

Description

Field of the invention

[0001] The present finding relates to a dishwasher with a third basket as defined in the preamble of claim 1.

Background art

[0002] Dishwashers having a washing tub which comprises a lower rack, an upper rack and an intermediate rack arranged between the upper rack and the lower rack are known in the art.

[0003] The upper rack, also known as third rack or third basket or third tray, is used for small and/or thin tableware such as cutlery.

[0004] Such upper rack comprises a frame slidably connected to the washing tub, and a shelf designed to receive such tableware, coupled to such frame.

[0005] In certain types of prior art dishwashers the shelf and the frame are permanently constrained relative to each other.

[0006] On the other hand, in other prior art types of dishwashers at least a portion of the shelf is removable with respect to the frame.

[0007] In other types of dishwashers, two or more portions of the shelf, or the whole shelf, can be detached from the frame.

[0008] The removable portion is operable to be carried by a user, e.g. when loading the tableware next to the sink or directly when clearing the table.

[0009] Furthermore, the removable portion allows the intermediate rack to accommodate objects whose extent in a vertical axis is longer than the distance between the bottom of the intermediate drawer and that of the upper drawer. That is, as the shelf is detached from the frame, there will be more room for the objects arranged on the intermediate rack.

[0010] In dishwashers with an at least partially removable shelf, such shelf is designed to be mechanically coupled to the frame, i.e. the shelf is held constrained and cannot move relative to the frame when it is coupled thereto.

Problem of the prior art

[0011] Inconveniently, if a user wishes to remove the shelf, he/she must lift the shelf by applying enough force to overcome the interference fit.

[0012] The application of such force, combined with the lifting movement, often causes jolting of the shelf, eventually leading to the fall of the tableware thereon and possibly to damage thereto.

Summary of the invention

[0013] Therefore, the technical purpose of the present finding is to provide a dishwasher that can obviate the

drawbacks of the prior art.

[0014] In particular, it is an object of the present finding to provide a dishwasher that can offer an alternative solution to the interference fit of the shelf to the frame.

[0015] Also, an object of the present finding is to provide a dishwasher with a removable shelf that affords easier insertion thereof.

[0016] The aforementioned technical purpose and objects are substantially fulfilled by a dishwasher that comprises the technical features as disclosed in one or more of the accompanying claims.

Advantages of the invention

[0017] The present finding can provide a dishwasher that affords easier insertion and/or removal of the upper rack.

[0018] The present finding can also avoid damage and/or fall of the tableware placed on the upper rack.

BIEF DESCRIPTION OF THE DRAWINGS

[0019] Further features and advantages of the present finding will result more clearly from the illustrative, non-limiting description of a practical embodiment of a dishwasher as shown in the accompanying drawings, in which:

- Figure 1 shows a first perspective view of an upper rack of a dishwasher according to the present finding;
- Figure 2 shows a second perspective view of the rack of Figure 1 with certain parts omitted;
- Figure 3 shows a side view of a portion of the rack of Figure 1;
- Figure 4 shows a perspective view of a portion of the rack of Figure 1.

DETAILED DESCRIPTION

[0020] Referring to the accompanying figures, numeral 1 designates the upper rack of the dishwasher of the present finding.

[0021] The dishwasher of the present finding comprises a washing tub defined by a plurality of walls (not shown) such as a base wall, two side walls, an upper wall and a lower wall.

[0022] The terms upper and lower shall be intended to be related to a proper installation and operation condition of the dishwasher. Here, the term upper designates the portion that is farther from the walkway surface and the term lower designates the portion that is closer to the walkway surface.

[0023] This dishwasher comprises a lower rack (not shown), an upper rack 1 and an intermediate rack (not shown) arranged between the upper rack 1 and the lower rack.

[0024] The racks are placed inside the washing tub,

namely the lower rack is placed close to the lower wall of the washing tub and the upper rack 1 is placed close to the upper wall of the washing tub.

[0025] The dishwasher also comprises a lower impeller and an upper impeller (not shown) which send water jets to the tableware for removing dirt.

