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Remarks:

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(54) **Mechanism for extracting a tray from a domestic oven**

(57) Mechanism for supporting at least one tray, said mechanism being suitable for a domestic oven with an internal enclosure having side walls with at least one guiding support substantially horizontal and parallel to each other. The mechanism is adapted to be supported on said guiding support and said mechanism comprises a rack (3), the tray being disposed over said rack (3). The mechanism comprises first and second side extraction supports (5a,5b) that are fixed respectively to lateral sides of the rack (3), each of said side extraction supports

(5a,5b) comprising a respective surface of guidance, said mechanism also comprising a first side tray support (6a) that slides in relation to said first side extraction support (5a) and a second side tray support (6b) that slides in relation to said second side extraction support (5b), the tray being disposed on said side tray supports (6a,6b), wherein the side tray supports (6a,6b) are connected by connecting means (7), so that said side tray supports (6a,6b) can slide in parallel in relation to the side extraction supports (5a,5b).

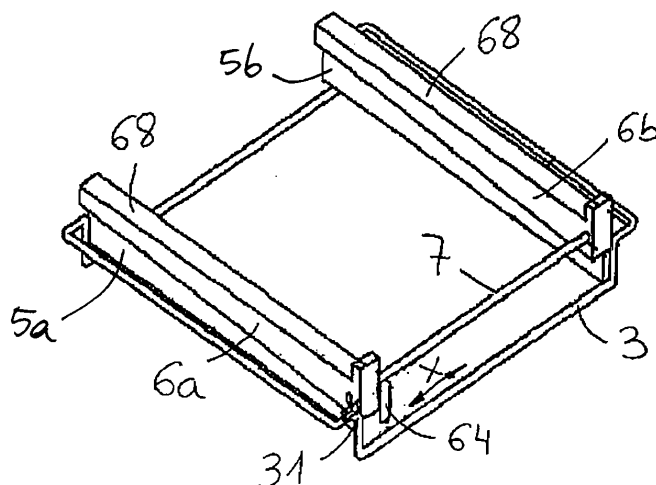


FIG. 5

Description

TECHNICAL FIELD

[0001] The present invention relates to the internal constituent parts of the internal enclosure of a domestic oven.

PRIOR ART

[0002] Conventional domestic ovens are adapted to have at least one tray and/or rack in their internal enclosure. Known domestic ovens comprise a plurality of guiding supports disposed in parallel on the side walls of their internal enclosures, said guiding supports being used as supports and guides for the trays and racks disposed in said internal enclosures.

[0003] ES 1 039 421 U discloses a domestic oven with a plurality of guiding supports disposed in parallel on the side walls of its internal enclosure, said guiding supports being used as supports and guides for movable racks, a tray being disposed on said rack in order to introduce it into said internal enclosure. If a user wishes to remove a tray from said internal enclosure, said user opens a door on said oven to access said internal enclosure, and manually causes the displacement of said rack, and therefore of said tray, towards the exterior of said internal enclosure.

DISCLOSURE OF THE INVENTION

[0004] It is an object of the invention to provide a mechanism for extracting a tray from a domestic oven as defined in the claims.

[0005] The mechanism of the invention is suitable for domestic ovens that comprise an internal enclosure having side walls with at least one guiding support substantially horizontal and parallel to each other, and it is adapted to be supported on said guiding support. The mechanism comprises at least one tray that is disposed over a rack.

[0006] The mechanism of the invention comprises an extraction support that comprises a first side extraction support and a second side extraction support that are fixed respectively to lateral sides of the rack by fixing means, each of said side extraction supports comprising a respective surface of guidance, said mechanism also comprising a tray support on which the tray is disposed and which is adapted to support and slide in relation to the surfaces of guidance of said side extraction supports.

[0007] The tray support comprises a first side tray support that slides in relation to the first side extraction support and a second side tray support that slides in relation to the second side extraction support. The tray is disposed on said first side tray support and said second side tray support.

[0008] Both side tray supports are connected by connecting means. Thanks to said connecting means, the

side tray supports can slide in parallel with respect to the side extraction supports.

[0009] These and other advantages and characteristics of the invention will be made evident in the light of the drawings and the detailed description thereof.

DESCRIPTION OF THE DRAWINGS

[0010]

Fig. 1 shows an oven comprising a first embodiment of the mechanism of the invention.

Fig. 2 shows the rack, the side extraction supports and the side tray supports of the embodiment of FIG. 1.

