



(11) **EP 4 461 195 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
13.11.2024 Bulletin 2024/46

(51) International Patent Classification (IPC):
A47L 15/50 (2006.01)

(21) Application number: **22920850.9**

(52) Cooperative Patent Classification (CPC):
A47L 15/50

(22) Date of filing: **30.12.2022**

(86) International application number:
PCT/KR2022/021738

(87) International publication number:
WO 2023/136523 (20.07.2023 Gazette 2023/29)

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

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(30) Priority: **13.01.2022 KR 20220005382**

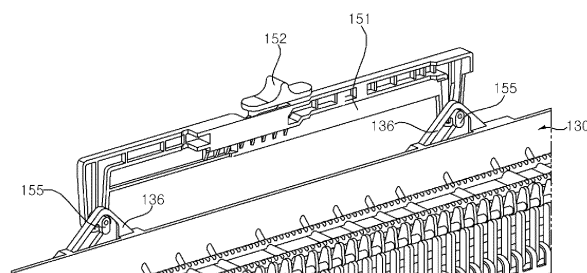
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(54) **DISHWASHER**

(57) The present disclosure relates to a dishwasher. A dishwasher according to one aspect of the present disclosure comprises: a cabinet having an opening through which items to be washed are introduced; a tub disposed inside the cabinet; and a rack movably disposed in the tub. The rack includes: a frame which is disposed so as to be able to pass through the opening and be withdrawn from the inside of the tub; a basket which is coupled to the frame to be movable in the vertical direction and has slits that are open along the vertical

direction; and a lifting device which comprises a body coupled to the frame and locking parts protruding toward the basket and passing through the slits. The locking parts each include: a penetration part extending from the body toward the basket and passing through a slit; and a support part extending downwards from the penetration part and disposed at a location that is at the opposite side of the slit as the body, and thus the basket can be prevented from being detached from the lifting device.

Fig. 7



Description

[TECHNICAL FIELD]

[0001] The present disclosure relates to a dishwasher, and more specifically, to a rack disposed inside a tub.

[BACKGROUND ART]

[0002] A dishwasher is a machine that sprays washing water and steam on tableware placed inside a tub to keep the tableware clean and sanitary.

[0003] A rack may be disposed inside the tub so that tableware is seated thereon, and a plurality of racks may be disposed to be vertically spaced apart from each other.

[0004] However, when the plurality of racks are disposed in the vertical direction, tableware on the uppermost rack may interfere with an upper portion of the tub, thus causing damage to the tableware.

[0005] Further, even if a portion of the rack is raised and lowered in the vertical direction to prevent interference between the tableware and the tub, there is a problem in that a portion of the rack that is raised and lowered is detached from the rack and thereby the tableware is damaged.

[DETAILED DESCRIPTION OF INVENTION]

[TECHNICAL PROBLEMS]

[0006] The present disclosure is to solve the above and other problems.

[0007] According to one embodiment of the present disclosure, the present disclosure is to prevent damage to tableware.

[0008] According to one embodiment of the present disclosure, the present disclosure is to raise and lower a portion of a rack.

[0009] According to one embodiment of the present disclosure, the present disclosure is to enable a rack to be smoothly raised and lowered.

[0010] According to one embodiment of the present disclosure, the present disclosure is to prevent the failure of a rack.

[0011] According to one embodiment of the present disclosure, the present disclosure is to improve the stability of a rack.

[0012] Technical objects to be achieved by the present disclosure are not limited to those described above, and other technical objects not mentioned above may also be clearly understood from the descriptions given below by those skilled in the art to which the present disclosure belongs.

[TECHNICAL SOLUTION]

[0013] Among embodiments, a dishwasher according to an aspect of the present disclosure may include a

cabinet, a tub, and a rack disposed in the tub.

[0014] The rack may include a frame disposed to be withdrawn from an inside of the tub.

[0015] The rack may include a basket coupled to the frame to be vertically movable and having a slit opened in a vertical direction.

[0016] The rack may include a lifting device having a body coupled to the frame, and a locking part protruding toward the basket and passing through the slit.

[0017] The locking part may include a penetration part extending from the body toward the basket and passing through the slit.

[0018] The locking part may include a support part extending downwards from the penetration part and disposed at a position opposite to the body based on the slit.

[0019] The support part may extend in a direction interesting an extension direction of the slit.

[0020] The body may include a shaft coupled to the frame.

[0021] The body may include a leg extending downwards from the shaft.

