



(51) International Patent Classification:

A47L 15/50 (2006.01)

(21) International Application Number:

PCT/EP2019/087100

(22) International Filing Date:

27 December 2019 (27.12.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2018/20818

28 December 2018 (28.12.2018) TR

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(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
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OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

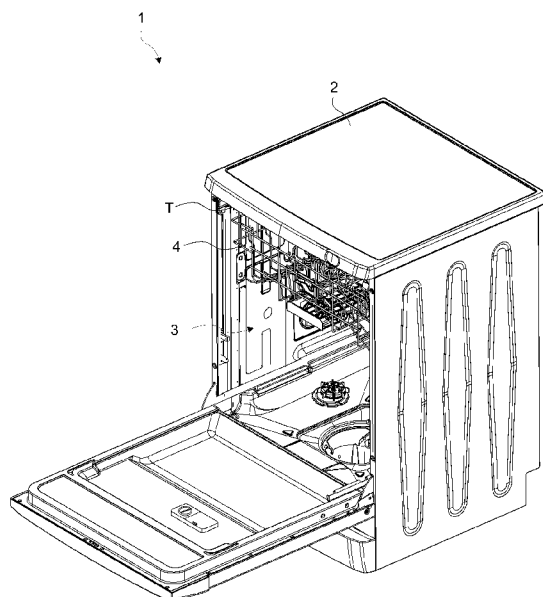
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: A DISHWASHER

Figure 1



(57) Abstract: The present invention relates to a dishwasher (1) comprising a body (2); a washing tub (3) which is disposed inside the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and wherein the items to be washed are placed; and a drawer (10) which is disposed so as to be close to the ceiling (T) of the washing tub (3) and which has a frame (5) forming the sides thereof, a front wall (6) and a rear wall (7) oppositely disposed on the frame (5), at least one lateral surface (8) which can slidably move in the horizontal direction on the frame (5) and wherein the items are placed to be washed and a middle surface (9) which can move in the vertical direction as well as an upper position wherein the lateral surface (8) and the middle surface (9) are positioned in the same axis and side by side so as to allow the items to be placed almost on the entire area inside the frame (5), and a lower position wherein the middle surface (9) moves away from the ceiling (T) of the washing tub (3) and the lateral surface (8) can be moved onto the middle surface (9).

Description**A DISHWASHER**

- [0001] The present invention relates to a dishwasher comprising a drawer wherein the items to be washed are placed.
- [0002] Washing small items with a large number of recesses in dishwashers is quite difficult. For this reason, baskets are disposed on the washing tub suitable for placing small items such as cutlery. By being placed into the basket, the items are prevented from scattering around during the washing process, thus providing an efficient washing process. Consequently, deformations which may occur due to scattering on the items and the machine are prevented. Said baskets can be disposed on the lower rack as well as in an area close to the ceiling of the washing tub, which is preferred recently. Thus, the washing capacity of the lower rack is increased and larger items such as plates are enabled to be washed thereon. The water is directly delivered onto the basket disposed in the vicinity of the ceiling. Moreover, the items can be placed in an ordered manner. However, the basket which is disposed between the ceiling and the upper rack limits the usable area when items are desired to be placed onto the upper rack. When a tall item such as stemware is desired to be placed on the upper rack, said item gets stuck to the cutlery basket on the upper rack. Therefore, taller items cannot be placed onto the upper rack, and the items/basket can be deformed.
- [0003] In the state of the art International Patent Application Document No. WO201402737, a dishwasher comprising a basket which can be used in various sizes is disclosed.
- [0004] The aim of the present invention is the realization of a dishwasher wherein the volume of the washing tub can be effectively used.
- [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 and wherein the washing process is performed, and at least one rack which is disposed in the washing tub and whereon the items to be washed are placed. A drawer wherein the items to be washed are placed is disposed so as to be

in the vicinity of the ceiling of the washing tub. The drawer has a frame which forms the sides thereof and a front wall and a rear wall which are oppositely positioned on the frame. The drawer comprises at least one lateral surface which can move in the horizontal direction by sliding on the frame and a middle surface which can move in the vertical direction. The middle surface has an upper position wherein the middle surface is positioned in the same axis and side by side with the lateral surfaces so as to allow the items to be placed almost on the entire area inside the frame, and a lower position wherein the middle surface moves away from the ceiling of the washing tub and the lateral surface can be moved onto the middle surface.

[0006] The dishwasher of the present invention comprises a movement mechanism having a plurality of driving arms which extend from the rear wall towards the front wall along the sides of the middle surface so as to allow the placement of the middle surface. The movement mechanism comprises a plurality of locking members which are positioned under the middle surface and parallel to the front wall and the rear wall; a lower position lock which is disposed on the driving arm and which locks the middle surface changed to the lower position after the placement of the locking member; and an upper position lock which locks the middle surface at the upper position.