Fig. 3 shows the embodiment of the mechanism of FIG. 1, where the rack has been removed for clarity and the tray has been included.

Fig. 4 is a side view of a second embodiment of the mechanism of the invention.

Fig. 5 shows a third embodiment of the mechanism of the invention.

Fig. 6 shows a fourth embodiment of the mechanism of the invention.

Fig. 7 is a partial view of a fifth embodiment, showing the extraction spring that can be incorporated in the mechanism of the invention.

Fig. 8 is a side view of a sixth embodiment, showing the extraction tab that can be incorporated in the mechanism of the invention.

DETAILED DISCLOSURE OF THE INVENTION

[0011] The mechanism of the invention is used in a domestic oven 1 of the type shown in figure 1. Said oven 1 comprises an internal enclosure 10 in which can be disposed at least one tray 4 that is placed over a rack 3, shown in figure 2, and a door 11 that insulates said internal enclosure 10 from the exterior when it is closed. Each side wall 10' of said internal enclosure 10 comprises at least one guiding support 2 substantially horizontal and parallel to each other, said rack 3 being supported on and guided by said guiding supports 2. A number of racks 3 equal to the number of guiding supports 2 included on each side wall 10' of said internal enclosure 10 can be introduced.

[0012] Figures 1, 2 and 3 show an embodiment of the mechanism of the invention that comprises an extraction support comprising a first side extraction support 5a and a second side extraction support 5b that are fixed respectively to both sides 3a and 3b of the rack 3 by fixing means

which can be for example two rivets 53 and 54 for each side 3a and 3b, as indicated in figure 2. Said rack 3 comprises a rod 30 substantially horizontal to each side 3a and 3b, the rivets 53 and 54 being riveted to the corresponding rod 30 in order to fix said side extraction supports 5a and 5b to said rack 3.

[0013] As shown in figure 3, each side extraction support 5a and 5b comprises a surface of guidance 51. A tray support is placed on the surfaces of guidance 51 of the extraction support, the tray 4 being placed on said tray support. The tray support comprises side tray supports 6a and 6b placed respectively on the surfaces of guidance 51 of the side extraction supports 5a and 5b, said side tray supports 6a and 6b being slidable with respect to said side extraction supports 5a and 5b. Each side tray support 6a and 6b comprises a respective supporting surface 68, as shown in figure 5, the tray 4 being placed on said supporting surfaces 68. The tray 4 is introduced to or extracted from the internal enclosure 10 of the oven 1 together with the side tray supports 6a and 6b, which slide on the respective surfaces of guidance 51.

[0014] The side tray supports 6a and 6b are connected by connecting means 7, as shown for example in figure 3, so that said side tray supports 6a and 6b slide in parallel in relation to the side extraction supports 5a and 5b. In a preferred embodiment, the connecting means 7 comprise a rod, as shown in the embodiments of figure 5 and figure 6.

[0015] The mechanism of the invention comprises the side extraction supports 5a and 5b, the rack 30 that links both side extraction supports 5a and 5b, the side tray supports 6a and 6b, which support the tray 4, and the connection means 7 that link both side tray supports 6a and 6b. As already explained, the rack 3 of the mechanism is supported on and guided by the guiding supports 2 of the internal enclosure 10 of the oven 1, the mechanism therefore being extractable from the internal enclosure 10. Figure 5 and 6 show two possible embodiments of the mechanism.

[0016] In a preferred embodiment, the side tray supports 6a and 6b comprise limiter means that cooperate with the rack 3 to prevent said side tray supports 6a and 6b from sliding in relation to the side extraction support 5a and 5b when the oven 1 is opened, thereby preventing the tray 4 disposed on said side tray support 6a and 6b from moving out of the internal enclosure 10 of the oven 1.

[0017] In the embodiment shown in figure 5, the limiter means comprise a spindle 64 that is connected to the tray support, said spindle 64 being able to be moved in a transversal direction X, so that said spindle 64 cooperates with a projection 31 of the rack 3, preventing the side tray supports 6a and 6b from sliding in relation to the side extraction supports 5a and 5b. By moving said spindle 64 in said transversal direction X, said spindle 64 can be released from said cooperation, said side tray supports 6a and 6b being able to slide in relation to said side extraction supports 5a and 5b.

