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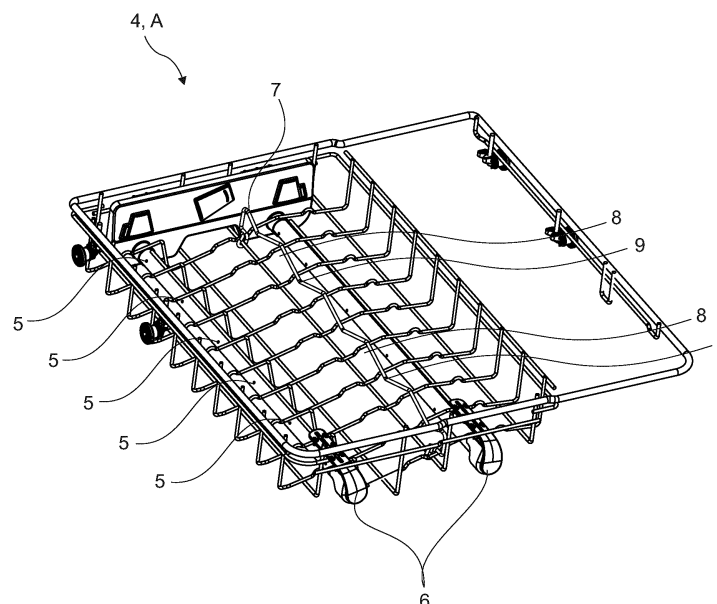
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(54) **A DISHWASHER COMPRISING MOVABLE WIRES**

(57) The present invention relates to a dishwasher (1) comprising a body (2); a washing tub (3) which is disposed in the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed; and at least one spraying member (6) which is

longitudinally disposed under the rack (4), which is connected to the rack (4) and which has a plurality of nozzles (5) for delivering the water directly onto the rack (4). The dishwasher (1) further comprises a support wire (7) which has a form enabling the kitchen items on the rack (4) to be placed only on the nozzles (5).

Figure 2



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Description

[0001] The present invention relates to a dishwasher comprising movable wires.

[0002] In dishwashers, kitchen items are placed onto the racks. The dishwashers used today usually have a lower rack and an upper rack. For placing smaller kitchen items such as forks, knives, etc., cutlery baskets generally placed on the lower rack are known. Recently, the use of cutlery baskets, which are positioned as a third basket close to the ceiling of the washing tub, has also become widespread. Using a third basket close to the ceiling of the washing tub as a cutlery basket has advantages such as arranging the cutlery more regularly and eliminating the need for occupying space in the lower rack. However, using the ceiling cutlery basket can also cause difficulty in placing relatively long glasses. The glasses hit the ceiling cutlery basket and it becomes difficult for the racks to move out of and into the washing tub. Moreover, the entire ceiling cutlery basket occupies space for a low number of cutlery. In order to avoid these situations, it is known to use a third basket which is partially deeper and partially suitable for placing glasses on top of the ceiling cutlery basket. Nozzles used on the third basket which directly wash the glasses are also known. However, when the glasses placed in the third basket are not aligned with the washing area of the nozzles, the washing performance is adversely affected.

[0003] In the state of the art European Patent Document No. EP1665975, a dishwasher is disclosed, comprising a movable rack mechanism.

[0004] The aim of the present invention is the realization of a dishwasher with improved washing performance.

[0005] The dishwasher realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a body; a washing tub which is disposed in the body; at least one rack which is disposed in the washing tub; and a spraying member which is longitudinally disposed under the rack and which has a plurality of nozzles thereon for delivering the water. The kitchen items are placed onto the rack to be washed. The spraying member extends under the rack from the back of the rack to the front as connected to the rack. The nozzles provide the direct delivery of the water to the rack. Thus, it is possible to wash the inside of kitchen items such as glasses, etc.

[0006] The dishwasher of the present invention comprises a support wire which enables the kitchen items on the rack to be placed only on the nozzles. The support wire, by means of the form thereof, enables the kitchen items to be placed so as to align with the nozzles.