[0007] In an embodiment of the present invention, the dishwasher comprises a handle with one end connected to the driving arm, which is provided on the front wall and which triggers the movement mechanism upon being triggered by the user. When the driving arm moves from the front wall towards the rear wall, the locking member is seated onto the lower position lock. The driving arm moves as the user triggers the handle. Thus, the middle surface shifts to the lower position. The driving arm moves from the rear wall towards the front wall when the user triggers the handle while the middle surface is at the lower position. Thus, the locking member is released from the lower position lock and seated onto the upper position lock, and the middle surface shifts to the upper position.

[0008] In another embodiment of the present invention, the dishwasher comprises

a plurality of protrusions which are disposed on the surface of the middle surface contacting the front wall. The protrusions can move vertically inside a plurality of channels arranged on the front wall.

- [0009] In another embodiment of the present invention, the dishwasher comprises the lower position lock which enables the middle surface to be at a level lower than the base of the lateral surfaces when the middle surface is in the lower position. When the middle surface is in the lower position, the lateral surfaces can slidably move in the horizontal axis on the front wall and the rear wall so as to be joined.
- [0010] In another embodiment of the present invention, the lateral surfaces can move in the horizontal axis so as to shift to different positions on the drawer, and thus the items placed to be washed are allowed to extend towards the ceiling.
- [0011] By means of the present invention, a dishwasher is realized, wherein the items in different sizes placed onto the rack are efficiently washed.
- [0012] The dishwasher realized in order to attain the aim of the present invention is illustrated in the attached figures, where:
- [0013] Figure 1 - is the perspective view of the dishwasher.
- [0014] Figure 2 - is the top perspective view of the drawer when the same is in the upper position in an embodiment of the present invention.
- [0015] Figure 3 - is the top perspective view of the movement mechanism when the drawer is in the upper position in an embodiment of the present invention.
- [0016] Figure 4 - is the top perspective view of the movement mechanism comprising the lower position lock and the upper position lock in an embodiment of the present invention.
- [0017] Figure 5 - is the top perspective view of the drawer in an embodiment of the present invention.
- [0018] Figure 6 - is the partial perspective view of the front wall and the middle surface when the locking member is on the lower position lock in an embodiment of the present invention.
- [0019] Figure 7 - is the schematic view of the drawer comprising the protrusion and the channel in an embodiment of the present invention.

[0020] The elements illustrated in the figures are numbered as follows:

1. Dishwasher
2. Body
3. Washing tub
4. Rack
5. Frame
6. Front wall
7. Rear wall
8. Lateral surface
9. Middle surface
10. Drawer
11. Movement mechanism
12. Driving arm
13. Locking member
14. Lower position lock
15. Upper position lock
16. Handle
17. Protrusion
18. Channel

[0021] T- Ceiling

[0022] The dishwasher (1) comprising a body (2); a washing tub (3) which is disposed inside the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and wherein the items to be washed are placed; and a drawer (10) which is disposed so as to be close to the ceiling (T) of the washing tub (3) and which has a frame (5) forming the sides thereof, a front wall (6) and a rear wall (7) oppositely disposed on the frame (5), at least one lateral surface (8) which can slidably move in the horizontal direction on the frame (5) and wherein the items are placed to be washed and a middle surface (9) which can move in the vertical direction. The frame (5) is preferably composed of wires so as to form the sides of the drawer (10). The front wall (6) and the rear wall (7) are arranged on the frame (5). The middle surface (9) which extends between the front wall (6) and the rear wall (7) is arranged at the

middle section of the frame (5) and the lateral surfaces (8) are arranged on the sides of the middle surface (9). The middle surface (9) and the side surfaces (8) are movable and can be moved inside the drawer (10) by the user. The drawer (10) has an upper position wherein the lateral surface (8) and the middle surface (9) are positioned in the same axis and side by side so as to allow the items to be placed almost on the entire area inside the frame (5), and a lower position wherein the middle surface (9) moves away from the ceiling (T) of the washing tub (3) and the lateral surface (8) can be moved onto the middle surface (9).

[0023] The dishwasher (1) of the present invention comprises a movement mechanism (11) having a plurality of driving arms (12) which extend from the rear wall (7) towards the front wall (6) along the sides of the middle surface (9) and which allow the placement of the middle surface (9), a plurality of locking members (13) which are positioned under the middle surface (9) so as to be parallel to the front wall (6) and the rear wall (7), a lower position lock (14) which is positioned on the driving arm (12) and which provides the locking of the middle surface (9) changing to the lower position (A) as the locking member (13) is seated and an upper position lock (15) which enables the middle surface (9) to be locked at the upper position. The middle surface (9) moves away from the ceiling (T) of the washing cabin (3) when moved to the lower position by means of the movement mechanism (11). Thus, the middle surface (9) moves to a position lower than the lateral surfaces (8), thus enabling the lateral surfaces (8) to move on the frame (5). For example, when the user wants to place tall items onto the rack (4) or does not need the middle surface (9), the middle surface (9) is changed to the lower position and the lateral surfaces (8) can be joined, thus decreasing the area occupied by the drawer (10). When the user moves the middle surface (9) to the upper position, the lateral surfaces (8) and the middle surface (9) are locked inside the frame (5) on the upper position lock (15). When the lateral surfaces (8) are joined, the items placed to be washed are allowed to extend towards the ceiling (T) of the washing tub (3), thus increasing the washing capacity of the rack (4).