[0018] The side tray supports 6a and 6b preferably

comprise extraction means that assist with the sliding of the side tray supports 6a and 6b in relation to the side extraction supports 5a and 5b. In the embodiment partially shown in figure 7, the side tray supports 6a and 6b are hollow and comprise sliding means disposed in their interior, the extraction means comprising an extraction spring 66 housed in the interior of each side tray support 6a and 6b fixed to an exterior end 61 of the corresponding side tray support 6a and 6b. The extraction spring 66 is compressed when the oven 1 is closed, so that when the oven 1 is opened, said extraction spring 66 pushes the corresponding sliding means, said side tray supports 6a and 6b thus sliding in relation to the side extraction supports 5a and 5b.

[0019] In the embodiment shown in figure 8, the extraction means comprise an extraction tab 63 on the exterior end 61 of each side tray support 6a and 6b, said extraction tabs 63 being compressed when the oven 1 is closed, so that when the oven 1 is opened said extraction tabs 63 are decompressed, thereby cooperating with the rack 3, said side tray supports 6a and 6b thus sliding in relation to the side extraction supports 5a and 5b.

[0020] The surfaces of guidance 51 of the side extraction supports 5a and 5b, shown in figure 3, have preferably an inclination of a specific angle $\emptyset$ in relation to the horizontal, indicated in figure 1, and said inclination descends towards the exterior of said internal enclosure 10. In that way, when the oven 1 is opened, due to the descending inclination of said surfaces of guidance 51, the side tray supports 6a and 6b can slide by gravity towards the exterior of said oven 1, thereby moving said tray 4 in conjunction with said side tray supports 6a and 6b.

[0021] In the embodiment shown in figure 4, the side tray supports 6a and 6b comprise a respective support surface 68 substantially parallel to the surface of guidance 51 of the side extraction supports 5a and 5b, and one shoe 60 is disposed on each support surface 68, said shoe 60 being connected to the exterior end 61 preferably by a screw 60'. The tray 4 is disposed on said shoes 60, so that said tray 4 remains in a substantially horizontal position. Moreover, the side tray supports 6a and 6b comprise at least one vertical window 62, the height of the shoes 60 being regulated by said vertical window 62, so that the tray 4 can remain in a substantially horizontal position with different specific angles $\emptyset$ of inclination of the side tray supports 6a and 6b.

[0022] In the embodiment of figure 4, the side extraction supports 5a and 5b comprise at least one substantially vertical regulation groove 52 crossed by the fixing means that fix said side extraction supports 5a and 5b to the rack 3, so that the specific angle $\emptyset$ of inclination of the surface of guidance 51 of said side extraction supports 5a and 5b can be regulated, thereby adjusting the height at which said fixing means cross said regulation groove 52.

[0023] In the embodiments shown in figures 3, 5, 6 and 8, the side tray supports 6a and 6b comprise a substan-

tially horizontal supporting surface 68 on which the tray 4 is disposed, so that said tray 4 remains in a substantially horizontal position.

[0024] Preferably, to ensure that the door 11 does not scratch when pushing the side tray supports 6a and 6b, each side tray support 6a and 6b comprises a respective contact element 65 disposed on the exterior end 61 of the corresponding side tray support 6a and 6b, as shown in figure 7. As an alternative, said side tray supports 6a and 6b can comprise a connecting element 69 fixed to the exterior end 61 of each side tray support 6a and 6b, thereby connecting both side tray support 6a and 6b, said contact element 65 being disposed on said connecting element 69 as shown in figure 6. Said contact element 65 can comprise a cylindrical form, for example, or any other type of form that acts so that said door 11 pushes on said contact element 65 on closing.

[0025] Each side tray support 6a and 6b can be hollow, sliding means (not shown in the figures) being disposed in their interior, such as balls for example. Each side extraction support 5a and 5b comprises a stop (not shown in the figures) which cooperates with the sliding means of the corresponding side tray supports 6a and 6b, thereby preventing said sliding means from moving, preventing therefore said side tray supports 6a and 6b from continuing to slide and coming free from said side extraction supports 5a and 5b.