[0022] The slit may be located between the leg and the support part.

[0023] The support part may extend parallel to the leg.

[0024] The penetration part may be located within the slit.

[0025] The support part may be spaced apart from the slit in a direction facing the basket.

[0026] The basket may include a recess that is opened in a vertical direction and accommodates the support part.

[0027] The basket may include a first wall disposed on a lower side of the frame.

[0028] The basket may include a protrusion part protruding from the first wall toward the frame, with the slit being formed therein,

[0029] The protrusion part may include a groove recessed in a direction facing an outside of the basket.

[0030] The support part may be located inside the basket compared to the groove.

[0031] The dishwasher may further include a wire rotatably connected at an end thereof to the frame, at least a portion thereof being disposed below the basket.

[0032] The basket may include a support block that is located above the wire and contacts the wire when the basket is lowered.

[0033] The support block may include a support surface inclined upwards along the extension direction of the wire.

[0034] An angle at which the support surface is inclined with respect to a horizontal direction may be smaller than an angle at which the slit is inclined with respect to the horizontal direction.

[0035] The support block may be disposed at a position corresponding to the slit in the horizontal direction.

[0036] Specific details of other embodiments are included in the detailed description and drawings.

[EFFECT OF INVENTION]

[0037] According to at least one of embodiments of the present disclosure, it is possible to prevent damage to tableware by moving a basket in a vertical direction.

[0038] According to at least one of embodiments of the present disclosure, it is possible to prevent a basket from being detached by a locking part of a lifting device.

[0039] According to at least one of embodiments of the present disclosure, a locking part is provided with a penetration part and a support part, thereby ensuring the stability of a rack.

[0040] Effects of the present disclosure are not limited to the above-mentioned effects, and other effects which are not mentioned will be clearly understood by those skilled in the art from the following claims.

[BRIEF DESCRIPTION OF THE DRAWING]

[0041]

FIG. 1 is a front view illustrating a dishwasher according to an aspect of the present disclosure.

FIG. 2 is a perspective view illustrating a rack according to an aspect of the present disclosure.

FIG. 3 is a perspective view illustrating the rack according to an aspect of the present disclosure.

FIG. 4 is a perspective view illustrating a basket according to an aspect of the present disclosure.

FIG. 5 is a front view illustrating the basket according to an aspect of the present disclosure.

FIG. 6 is a perspective view illustrating a lifting device according to an aspect of the present disclosure.

FIG. 7 is a perspective view illustrating the lifting device and the basket according to an aspect of the present disclosure.

FIG. 8 is an enlarged view illustrating a locking part and the basket according to an aspect of the present disclosure.

FIG. 9 is a sectional view illustrating the locking part and the basket according to an aspect of the present disclosure.

FIG. 10 is a diagram illustrating a wire according to an aspect of the present disclosure.

FIG. 11 is a diagram illustrating the wire according to an aspect of the present disclosure.

FIG. 12 is a diagram illustrating a support block

according to an aspect of the present disclosure.

FIG. 13 is a diagram illustrating the support block according to an aspect of the present disclosure.

[BEST MODE FOR CARRYING OUT THE INVENTION]

[0042] Hereinafter, preferred embodiments of the present disclosure will be described in detail with reference to the accompanying drawings. The same reference numerals are used throughout the drawings to designate the same or similar components, and a duplicated description thereof will be omitted.

[0043] The words "module" and "part" for components used in the following description are given or used interchangeably only for the ease of preparing the specification, and do not have distinct meanings or roles in themselves.

[0044] In the following description, if it is decided that the detailed description of known technologies related to the present disclosure makes the subject matter of the embodiments described herein unclear, the detailed description is omitted. Further, the accompanying drawings are provided only for easy understanding of embodiments disclosed in the specification, and the technical spirit disclosed in the specification is not limited by the accompanying drawings, and all changes, equivalents, and replacements should be understood as being included in the spirit and scope of the present disclosure.

[0045] It will be understood that, although the terms "first", "second", etc. may be used herein to describe various components, these components should not be limited by these terms. These terms are only used to distinguish one component from another component.

[0046] It will be understood that when a component is referred to as being "coupled" or "connected" to another component, it can be directly coupled or connected to the other component or intervening components may be present therebetween. In contrast, it should be understood that when a component is referred to as being "directly coupled" or "directly connected" to another component, there are no intervening components present.

[0047] In the present disclosure, the singular forms are intended to include the plural forms as well, unless the context clearly indicates otherwise.