[0026] The upper rack 1, or third rack or third drawer or third tray, is designed to accommodate tableware S such as cutlery and kitchen utensils including scissors, spatulas, grippers and other common kitchenware.

[0027] It should be noted that the upper rack 1 comprises a frame 2 slidably connected with the side walls of the washing tub. The frame 2 comprises wheels 13 to be able to slide.

[0028] The upper rack 1 further comprises a shelf 3, which is designed to receive the aforementioned tableware S, and is adapted to be coupled to the frame 2.

[0029] In particular, the shelf 3 is designed to form a clearance fit with the frame 2. That is, in the dishwasher of the present invention provides the shelf 3 is designed to ensure an interference-free fit with the frame 2.

[0030] In particular, the shelf 3 designed to be fitted on the frame 2 to simply rest thereupon. In other words, according to the present invention, the shelf 3 can move relative to the frame 2, as it is not mechanically constrained relative to the frame 2 when it is coupled thereto.

[0031] More in detail, the shelf 3 extends between a bottom 4 and an upper end 5. At the upper end 5, the shelf 3 comprises a perimetricaly extending rim 6. The rim 6 extends along the perimeter with interruptions, as shown in the accompanying figures. Alternatively, the rim 6 extends along the perimeter of the shelf 3 in a seamless manner.

[0032] The shelf 3 is configured to rest on the frame 2 at the rim 6, thereby forming the clearance fit.

[0033] In particular, the frame 2 comprises a supporting profile 7. For example, the frame 2 is formed with the typical rod structure of dishwashers. Accordingly, the supporting profile 7 consists of one of the rods or an assembly thereof.

[0034] Therefore, the shelf 3 contacts the frame 2 only at an upper portion of the profile 7, i.e. at the point at which the shelf 3 rests on the frame 2.

[0035] Particularly referring to Figure 3, the rim 6 comprises a groove 8.

[0036] The rim 6 is folded to define such groove 8. The groove 8 is configured to receive the profile 7 of the frame 2.

[0037] It should be noted that the groove 8 is oversized with respect to the profile 7 of the frame 2, to form the clearance fit.

[0038] In other words, the minimum size D1 of the groove 8 is larger than the maximum size D2 of the supporting profile 7.

[0039] Advantageously, the frame 6 of the shelf 3 rests on the profile 7 of the frame 2 without no mechanical constraint relative to the frame 2. As a result, a user can detach the shelf 3 from the frame 2 by simply lifting it,

and does not have to overcome any interference fit.

[0040] According to the present invention, a user who wishes to detach the shelf 3 from the frame 2 shall simply apply a force equal the weight of the shelf 3, including the weight of the tableware S possibly located thereon.

[0041] The bottom 4 of the shelf 3 comprises a grid 9 for supporting the tableware S. The shelf 3 also comprises a plurality of teeth 10 arranged on the grid 9 for orderly arrangement of the tableware S.

[0042] For easier removal/insertion of the upper rack 1 from/into the washing tub, the shelf 3 comprises a handle 12. Such handle 12 is preferably formed on a portion of the rim 6, in a zone that can be easily accessed by a user, i.e. a front zone of the rim 6.

[0043] The shelf 3 comprises two or more portions 11 that can be connected to each other so as to define the shelf 3. Thus, the two or more portions 11 can be coupled to the frame 2 independently of each other.

[0044] Alternatively, the shelf 3 consists of a single portion 11.

Claims

1. A dishwasher comprising a washing tub defined by two side walls, a lower wall and an upper wall, the dishwasher further comprising a lower rack, an upper rack (1) and an intermediate rack arranged between the upper rack (1) and the lower rack, the upper rack (1) comprising:

- a frame (2), slidably connected to the side walls of the washing tub,
- a shelf (3), designed to receive tableware (S), the shelf (3) being adapted to be coupled to the frame (2);

characterized in that

the shelf (3) is designed to form a clearance fit with the frame (2).