[0007] In an embodiment of the present invention, the dishwasher comprises a support wire having a plurality of recesses and a plurality of protrusions. The kitchen items can be placed at the areas formed by the recesses. The recesses are positioned so as to be over the nozzles. Thus, the efficient washing of glasses is ensured. The

protrusions are aligned with the areas without any nozzles. By means of the protrusions, the kitchen items are prevented from bearing against the support wire. Thus, the kitchen items cannot be placed at the areas without any nozzles.

[0008] In an embodiment of the present invention, the dishwasher comprises the support wire which is connected to the base of the rack from both ends and which has open and closed positions. The support wire rotates and shifts between the open and closed positions with the ends thereof connected to the rack. When in the open position, the support wire is farther from the base of the rack. Thus, larger kitchen items can be placed. When in the closed position, the support wire approaches the base of the rack and enables the placement of smaller kitchen items.

[0009] In an embodiment of the present invention, the dishwasher comprises an elevation which is provided on the rack against which the lower edge of the support wire bears when in the open position and a housing which enables the support wire to shift to the closed position. Thus, the support wire shifts between the open position and the closed position.

[0010] By means of the present invention, a dishwasher is realized, comprising a support wire which enables the glasses to be placed so as to align with to the nozzles on the upper rack.

[0011] The dishwasher realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the perspective view of the dishwasher.

Figure 2 - is the perspective view of the rack when the support wire is in the open position.

Figure 3 - is the perspective view of the rack when the support wire is in the closed position.

[0012] The elements illustrated in the figures are numbered as follows:

1- Dishwasher

2- Body

3- Washing tub

4- Rack

5- Nozzle

6- Spraying member

7- Support wire

8- Recess

9- Protrusion

10- Elevation

11- Housing

[0013] The dishwasher (1) comprises a body (2); a washing tub (3) which is disposed in the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed; and at least one spraying member (6) which is longitudinally disposed under the rack (4), which is connected to the rack (4) and which has a plurality of nozzles (5) for delivering the water directly onto the rack (4). The spraying member (6) is longitudinally disposed under the rack (4) from front to back. The nozzles (5) thereon face the kitchen items placed in the rack (4). Thus, the intensive washing of the kitchen items on the rack (4) is ensured.

[0014] The dishwasher (1) of the present invention comprises a support wire (7) which has a form enabling the kitchen items on the rack (4) to be placed only on the nozzles (5). The support wire (7) is disposed on the rack (4). Thanks to the form of the support wire (7), it becomes possible to place the kitchen items only on the nozzles (5). Thus, the kitchen items are not placed in the spaces between the nozzles (5). Consequently, intensive washing is performed efficiently.

[0015] In an embodiment of the present invention, the dishwasher (1) comprises the support wire (7) which has a plurality of recesses (8) against which the kitchen items, especially glasses, bear and a plurality of protrusions (9) whereon the kitchen items cannot be placed. It is possible to place glasses only at the areas formed by the recesses (8). The recesses (8) are positioned so as to be over the nozzles (5). The kitchen items placed on the protrusions (9) slide and move towards the recesses (8). Thus, the kitchen items are prevented from being placed at the areas between the nozzles (5).

[0016] In an embodiment of the present invention, the dishwasher (1) comprises the support wire (7) which is positioned such that the area formed by each recess (8) is over a nozzle (5). Each recess (8) forms an area on the rack (4). Since the said areas align with the nozzles (5), intensive washing areas are formed.