- [0024] In an embodiment of the present invention, the dishwasher (1) comprises a handle (16) with one end connected to the driving arm (12), which is provided on the front wall (6) and which triggers the movement mechanism (11) upon being triggered by the user. When the handle (16) is triggered by the user, the driving arm (12) moves between the front wall (6) and the rear wall (7). As the handle (16) is pushed towards the interior of the washing tub (3) by the user, the driving arm (12) is moved from the front wall (6) towards the rear wall (7), thus enabling the middle surface (9) to move in the vertical direction. The locking member (13) positioned under the middle surface (9) is seated onto the lower position lock (14), enabling the middle surface (9) to shift to the lower position. When the driving arm (12) moves from the rear wall (7) towards the front wall (6) as the user triggers the handle (16), the locking member (13) is seated onto the upper position lock (15), thus enabling the middle surface (9) to shift to the upper position.
- [0025] In another embodiment of the present invention, the dishwasher (1) comprises the drawer (10) having a plurality of protrusions (17) which are provided on the surface of the middle surface (9) in contact with the front wall (6) and a plurality of channels (18) which are arranged on the front wall (6) and wherein the protrusions (17) move vertically therein. The middle surface (9) is fixed onto the front wall (6) by means of the protrusions (17). As the protrusions (17) are seated into the channels (18), the middle surface (9) is moved in the vertical direction without being detached from the drawer (10) and thus the drawer (10) is shifted to the lower position or the upper position.
- [0026] In another embodiment of the present invention, the dishwasher (1) comprises the lower position lock (14) which enables the middle surface (9) to be at a level lower than the base of the lateral surfaces (8) when the middle surface (9) is in the lower position. When the locking member (13) is on the lower position lock (14), the middle surface (9) moves away from the ceiling (T) of the washing tub (3) and shifts to a position lower than the base of the side surfaces (8). The lateral surfaces (8) can be positioned side by side in the horizontal axis such that the middle surface (9) is

positioned thereunder. Thus, when not in use, the middle surface (9) is prevented from occupying space on the drawer (10).

[0027] By means of the present invention, a dishwasher (1) is realized, comprising the drawer (10) which can be used in different sizes, thus increasing the washing capacity. By means of the movement mechanism (11) provided on the drawer (10), the user can use the required sections of the drawer (10) and can decrease the space occupied by the drawer (10) when not required, thus increasing the washing area remaining under the drawer (10).

Claims

1. A dishwasher (1) **comprising** a body (2); a washing tub (3) which is disposed inside the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and wherein the items to be washed are placed; and a drawer (10) which is disposed so as to be close to the ceiling (T) of the washing tub (3) and which has a frame (5) forming the sides thereof, a front wall (6) and a rear wall (7) oppositely disposed on the frame (5), at least one lateral surface (8) which can slidably move in the horizontal direction on the frame (5) and wherein the items are placed to be washed and a middle surface (9) which can move in the vertical direction as well as an upper position wherein the lateral surface (8) and the middle surface (9) are positioned in the same axis and side by side so as to allow the items to be placed almost on the entire area inside the frame (5), and a lower position wherein the middle surface (9) moves away from the ceiling (T) of the washing tub (3) and the lateral surface (8) can be moved onto the middle surface (9), **characterized by** a movement mechanism (11) having a plurality of driving arms (12) which extend from the rear wall (7) towards the front wall (6) along the sides of the middle surface (9) and which allow the placement of the middle surface (9), a plurality of locking members (13) which are positioned under the middle surface (9) so as to be parallel to the front wall (6) and the rear wall (7), a lower position lock (14) which is positioned on the driving arm (12) and which provides the locking of the middle surface (9) changing to the lower position (A) as the locking member (13) is seated and an upper position lock (15) which enables the middle surface (9) to be locked at the upper position.
2. A dishwasher (1) as in Claim 1, **characterized by** a handle (16) with one end connected to the driving arm (12), which is provided on the front wall (6) and which triggers the movement mechanism (11) upon being triggered by the user.
3. A dishwasher (1) as in any one of the above claims, **characterized by** the drawer (10) having a plurality of protrusions (17) which are provided on the surface of the middle surface (9) in contact with the front wall (6) and a plurality of channels (18) which are arranged on the front wall (6) and wherein the protrusions (17) move vertically therein.

4. A dishwasher (1) as in any one of the above claims, **characterized by** the lower position lock (14) which enables the middle surface (9) to be at a level lower than the base of the lateral surfaces (8) when the middle surface (9) is in the lower position.