2. A dishwasher according to claim 1, wherein said shelf (3) extends between a bottom (4) and an upper end (5), the shelf (3) comprising a rim (6) perimetricaly extending at the upper end (5), the shelf (3) being configured to rest on the frame (2) at said rim (6) thereby forming said clearance fit.
3. A dishwasher as claimed in claim 2, wherein said frame (2) comprises a supporting profile (7), said rim (6) comprising a groove (8) configured to receive said profile (7), the minimum size (D1) of the groove (8) being larger than the maximum size (D2) of the supporting profile (7).
4. A dishwasher as claimed in claim 2 or 3, wherein said rim (6) extends perimetricaly with or without interruptions.

5. A dishwasher as claimed in any of claims 2 to 4,
wherein said rim (6) comprises a handle (12).
6. A dishwasher as claimed in any of claims 2 to 5,
wherein said bottom (4) of said shelf (3) comprises
a grid (9) for supporting the tableware (S). 5
7. A dishwasher as claimed in claim 6, wherein the shelf
(3) comprises a plurality of teeth (10) arranged on
the grid (9) for orderly arrangement of the tableware
(S). 10
8. A dishwasher as claimed in any of claims 1 to 7,
wherein said shelf (3) comprises two or more por-
tions (11) adapted to be connected to each other to
define the shelf (3), the two or more portions (11)
being adapted to be independently coupled to the
frame (2). 15
9. A dishwasher as claimed in any of claims 1 to 8, 20
wherein said tableware (S) comprises cutlery and
kitchen utensils including scissors, spatulas, grip-
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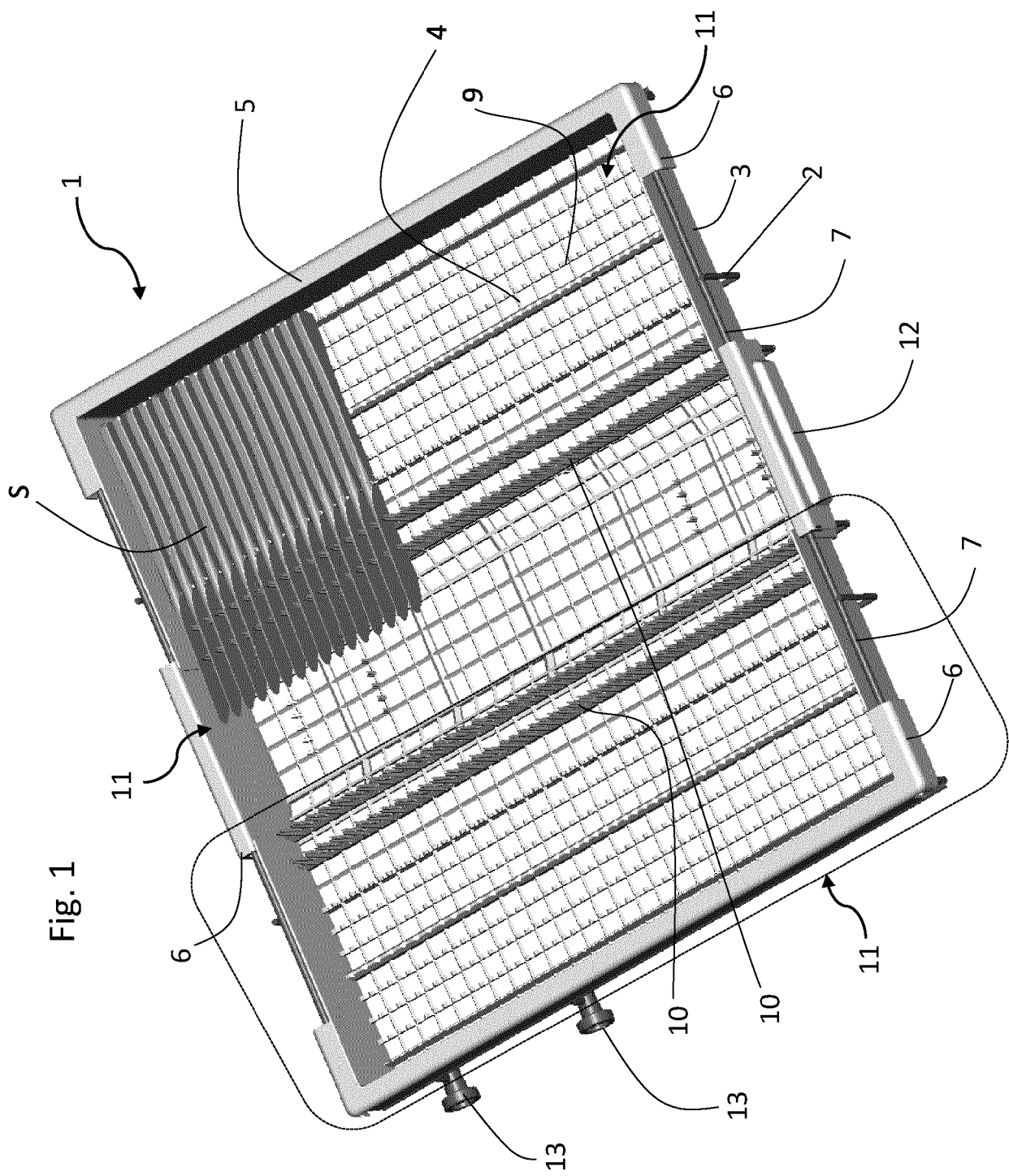