[0017] In an embodiment of the present invention, the dishwasher (1) comprises the support wire (7) having an open position wherein the support wire (7) rotates as connected from both ends to the base of the rack (4) so as to move away from the base of the rack (4) and a closed position wherein the support wire (7) approaches the base of the rack (4) so as to allow the placement of smaller kitchen items. The support wire (7) is rotatably connected to the rack (4) from both ends. The support wire (7) moves away from the base of the rack (4) when in the open position such that larger kitchen items such as tall glasses, etc., can be placed thereon. The support wire (7) approaches the base of the rack (4) when in the closed

position. Thus, smaller kitchen items can be placed thereon. In an embodiment of the present invention, the dishwasher (1) comprises the rack (4) having an elevation (10) which enables the support wire (7) to be fixed as the lower edge thereof bears thereagainst when in the open position, and a housing (11) which enables the support wire (7) to rotate to shift to the closed position. The elevation (10) provided at the base of the rack (4) enables the support wire (7) to be kept fixed in the open position. The support wire (7) bears against the elevation (10) such that the support wire (7) is fixed. The support wire (7) rotates and shifts to the closed position by means of the housing (11) provided at the base of the rack (4).

[0018] By means of the invention, a dishwasher (1) is realized, comprising a support wire (7) which enables the glasses to be placed to be only over the nozzles (5) by means of the recesses (8) and the protrusions (9) thereon. Thus, the intensive washing of the kitchen items placed on the rack (4) is ensured.

Claims

1. A dishwasher (1) **comprising** a body (2); a washing tub (3) which is disposed in the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed; and at least one spraying member (6) which is longitudinally disposed under the rack (4), which is connected to the rack (4) and which has a plurality of nozzles (5) for delivering the water directly onto the rack (4), **characterized by** a support wire (7) which has a form enabling the kitchen items on the rack (4) to be placed only on the nozzles (5).
2. A dishwasher (1) as in Claim 1, **characterized by** the support wire (7) which has a plurality of recesses (8) against which the kitchen items bear and a plurality of protrusions (9) whereon the kitchen items cannot be placed.
3. A dishwasher (1) as in Claim 2, **characterized by** the support wire (7) which is positioned such that the area formed by each recess (8) is over a nozzle (5).
4. A dishwasher (1) as in any one of the above claims, **characterized by** the support wire (7) having an open position wherein the support wire (7) rotates as connected from both ends to the base of the rack (4) so as to move away from the base of the rack (4) and a closed position wherein the support wire (7) approaches the base of the rack (4) so as to allow the placement of smaller kitchen items.
5. A dishwasher (1) as in Claim 4, **characterized by** the rack (4) having an elevation (10) which enables the support wire (7) to be fixed as the lower edge thereof

bears thereagainst when in the open position, and a housing (11) which enables the support wire (7) to rotate to shift to the closed position.