[0048] Referring to FIG. 1, the external appearance of a dishwasher will be described.

[0049] The dishwasher may include a cabinet 10 in which an opening is formed, a door 20 which opens or closes the opening, a control panel 30 coupled to the cabinet 10, and a tub 40 disposed in the cabinet 10.

[0050] The door 20 may be rotatably coupled to the cabinet 10. The door 20 may be rotated from the cabinet 10 to open or close the opening.

[0051] The tub 40 may be disposed in the cabinet 10. The rack 100 (see FIG. 2) may be withdrawn from the inside of the tub 40 through the opening.

[0052] Hereinafter, the rack 100 will be described with reference to FIGS. 2 and 3.

[0053] The rack 100 may include a frame 110, a storage part 120 disposed in the frame 110, a basket 130 disposed in the frame 110 to be spaced apart from the storage part 120, and a partition wall 140 partitioning the storage part 120 and the basket 130.

[0054] The frame 110 may have the shape of a rectangular closed loop. Tableware inside the tub 40 may be disposed in the frame 110.

[0055] The storage part 120 may have a mesh shape. The storage part 120 may be coupled to the frame 110 inside the frame 110. The storage part 120 may be fixed to the frame 110.

[0056] The basket 130 may be disposed to be movable in the vertical direction. The basket 130 may be coupled to the frame 110 to be movable in the vertical direction. The basket 130 may have a mesh shape.

[0057] A dish may be seated on the upper sides of the storage part 120 and the basket 130.

[0058] The partition wall 140 may be disposed between the storage part 120 and the basket 130. The partition wall 140 may be fixed to the frame 110. The basket 130 may be disposed to be movable downwards with respect to the partition wall 140. The basket 130 may be coupled to the partition wall 140 to be movable downward.

[0059] The frame 110 may include a first frame 111 on which a lifting device 150 that will be described later is disposed, a second frame 112 extending from the first frame 111 to one side, a third frame 113 extending from the first frame 111 to one side and facing the second frame 112, and a fourth frame 114 connecting the second frame 112 and the third frame 113 and facing the first frame 111.

[0060] The first frame 111 may be disposed closer to the door 20 than the fourth frame 114. A position where the first frame 111 is placed may be defined as a front. A position where the fourth frame 114 is placed may be defined as a rear.

[0061] The lifting device 150 may be disposed on the first frame 111. The basket 130 may be coupled to the lifting device 150. The basket 130 may be moved in the vertical direction with respect to the lifting device 150.

[0062] The lifting device 150 may be fixed to the frame 110. The lifting device 150 may include a lever 152 that is provided to be movable in the extension direction of the first frame 111.

[0063] When the lever 152 moves along the extension direction of the first frame 111, the basket 130 may move in the vertical direction with respect to the frame 110. The basket 130 may move downwards with respect to the frame 110, thus forming a gap G between the basket and the frame 110. For example, when a user moves the lever 152 in one direction, the basket 130 may be moved downwards from the frame 110. For example, when the user moves the lever 152 in a direction opposite to the above-described direction, the basket 130 may be

moved upwards to come closer to the frame 110.

[0064] The rack 100 may include a link 115 connecting the frame 110 and a wire 160 (see FIG. 10) that will be described later. The wire 160 may be disposed on the lower side of the basket 130 to support the basket 130, and may be moved by the link 115.

[0065] Hereinafter, the basket 130 will be described with reference to FIGS. 4 and 5.

[0066] The basket 130 may include a first wall 131 disposed on the lower side of the frame 110, a second wall 132 extending from the first wall 131 to one side, a third wall 133 extending from the first wall 131 to one side and facing the second wall 132, and a fourth wall 134 connecting the second wall 132 and the third wall 133 and facing the first wall 131.

[0067] The first wall 131, the second wall 132, the third wall 133, and the fourth wall 134 may have a rectangular closed loop shape.

[0068] The basket 130 may include a seating part 135 that is disposed inside a space surrounded by the first wall 131, the second wall 132, the third wall 133, and the fourth wall 134. The seating part 135 may have a mesh shape.

[0069] The basket 130 may include a protrusion part 136 extending upwards from the first wall 131. The protrusion part 136 may protrude from the first wall 131 toward the frame 110.

[0070] The basket 130 may include a slit 136a that is opened in the protrusion part 136. The slit 136a may be opened in the protrusion part 136 along the vertical direction.