Figure 1

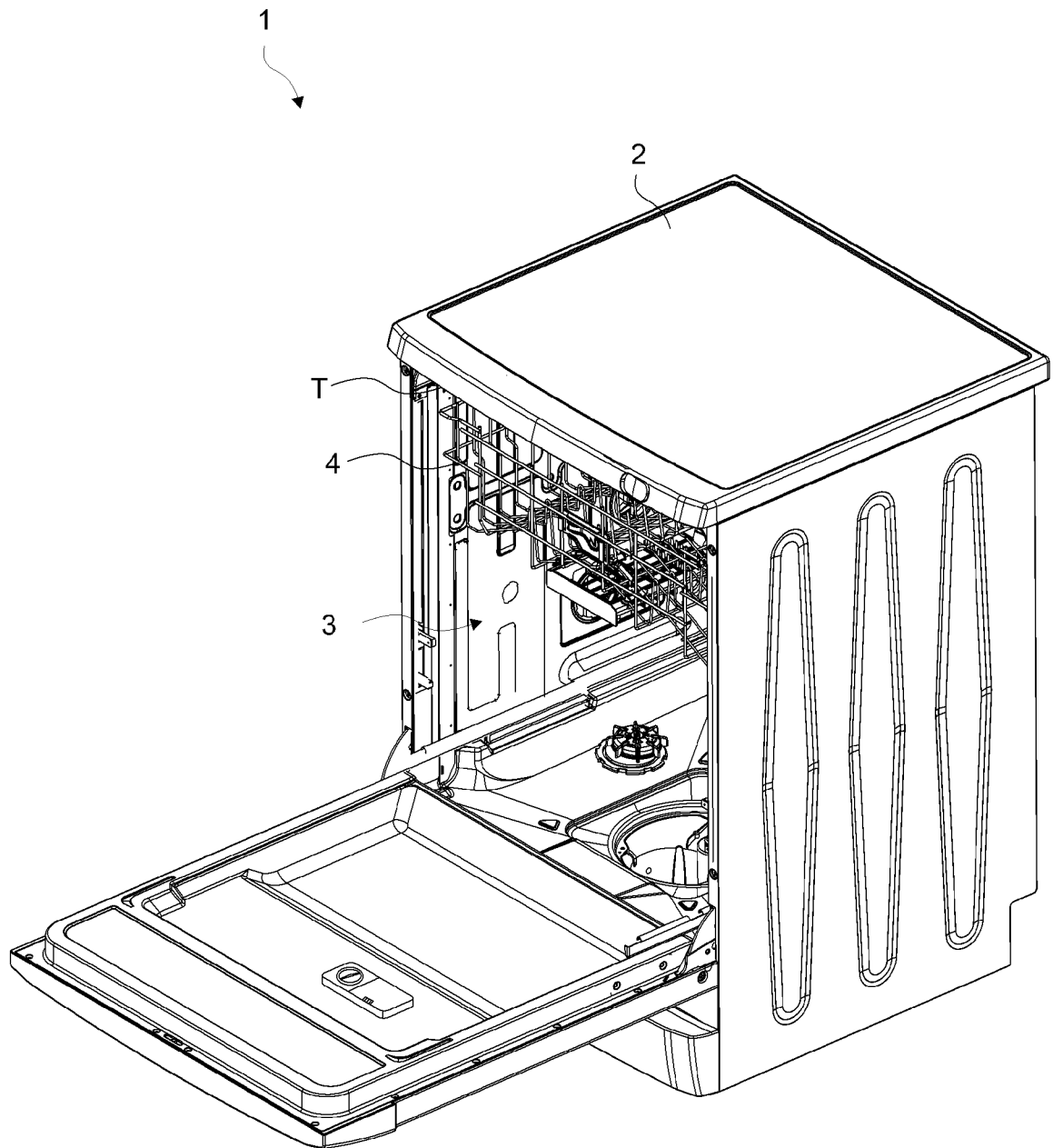


Figure 2

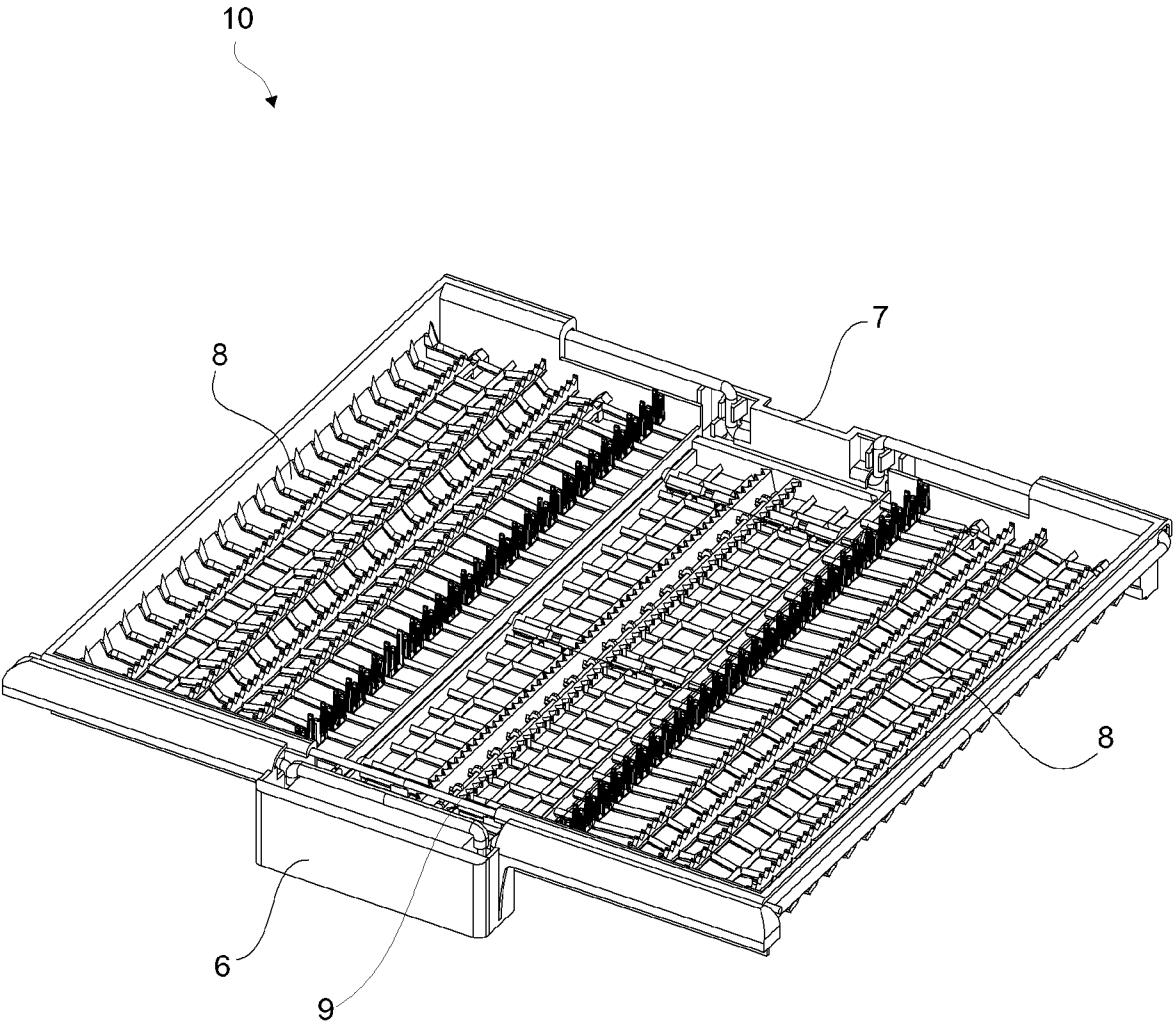


Figure 3

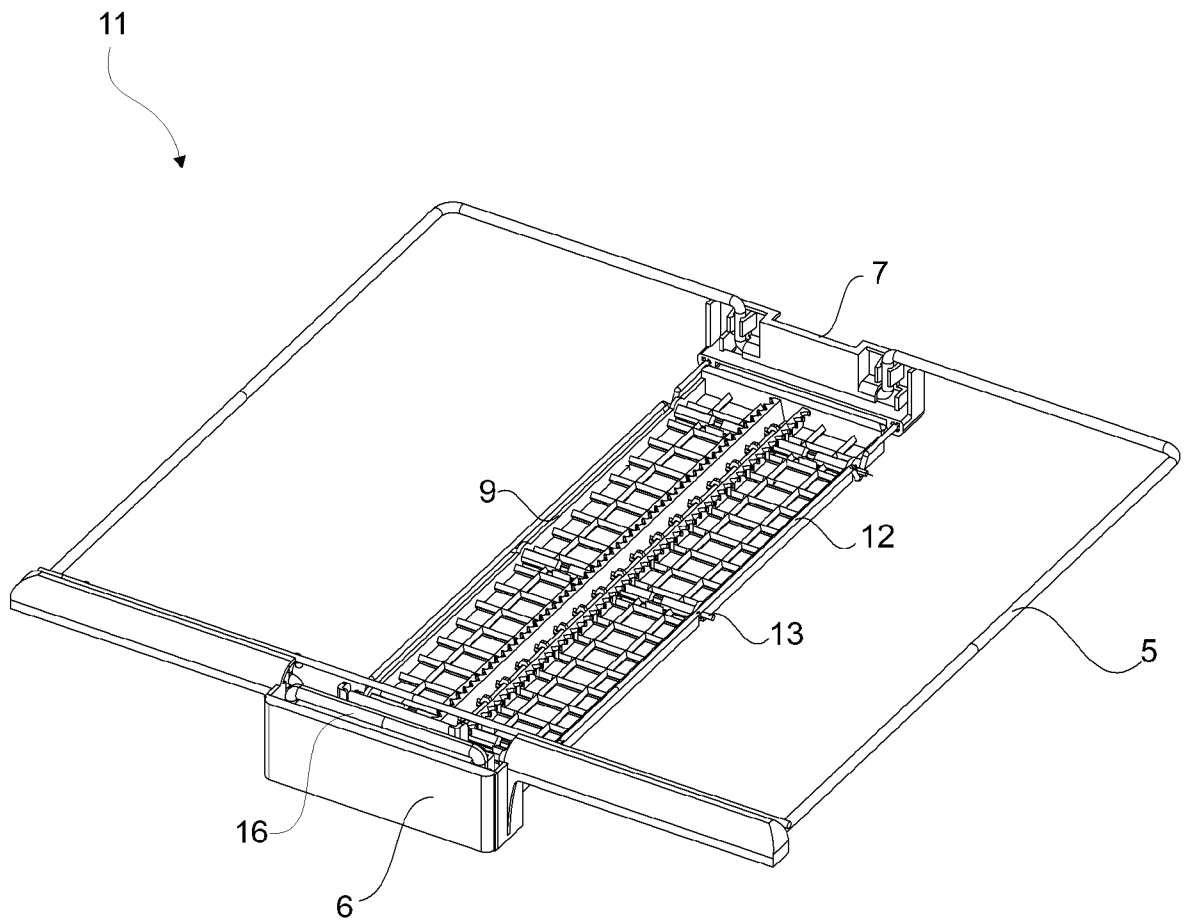


Figure 4

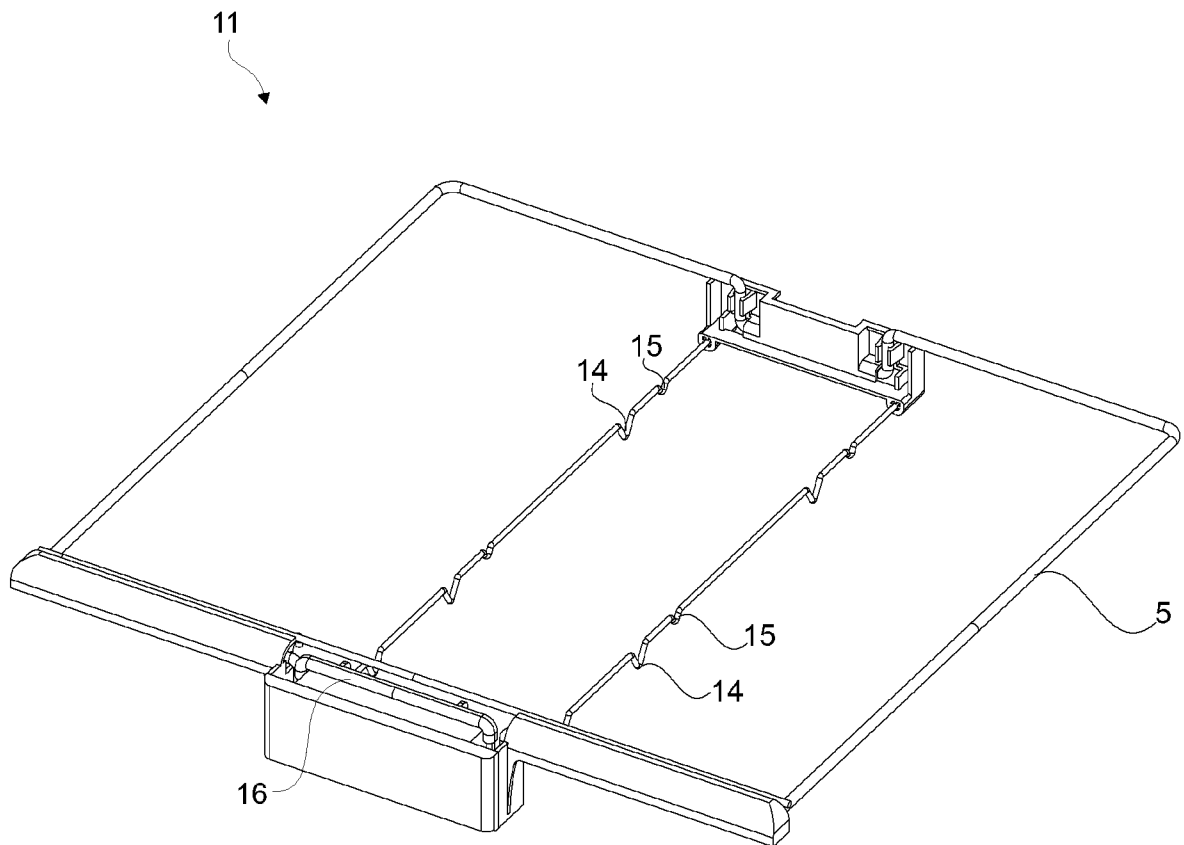


Figure 5

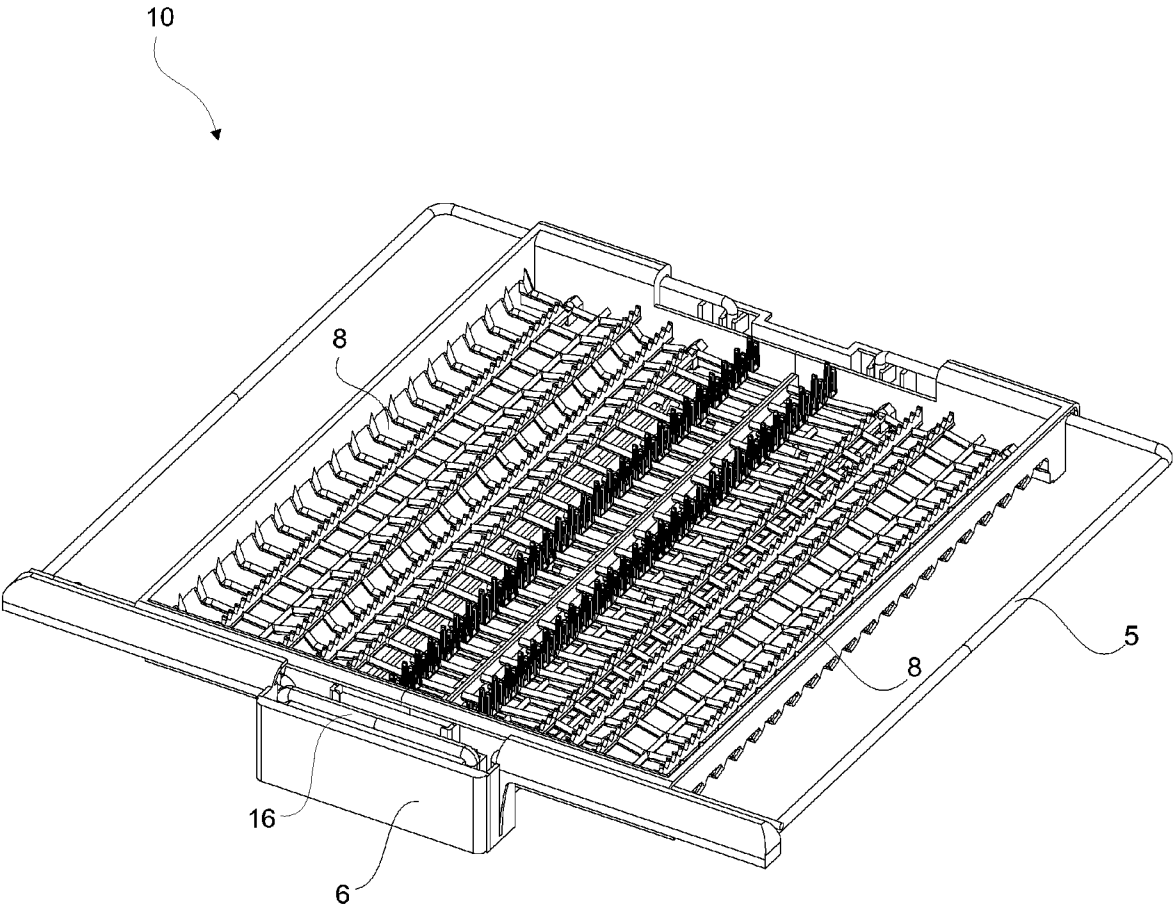


Figure 6