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Figure 1

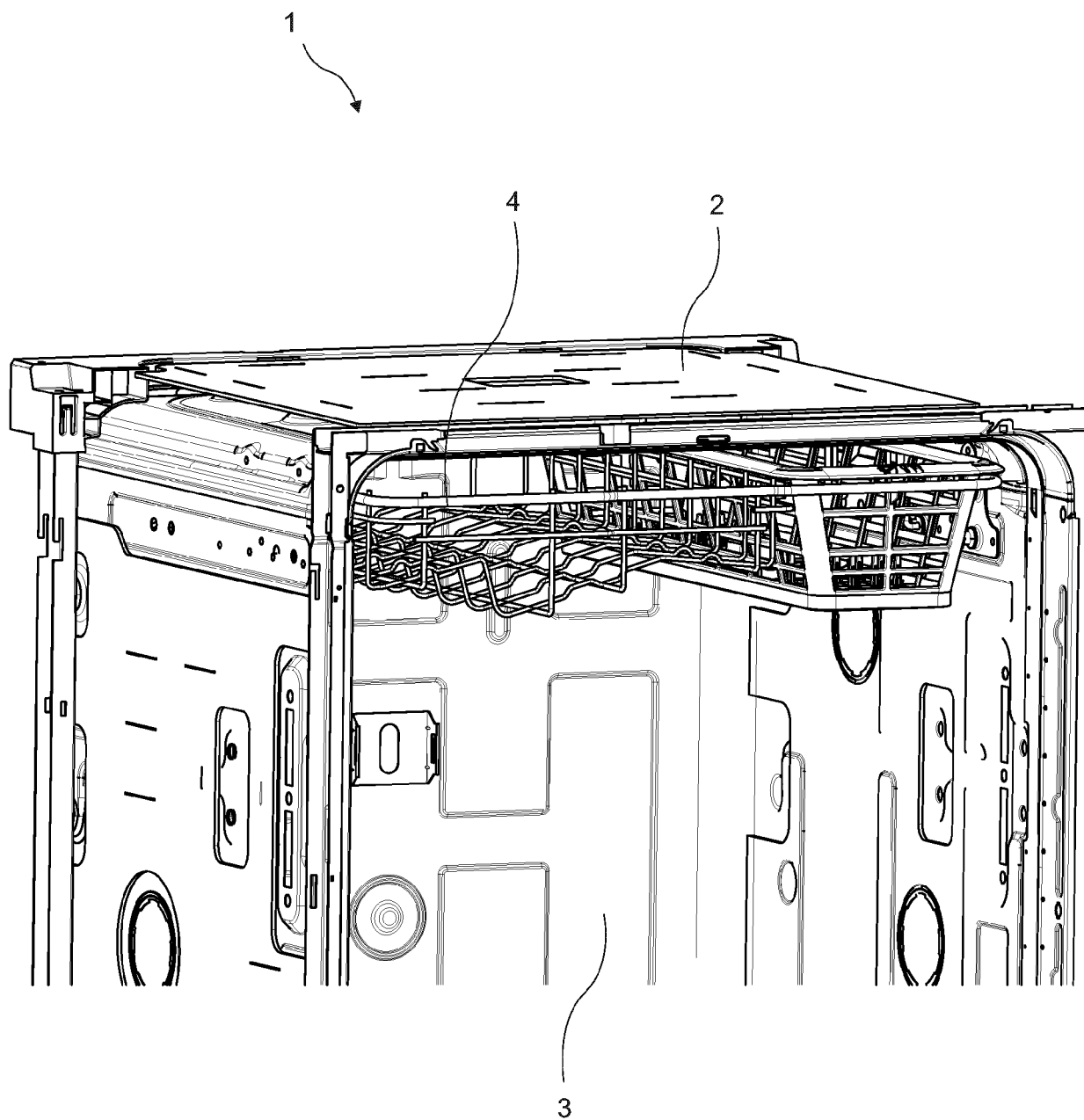