[0071] The slit 136a may extend obliquely in the vertical direction. The slit 136a may be provided with a slit top 136a1 and a slit bottom 136a2. The slit 136a may extend obliquely downwards from the slit top 136a1 toward the slit bottom 136a2.

[0072] The basket 130 may include a support block 137 protruding from the first wall 131 toward the outside of the basket 130. The support block 137 may be disposed at a position corresponding to the slit 136a in a horizontal direction.

[0073] The basket 130 may include a wire groove 131a in which the wire 160 (see FIG. 10) that will be described later is disposed.

[0074] The wire groove 131a may be formed in the lower portion of the first wall 131. The wire groove 131a may be formed to be recessed upwards from the lower end of the first wall 131. The wire groove 131a may extend from the first wall 131 toward the fourth wall 134. The wire 160 (see FIG. 10), which will be described later, may be disposed in the wire groove 131a between the first wall 131 and the second wall 134.

[0075] Hereinafter, the lifting device 150 will be described with reference to FIGS. 6 and 7.

[0076] The lifting device 150 may include a body 151 which is secured to the frame 110, a lever 152 which is movably disposed in the extension direction of the body 151, a lever storage part 153 to which the lever 152 is

movably coupled, a lever groove 154 which is formed in the lever storage part 153, and a locking part 155 which protrudes from the body 151 toward the basket 130.

[0077] The body 151 may include a shaft 151a secured to the frame 110, a first leg 151b extending downwards from the shaft 151a, and a second leg 151c extending downwards from the shaft 151a and facing the first leg 151b.

[0078] The shaft 151a may extend parallel to the extension direction of the first frame 111. The lever storage part 153 and the lever groove 154 may be formed in the shaft 151a.

[0079] The first leg 151b and the second leg 151c may extend toward the protrusion part 136 of the basket 130. The first leg 151b and the second leg 151c may extend in a direction intersecting the shaft 151a.

[0080] The lever 152 may be movably disposed in the lever groove 154. The lever groove 154 may be opened in the extension direction of the shaft 151a.

[0081] The locking part 155 may protrude from the leg 151b or 151c toward the basket 130. The locking part 155 may be located to be lower than the shaft 151a.

[0082] The locking part 155 may protrude from the body 151 toward the basket 130 to be inserted into the protrusion part 136 of the basket 130.

[0083] A plurality of protrusion parts 136 may be arranged to be spaced apart from each other in the extension direction of the lifting device 150. A plurality of locking parts 155 may be provided to correspond to the plurality of protrusion parts 136, respectively. The locking part 155 may protrude from each of the first leg 151b and the second leg 151c.

[0084] Hereinafter, the locking part 155 and the protrusion part 136 will be described with reference to FIGS. 8 and 9.

[0085] Referring to FIG. 8, the locking part 155 includes a penetration part 155a and a support part 155b.

[0086] The locking part 155 may include the penetration part 155a passing through the slit 136a, and the support part 155b extending downwards from the penetration part 155a.

[0087] The penetration part 155a may be located in the slit 136a. The penetration part 155a may extend in a direction intersecting the body 151 and the support part 155b.

[0088] The support part 155b may extend downwards from one end of the penetration part 155a. The support part 155b may extend in a direction intersecting the extension direction of the penetration part 155a. The support part 155b may extend in a direction intersecting the extension direction of the slit 136a.

[0089] The protrusion part 136 may include a protruding body 136b in which the slit 136a is formed, and a groove 136c recessed toward the outside of the basket 130.

[0090] A portion of the support part 155b may be disposed in the groove 136c, while the remainder may be located inside the basket 130 compared to the groove

136c.

[0091] The basket 130 may include a bridge 138 extending from the first wall 131 toward the protrusion part 136, and a recess 139 formed between the first wall 131 and the protrusion part 136.

[0092] The bridge 138 may extend from the first wall 131 toward the protrusion part 136 to be connected to the protrusion part 136. The first wall 131, the bridge 138, and the protrusion part 136 may be integrated with each other.

[0093] The recess 139 may be opened in the vertical direction between the first wall 131 and the protrusion part 136. The recess 139 may be formed between a pair of bridges 138. The recess 139 may communicate with the slit 136a.

[0094] The recess 139 may vertically face the support part 155b. The support part 155b may be moved downwards to be inserted into the recess 139. When the locking part 155 moves downwards along the slit 136a, the support part 155b may be accommodated in the recess 139. When the locking part 155 moves downwards along the slit 136a, the support part 155b may be located between the protrusion part 136 and the first wall 131.