Claims

1. Mechanism for supporting at least one tray (4), said mechanism being suitable for a domestic oven (1) that comprises an internal enclosure (10) having side walls (10') with at least one guiding support (2) substantially horizontal and parallel to each other, the mechanism being adapted to be supported on said guiding support (2) and said mechanism comprising a rack (3), the tray (4) being disposed over said rack (3), **characterised in that** the mechanism comprises an extraction support that comprises a first side extraction support (5a) and a second side extraction support (5b) that are fixed respectively to lateral sides (3a,3b) of the rack (3) by fixing means, each of said side extraction supports (5a,5b) comprising a respective surface of guidance (51), said mechanism also comprising a tray support on which the tray (4) is disposed and which is adapted to support and slide in relation to the surfaces of guidance (51) of said side extraction supports (5a,5b), said tray support comprising a first side tray support (6a) that slides in relation to said first side extraction support (5a) and a second side tray support (6b) that slides in relation to said second side extraction support (5b), the tray (4) being disposed on said first side tray support (6a) and said second side tray support (6b), wherein the side tray supports (6a,6b) are connected by connecting means (7), so that said side

tray supports (6a,6b) can slide in parallel in relation to the side extraction supports (5a,5b).

2. Mechanism according to claim 1, wherein the connecting means (7) comprise a rod.
3. Mechanism according to claims 1 or 2, wherein the fixing means comprise rivets (53,54) and the rack (3) comprises a rod (30) substantially horizontal to each side (3a,3b), said rivets (53,54) being riveted to said rod (30) in order to fix the side extraction supports (5a, 5b) to said rack (3).
4. Mechanism according to any of the preceding claims, wherein the side tray supports (6a,6b) comprise limiter means that cooperate with the rack (3) to prevent said side tray supports (6a,6b) from sliding in relation to the side extraction supports (5a,5b) when the oven (1) is opened, thereby preventing the tray (4) disposed on said side tray supports (6a,6b) from moving out of the internal enclosure (10) of the oven (1).
5. Mechanism according to claim 4, wherein the limiter means comprise a spindle (64) that is connected to the tray support, said spindle (64) being able to be moved in a transversal direction (X), so that said spindle (64) cooperates with a projection (31) of the rack (3), preventing the side tray supports (6a,6b) from sliding in relation to the side extraction supports (5a,5b), and, by moving said spindle (64) in said transversal direction (X), said spindle (64) can be released from said cooperation, said side tray supports (6a,6b) being able to slide in relation to said side extraction supports (5a,5b).
6. Mechanism according to any of the preceding claims, wherein the side tray supports (6a,6b) comprise extraction means that assist with the sliding of the side tray supports (6a,6b) in relation to the side extraction supports (5a,5b).
7. Mechanism according to claim 6, wherein the side tray supports (6a,6b) are hollow and comprise sliding means disposed in their interior, the extraction means comprising an extraction spring (66) housed in the interior of each side tray support (6a,6b) fixed to an exterior end (61) of the corresponding side tray support (6a,6b) and which is compressed when the oven (1) is closed, so that when the oven (1) is opened, said extraction spring (66) pushes the corresponding sliding means, said side tray supports (6a,6b) thus sliding in relation to the side extraction supports (5a,5b).
8. Mechanism according to claim 6, wherein the extraction means comprise an extraction tab (63) on the exterior end (61) of each side tray support (6a,6b),

said extraction tabs (63) being compressed when the oven (1) is closed, so that when the oven (1) is opened said extraction tabs (63) are decompressed, thereby cooperating with the rack (3), said side tray supports (6a,6b) thus sliding in relation to the side extraction supports (5a,5b). 5

9. Mechanism according to any of the preceding claims, wherein the surfaces of guidance (51) of the side extraction supports (5a,5b) have an inclination of a specific angle ($\emptyset$) in relation to the horizontal and said inclination descends towards the exterior of said internal enclosure (10), so that when the oven (1) is opened, due to the descending inclination of said surfaces of guidance (51), the side tray supports (6a,6b) can slide by gravity towards the exterior of said oven (1) thereby moving said tray (4) in conjunction with said side tray supports (6a,6b). 10
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10. Mechanism according to claim 9, wherein the side tray supports (6a,6b) comprise a respective support surface (68) substantially parallel to the surface of guidance (51) of the side extraction supports (5a, 5b), at least one shoe (60) being disposed on each support surface (68) and the tray (4) being disposed on said shoes (60), so that said tray (4) remains in a substantially horizontal position. 20
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11. Mechanism according to claim 10, wherein the side tray supports (6a,6b) comprise at least one vertical window (62), the height of the shoes (60) being regulated by said vertical window (62), so that the tray (4) can remain in a substantially horizontal position with different specific angles ($\emptyset$) of inclination of the side tray supports (6a,6b). 30
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12. Mechanism according to claims 10 or 11, wherein the side extraction supports (5a,5b) comprise at least one substantially vertical regulation groove (52) crossed by the fixing means that fix said side extraction supports (5a,5b) to the rack (3), so that the specific angle ($\emptyset$) of inclination of the surface of guidance (51) of said side extraction supports (5a,5b) can be regulated, thereby adjusting the height at which said fixing means cross said regulation groove (52). 40
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13. Mechanism according to any of claims 1 to 9, wherein the side tray supports (6a,6b) comprise a substantially horizontal supporting surface (68) on which the tray (4) is disposed, so that said tray (4) remains in a substantially horizontal position. 50
14. Domestic oven **characterised in that** it comprises a mechanism according to any of the preceding claims. 55