Figure 2

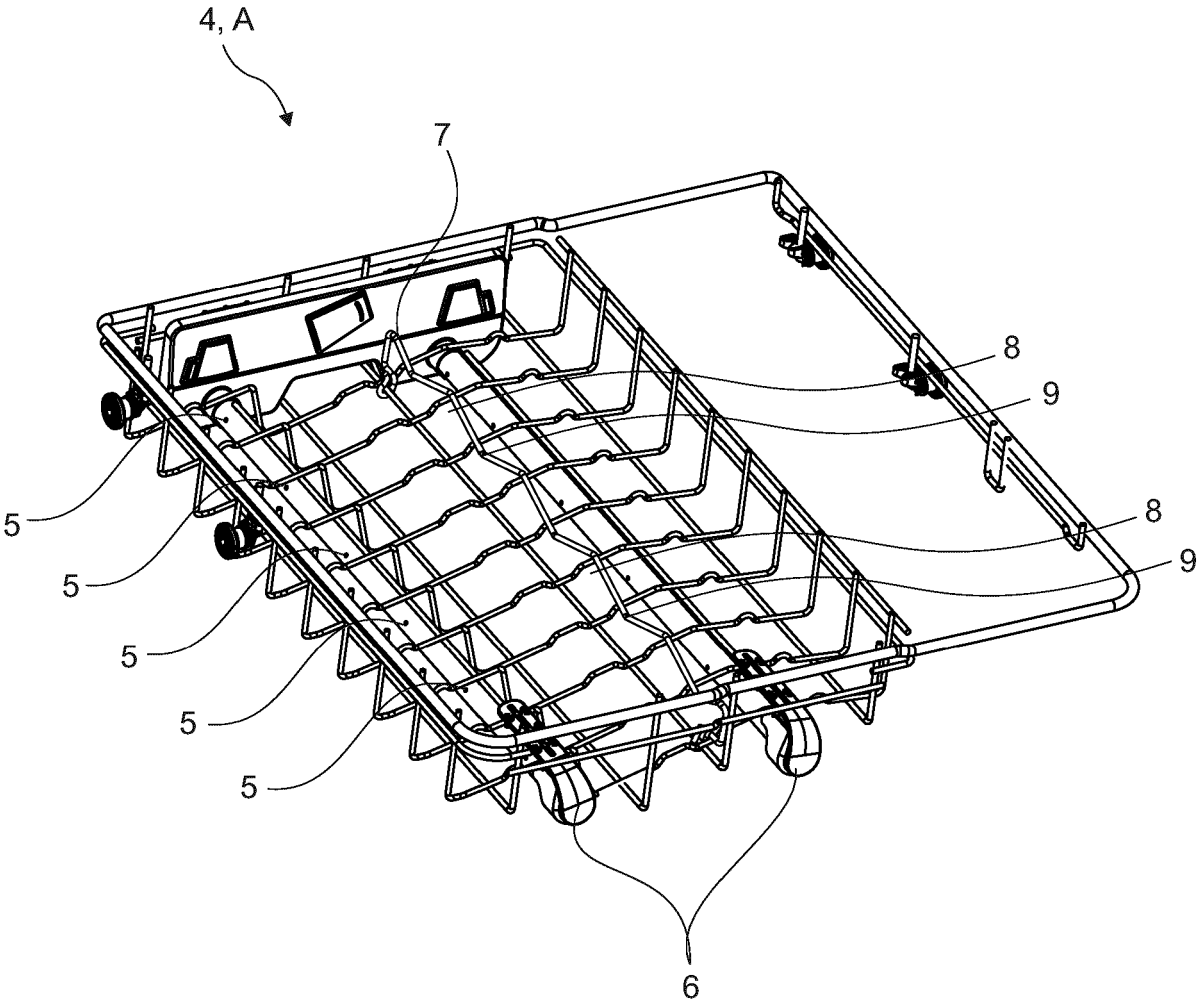
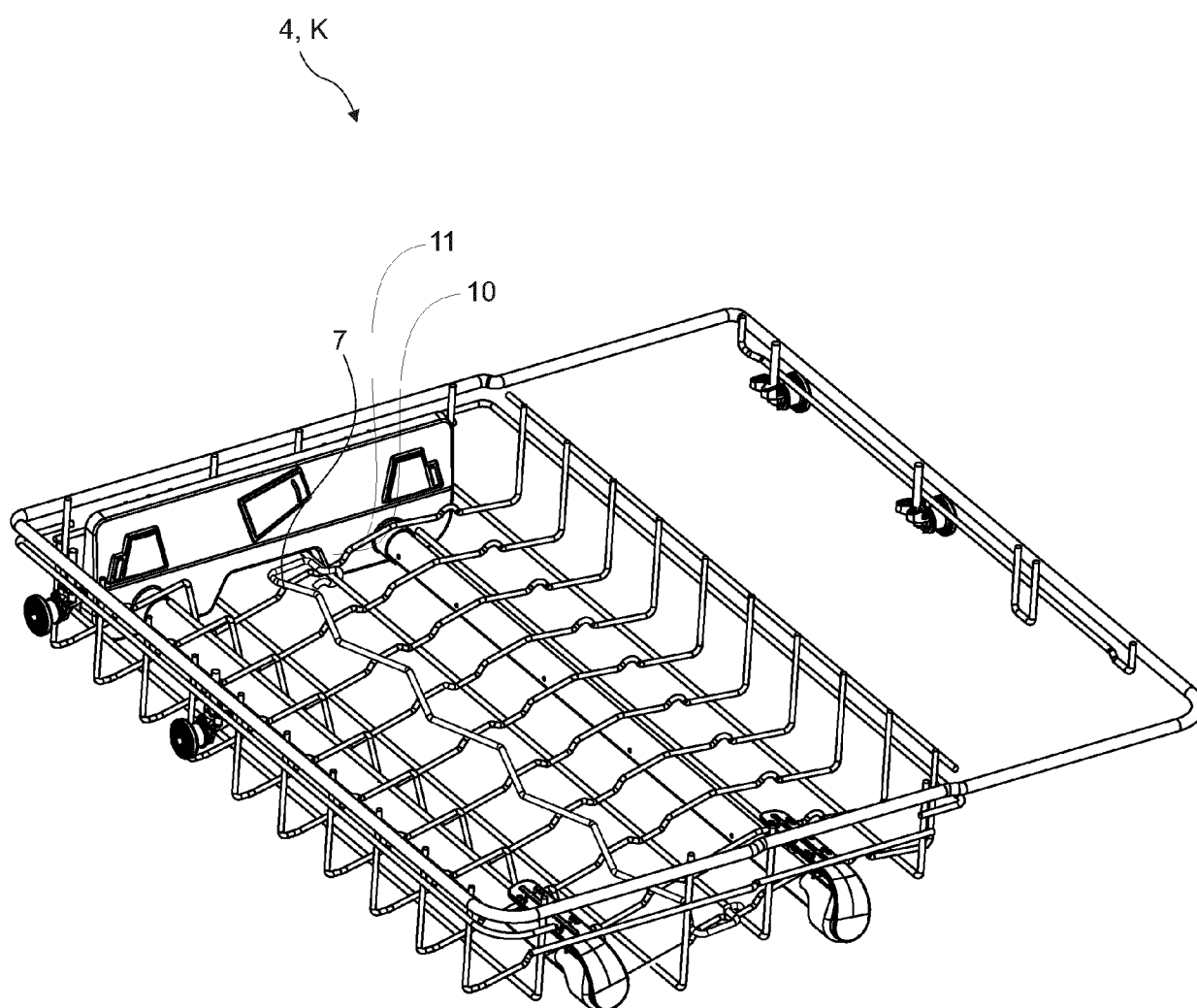