[0095] Referring to FIG. 9, the support part 155b may face the body 151.

[0096] The support part 155b may face the body 151 with respect to the slit 136a. The slit 136a may be located between the support part 155b and the body 151. The penetration part 155a may connect the support part 155b and the body 151 that are spaced apart from each other.

[0097] The body 151 may include a first leg 151b and a leg edge 151d forming the lower portion of the first leg 151b.

[0098] The penetration part 155a may extend from the upper side of the leg edge 151d toward the slit 136a.

[0099] The leg edge 151d may extend downwards from one end of the penetration part 155a, and the support part 155b may extend downwards from the other end of the penetration part 155a. A lower end of the support part 155b may be located higher than a lower end of the leg edge 151d. The lower end of the support part 155b may be located higher than a lower end of the first leg 151b.

[0100] A space 155c may be defined between the leg edge 151d and the support part 155b. The space 155c may mean a space surrounded by the leg edge 151d, the support part 155b, and the penetration part 155a. A portion of the space 155c may be located inside the slit 136a, and the remainder may be located below the slit 136a.

[0101] The protrusion part 136 may have a first surface 136d facing the outside of the basket 130, and a second surface 136e facing the inside of the basket 130. The slit 136a may be formed between the first surface 136d and the second surface 136e.

[0102] The leg 151b may be located outside the basket 130 compared to the first surface 136d. The support part 155b may be located inside the basket 130 compared to

the second surface 136e.

[0103] Hereinafter, a structure when the basket 130 moves up and down will be described with reference to FIGS. 10 and 11.

[0104] When a user moves the lever 152 in a first direction, the locking part 155 may move to the lower portion of the slit 136a, and the basket 130 may move upwards toward the frame 110.

[0105] The rack 100 may include the wire 160 supporting the basket 130, and the support block 137 supporting the wire 160.

[0106] One end of the wire 160 may be rotatably coupled to the link 115 extending downwards from the frame 110. The wire 160 may extend along the wire groove 131a from the first wall 131 toward the fourth wall 134.

[0107] The wire 160 may include a first wire 161 disposed in the wire groove 131a, a second wire 162 extending from the first wire 161 along the extension direction of the first wall 131, and a third wire 163 extending from the second wire 162 to the outside of the basket 130 and coupled to the link 115.

[0108] The first wire 161 may be disposed below the basket 130 to support the basket 130.

[0109] The second wire 162 may be located outside the basket 130 compared to the first wall 131. The second wire 162 may rotate around the wire groove 131a when the basket 130 is raised and lowered.

[0110] The third wire 163 may be rotatably coupled to the link 115.

[0111] The support block 137 may be disposed above the wire 160. The support block 137 may be located above the second wire 162.

[0112] The second wire 162 may contact the lower portion of the support block 137 when the basket 130 is lowered. The support block 137 may support the second wire 162 when the basket 130 is lowered.

[0113] When the basket 130 is raised, the locking part 155 may be located in the slit bottom 136a2.

[0114] The support block 137 may include a first block 137a disposed below the frame 110, a second block 137b protruding from the first block 137a toward the inside of the basket 130, a third block 137c protruding from the first block 137a toward the inside of the basket 130 and spaced apart from the second block 137b, and a fourth block 137d protruding from the first block 137a toward the inside of the basket 130 and spaced apart from the third block 137c.

[0115] The second block 137b, the third block 137c, and the fourth block 137d may be spaced apart from each other in the extension direction of the second wire 162.

[0116] The second block 137b may protrude downwards compared to the third block 137c. The third block 137c may protrude downwards compared to the fourth block 137d.

[0117] The second block 137b, the third block 137c, and the fourth block 137d may have support surfaces 137e, 137f, and 137g, respectively.

[0118] The support surfaces 137e, 137f, and 137g of the support block 137 may correspond vertically to the second wire 160.

[0119] The support surface 137e of the second block 137b may be located lower than the support surface 137f of the third block 137c. The support surface 137f of the third block 137c may be located lower than the support surface 137g of the fourth block 137d.

[0120] Hereinafter, a structure when the basket 130 is lowered will be described with reference to FIGS. 12 and 13.

[0121] When a user moves the lever 152 in the second direction opposite to the first direction, the locking part 155 may move to the upper portion of the slit 136a, and the basket 130 may move downwards to be away from the frame 110.

[0122] The locking part 155 may be located in the slit top 136a1.

[0123] The third wire 163 may be located above the first wire 161.