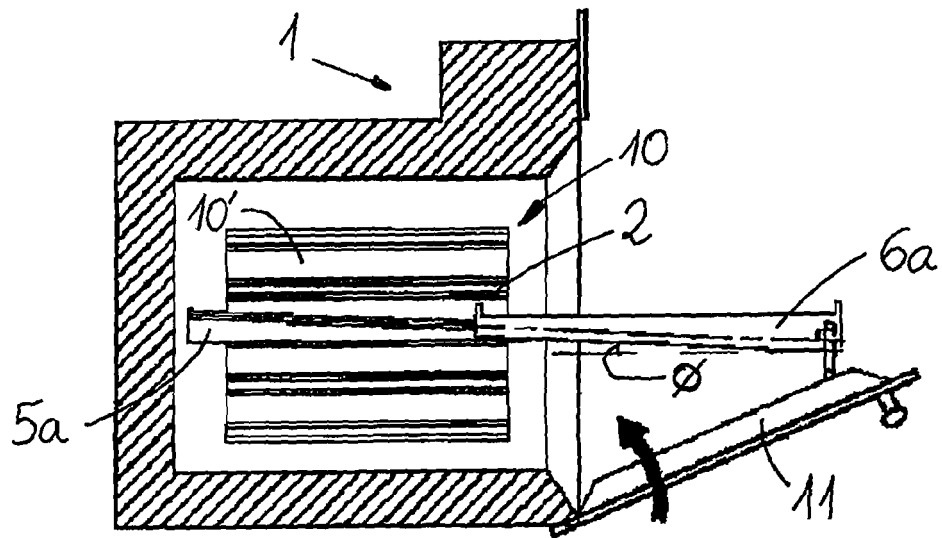


FIG. 1

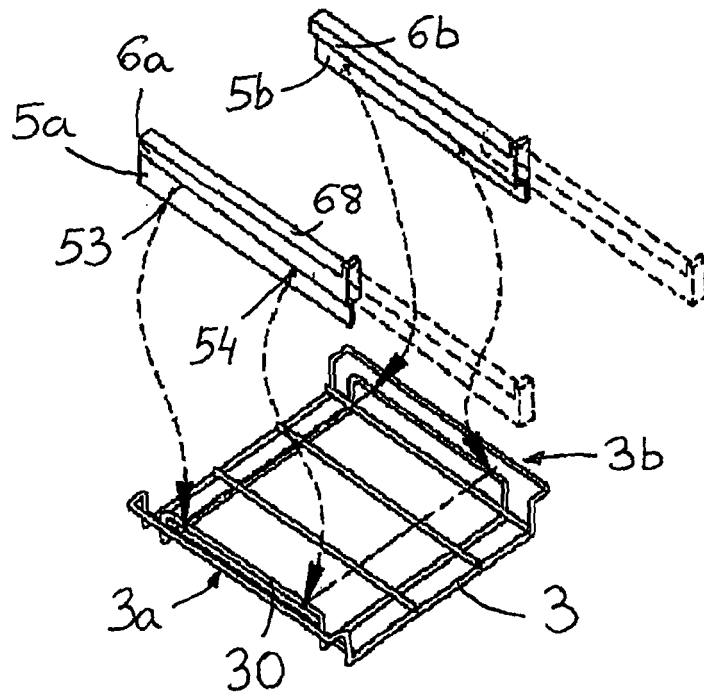


FIG. 2

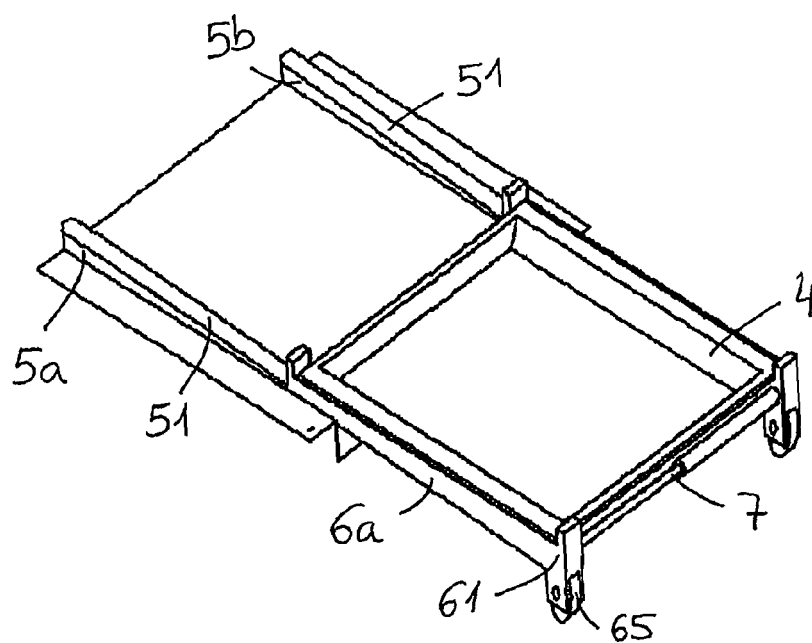


FIG. 3

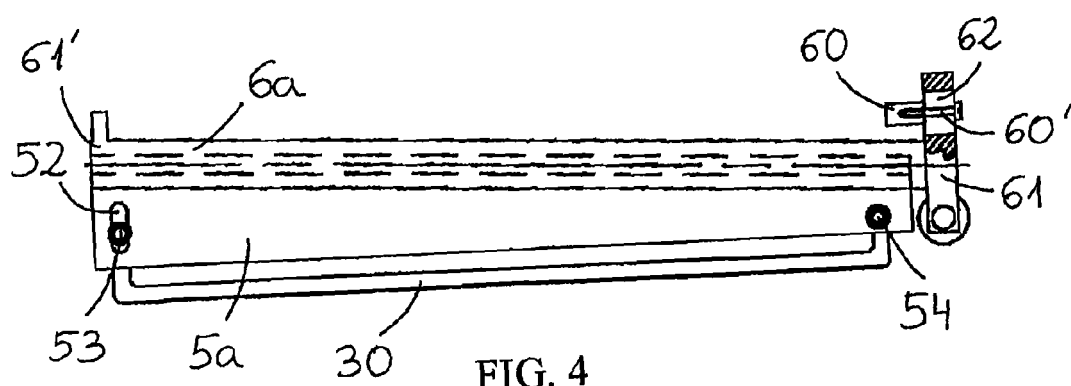


FIG. 4

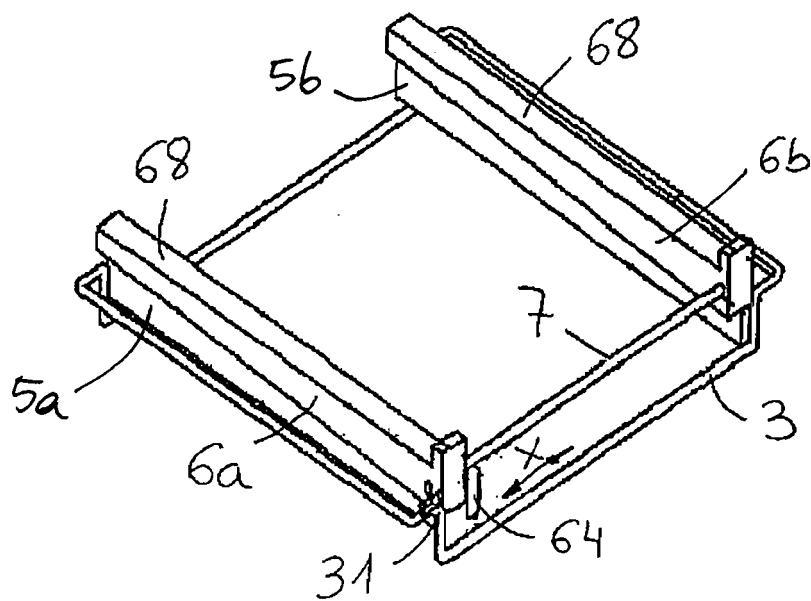


FIG. 5

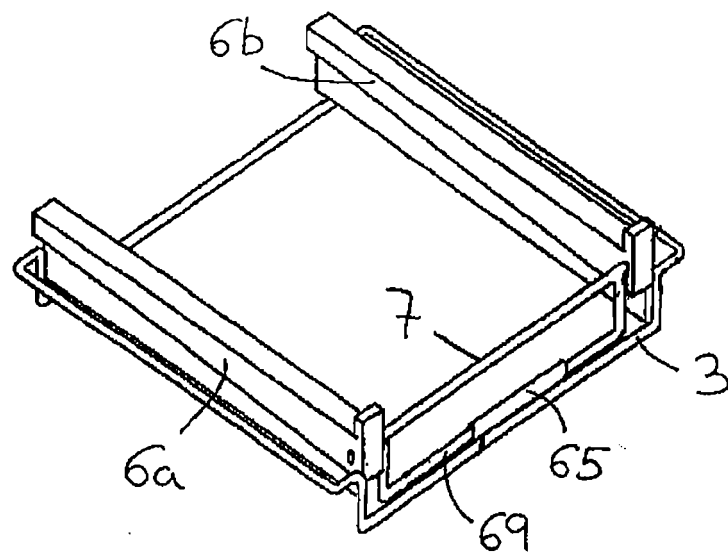


FIG. 6

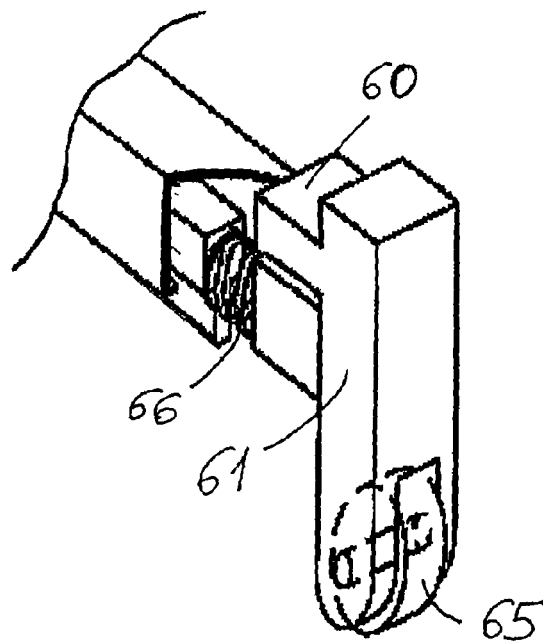


FIG. 7

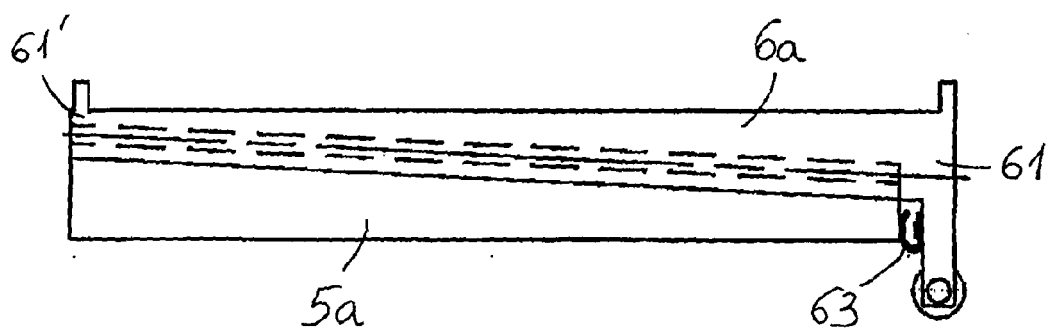


FIG. 8



EUROPEAN SEARCH REPORT

Application Number
EP 09 15 7309

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* abstract; figures 1,13,16 * -----	4,5,7-12	
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A	US 2006/065265 A1 (ERDMANN KLAUS [US] ET AL) 30 March 2006 (2006-03-30) * paragraphs [0009], [0024]; figures *	1-14	
A	EP 0 931 985 A2 (FAGOR S COOP LTDA [ES]) FAGOR S COOP [ES] 28 July 1999 (1999-07-28) * page 1; figure 1 * -----	1-14	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F24C
Place of search Munich		Date of completion of the search 11 September 2009	Examiner von Mittelstaedt, A
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 09 15 7309

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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