Fig. 2

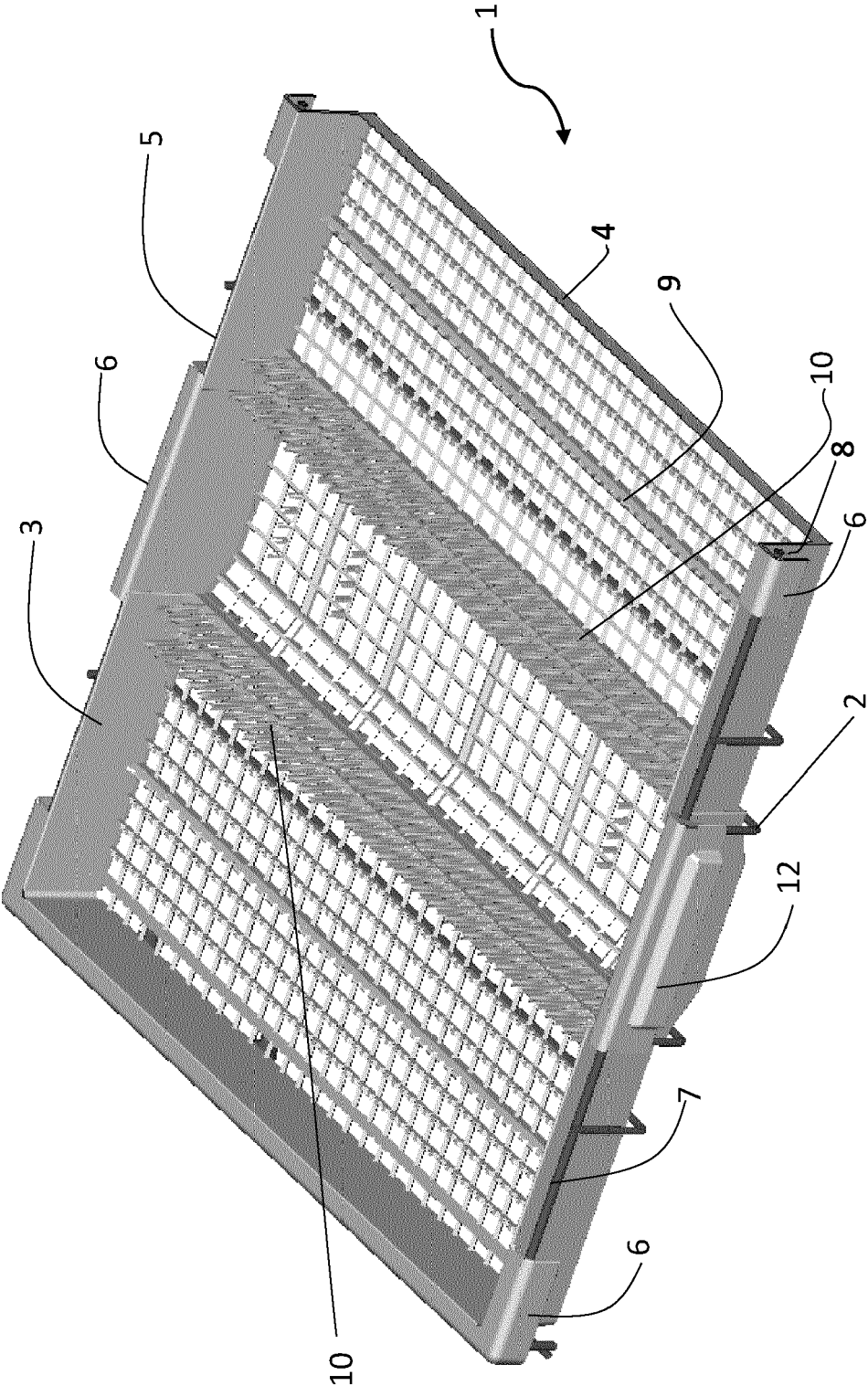


Fig. 3

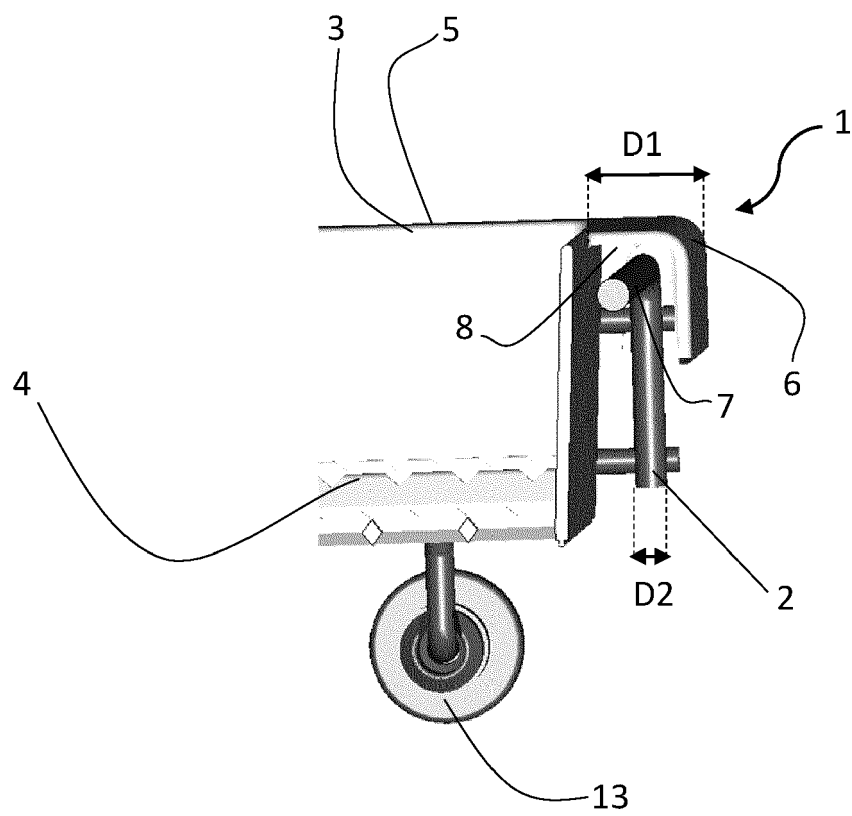
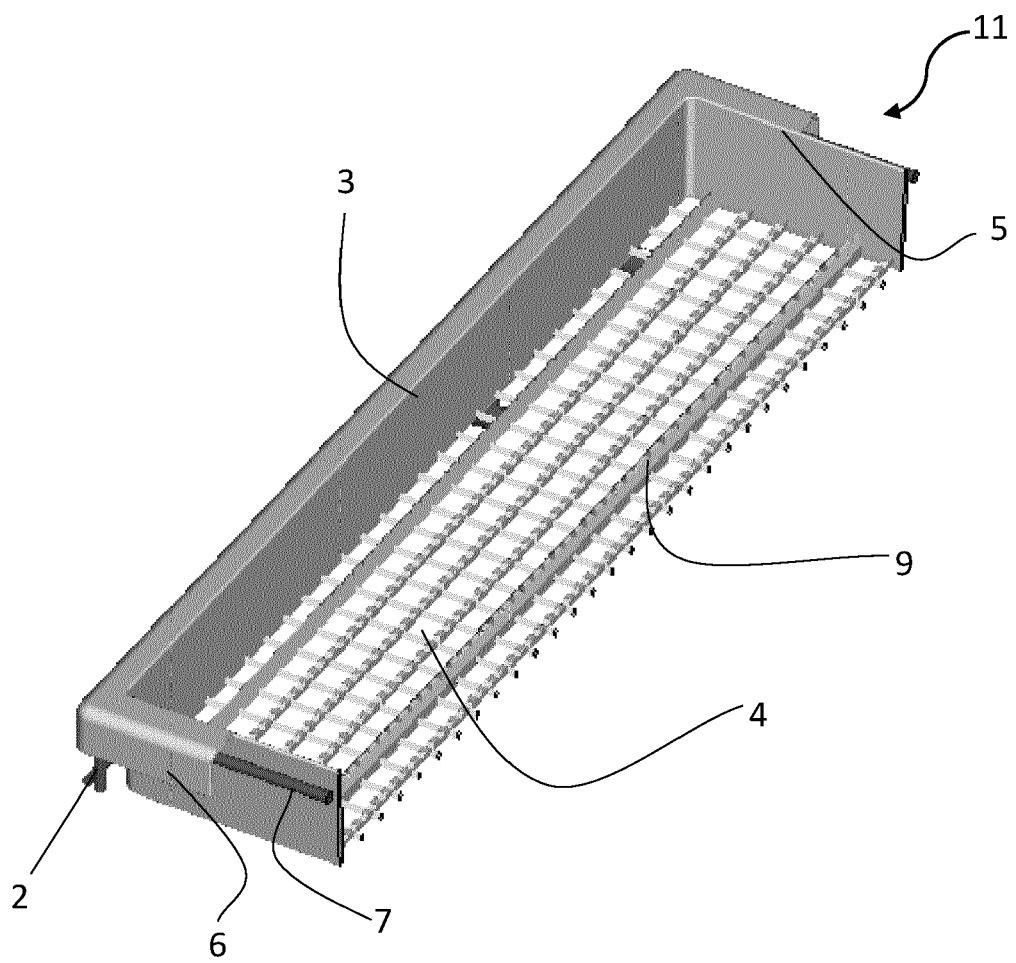


Fig. 4





EUROPEAN SEARCH REPORT

 Application Number
 EP 21 15 3297

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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 2 554 097 A2 (INDESIT CO SPA [IT]) 6 February 2013 (2013-02-06) * the whole document *	1-9	INV. A47L15/50
X	US 2006/219271 A1 (FEDDEMA MARK S [US] ET AL) 5 October 2006 (2006-10-05) * abstract * * paragraphs [0026] - [0033], [0038] - [0040]; figures *	1-9	
X	US 2015/335225 A1 (SEU ANTONIO [IT]) 26 November 2015 (2015-11-26) * abstract * * paragraphs [0022] - [0055]; figures *	1-9	
X	US 2015/196189 A1 (SHAFFER RYAN JOSEPH [US] ET AL) 16 July 2015 (2015-07-16) * abstract; figures *	1-9	
X	US 2019/298146 A1 (GUTKOWSKI WILLIAM [US]) 3 October 2019 (2019-10-03) * abstract *	1,2,4-9	TECHNICAL FIELDS SEARCHED (IPC)
A	* paragraphs [0056] - [0074]; figures *	3	A47L
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 26 May 2021	Examiner Prosig, Christina
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 21 15 3297

5 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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26-05-2021

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