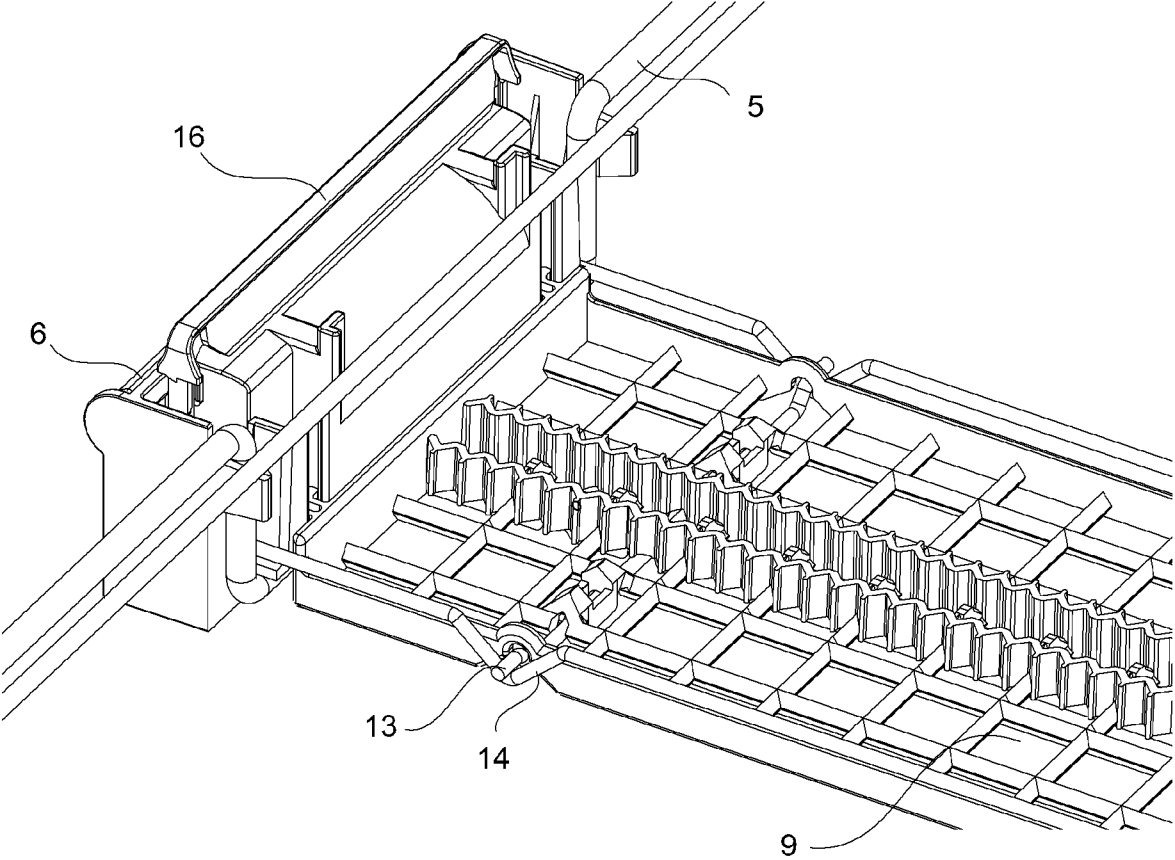
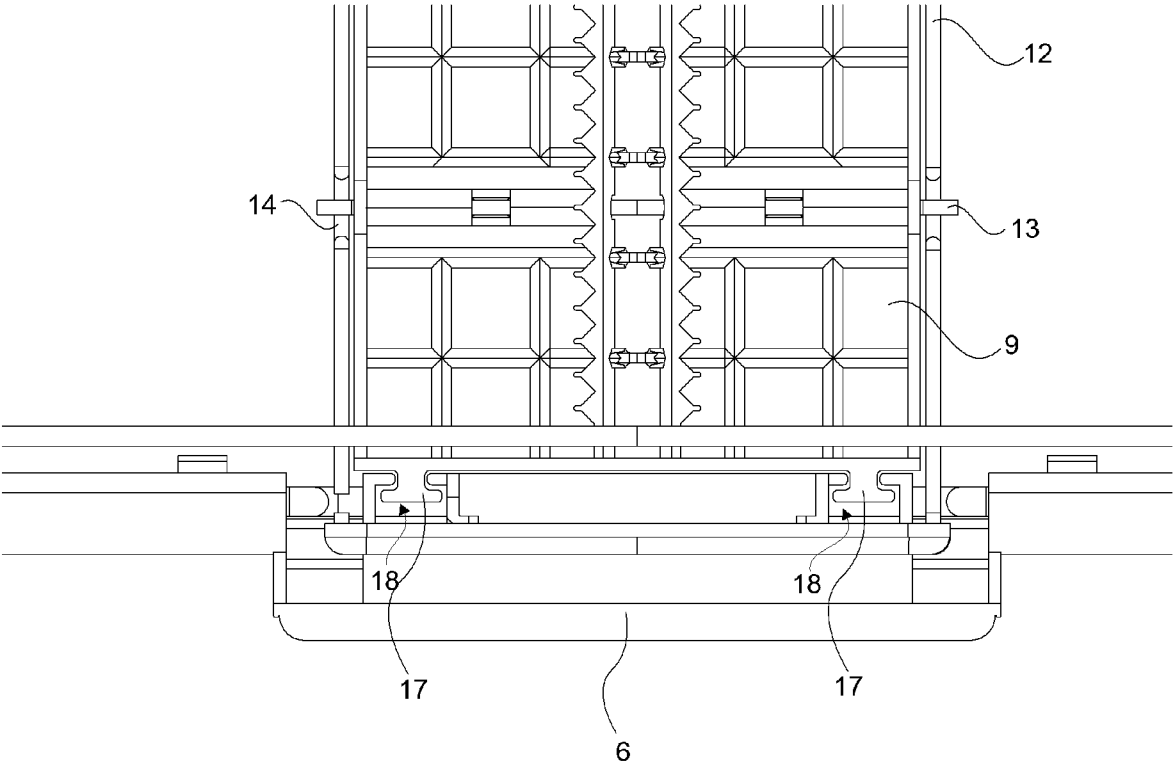


Figure 7



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/087100

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47L15/50
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2017/174565 A1 (ARCELIK AS [TR]) 12 October 2017 (2017-10-12) paragraphs [0028] - [0034]; claims 1-7; figures 1-7	1-4
A	----- EP 2 201 887 A1 (MIELE & CIE [DE]) 30 June 2010 (2010-06-30) figures 4-13	1,2
A	----- WO 2018/082321 A1 (FOSHAN SHUNDE MIDEA WASHING APPLIANCES MFG CO LTD [CN] ET AL.) 11 May 2018 (2018-05-11) figures 1-9	1
A	----- EP 3 175 766 A1 (MIELE & CIE [DE]) 7 June 2017 (2017-06-07) paragraphs [0024] - [0027], [0043] - [0046]; figures 1-6 ----- -/-	1



Further documents are listed in the continuation of Box C.



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Date of the actual completion of the international search

25 February 2020

Date of mailing of the international search report

04/03/2020

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2019/087100

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2019/087100

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