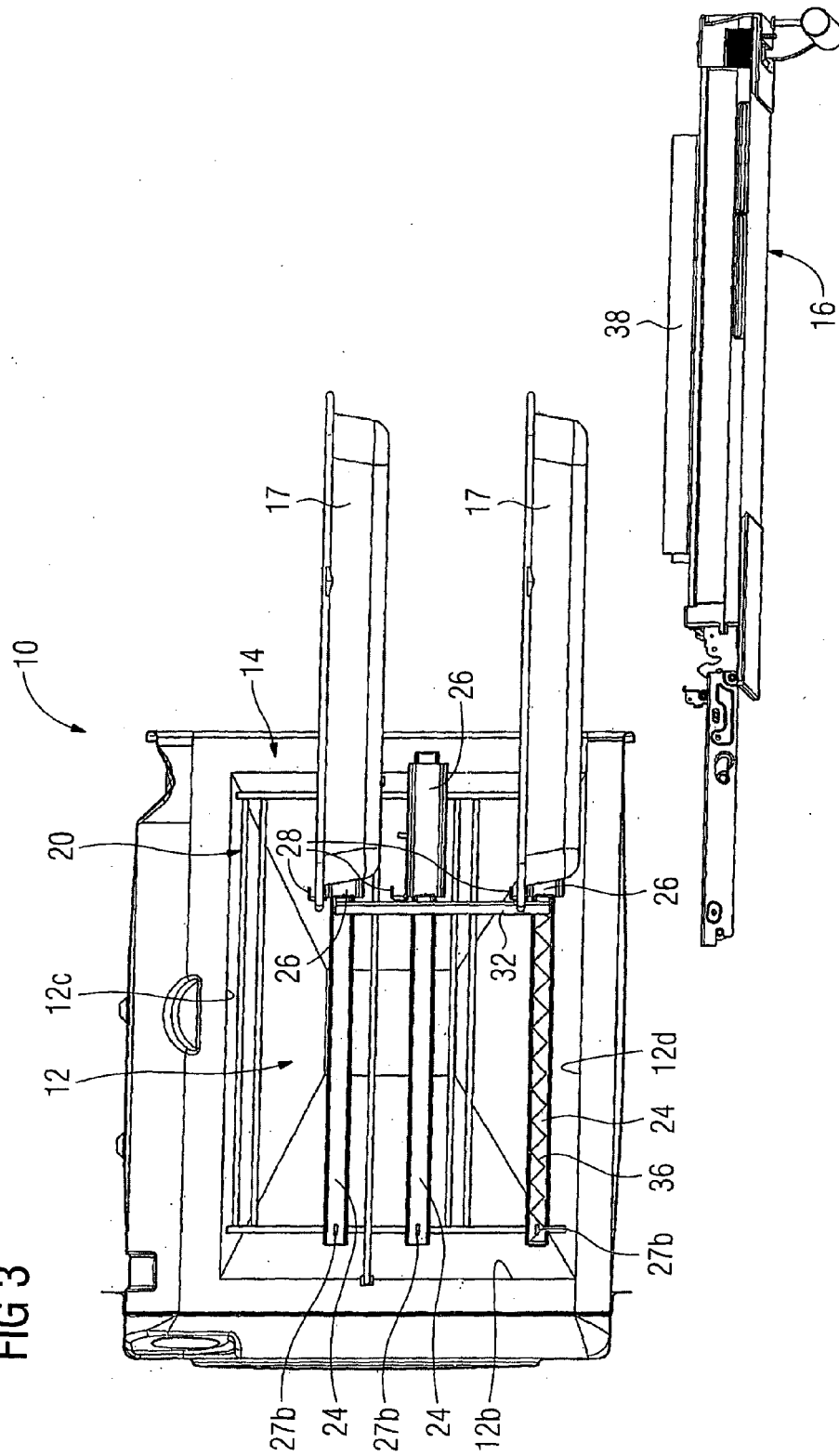


FIG 3





EUROPEAN SEARCH REPORT

Application Number
EP 09 00 4521

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 865 264 A (FAGOR S COOP [ES]) 12 December 2007 (2007-12-12) * column 5, line 1 - line 18; claim 11; figures *	1-4,7,8	INV. F24C15/16
A	* column 3, line 16 - line 42 * -----	10,11	
A	DE 102 40 146 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 11 March 2004 (2004-03-11) * page 4, left-hand column, paragraph 2; claims 1-4 *	3,4	
A	DE 10 2005 028674 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 28 December 2006 (2006-12-28) * page 4, left-hand column, paragraph 2; figures *	5-8	
D,A	DE 103 30 348 A1 (ACCURIDE INTERNAT GMBH [DE]) 3 February 2005 (2005-02-03) * abstract * -----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F24C
Place of search		Date of completion of the search	Examiner
Munich		24 August 2009	Rohr, Peter
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 00 4521

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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24-08-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1865264 A	12-12-2007	AT 432447 T ES 2324426 T3	15-06-2009 06-08-2009
DE 10240146 A1	11-03-2004	AU 2003266997 A1 BR 0313948 A WO 2004025187 A1 EP 1537365 A1 US 2005241495 A1	30-04-2004 12-07-2005 25-03-2004 08-06-2005 03-11-2005
DE 102005028674 A1	28-12-2006	EP 1902257 A1 WO 2006136508 A1 US 2009079313 A1	26-03-2008 28-12-2006 26-03-2009
DE 10330348 A1	03-02-2005	EP 1642066 A1 WO 2005003636 A1	05-04-2006 13-01-2005

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- DE 10330348 B4 [0002]
- EP 0091666 A [0003]