Figure 3





EUROPEAN SEARCH REPORT

Application Number

EP 24 21 5182

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	US 2022/175215 A1 (OHAYON TAL ABRAHAM [US] ET AL) 9 June 2022 (2022-06-09) * abstract * * paragraphs [0036] - [0044]; figures *	1-5	INV. A47L15/50
X	EP 4 252 613 A1 (WHIRLPOOL CO [US]) 4 October 2023 (2023-10-04) * abstract * * paragraphs [0038] - [0053]; figures *	1-3 4,5	
X	US 2021/298561 A1 (FEDDEMA MARK S [US] ET AL) 30 September 2021 (2021-09-30) * abstract * * paragraphs [0031] - [0034]; figures *	1-3 4,5	
X	US 2018/220862 A1 (TULLER BARRY E [US] ET AL) 9 August 2018 (2018-08-09) * abstract * * paragraphs [0024] - [0043]; figures *	1-3 4,5	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47L
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		23 April 2025	Prosig, Christina
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EP 24 21 5182

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2022175215 A1	09-06-2022	CN 116600693 A	15-08-2023
		US 2022175215 A1	09-06-2022
		WO 2022121794 A1	16-06-2022

EP 4252613 A1	04-10-2023	EP 4252613 A1	04-10-2023
		US 2023309784 A1	05-10-2023
		US 2024057846 A1	22-02-2024

US 2021298561 A1	30-09-2021	CN 113455987 A	01-10-2021
		EP 3888522 A1	06-10-2021
		US 2021298561 A1	30-09-2021
		US 2022287543 A1	15-09-2022
		US 2024099551 A1	28-03-2024

US 2018220862 A1	09-08-2018	EP 2912983 A2	02-09-2015
		US 2015245762 A1	03-09-2015
		US 2017135547 A1	18-05-2017
		US 2018220862 A1	09-08-2018
		US 2020077865 A1	12-03-2020

EPO FORM P0459

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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Patent documents cited in the description

- EP 1665975 A [0003]