[0124] The first wire 161 may support the basket 130. The support block 137 may support the second wire 162. The link 115 may support the third wire 163.

[0125] The first wire 161, the second wire 162, and the third wire 163 may be integrated.

[0126] The second wire 162 may contact the support surfaces 137e, 137f, and 137g of the support block 137. The second wire 162 may be supported by the support surfaces 137e, 137f, and 137g of the support block 137.

[0127] An angle θ_2 at which the support surface 137e, 137f or 137g is inclined with respect to a horizontal direction may be smaller than an angle θ_1 at which the slit 136a is inclined with respect to the horizontal direction.

[0128] Although the present disclosure was provided above in relation to specific embodiments shown in the drawings, it is apparent to those skilled in the art that the present disclosure may be changed and modified in various ways without departing from the scope of the present disclosure, which is described in the following claims..

[0129] The present disclosure may be modified and implemented in various forms, and the scope thereof is not limited to the above-described embodiments. Therefore, if a modification includes components of the claims of the present disclosure, it should be regarded as falling within the scope of the present disclosure.

[0130] Any or other embodiments of the present disclosure described above are not exclusive or distinct from each other. In certain or other embodiments of the present disclosure described above, each configuration or function may be used in combination or combined.

[0131] For example, this means that configuration A described in a particular embodiment and/or drawing may be combined with configuration B described in other embodiments and/or drawings. That is, even if combination between components is not directly described, it means that combination is possible except for a case

where it is described that combination is impossible.

[0132] The above detailed description should not be construed as restrictive in any respect and should be considered illustrative. The scope of the present disclosure should be determined by reasonable interpretation of the appended claims, and all changes within the equivalent scope of the present disclosure are embraced in the scope of the present disclosure.

Claims

1. A dishwasher comprising:

a tub; and
a rack movably disposed in the tub,
wherein the rack comprises:

a frame disposed to be withdrawn from an inside of the tub;
a basket movably coupled to the frame and having a slit; and
a lifting device coupled to the frame and moving the basket up or down,
wherein the lifting device comprises:

a body coupled to the frame; and
a locking part protruding from the body and movably disposed in the slit,
wherein the locking part comprises:

a penetration part extending in a direction intersecting an extension direction of the slit, and inserted into the slit; and
a support part extending in a direction intersecting a direction in which the penetration part is inserted into the slit.

2. The dishwasher of claim 1, wherein the support part extends from the penetration part at a position spaced apart from the slit.

3. The dishwasher of claim 1, wherein the body comprises:

a shaft coupled to the frame; and
a leg extending downwards from the shaft, the slit is located between the leg and the support part, and
the support part extends parallel to the leg.

4. The dishwasher of claim 1, wherein the penetration part is located within the slit, and the support part is spaced apart from the slit in a direction facing the basket.

5. The dishwasher of claim 1, wherein the basket comprises a recess that is opened in a vertical direction and accommodates the support part.

6. The dishwasher of claim 1, wherein the basket comprises:

a first wall disposed on a lower side of the frame; and
a protrusion part protruding from the first wall toward the frame, with the slit being formed therein,
the protrusion part comprises:

a groove recessed in a direction facing an outside of the basket, and
the support part is located inside the basket compared to the groove.

7. The dishwasher of claim 1, wherein a lower end of the support part is located higher than a lower end of the body.

8. The dishwasher of claim 1, further comprising:

a wire rotatably connected at an end thereof to the frame, at least a portion thereof being disposed below the basket,
wherein the basket comprises a support block that is located above the wire and contacts the wire when the basket is lowered.

9. The dishwasher of claim 8, wherein the support block comprises:

a first block disposed between the frame and the wire;
a second block protruding from the first block to the basket;
a third block protruding from the first block to the basket, and spaced apart from the second block along an extension direction of the wire; and
a fourth block protruding from the first block to the basket, and spaced apart from the third block along the extension direction of the wire.

10. The dishwasher of claim 8, wherein the support block comprises a support surface inclined upwards along the extension direction of the wire.

11. The dishwasher of claim 10, wherein an angle at which the support surface is inclined with respect to a horizontal direction is smaller than an angle at which the slit is inclined with respect to the horizontal direction.

12. The dishwasher of claim 8, wherein the support block is disposed at a position corresponding to the slit in

the horizontal direction.

- 13.** The dishwasher of claim 1, wherein the support part extends to be offset from an extension direction of the slit.

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Fig. 1

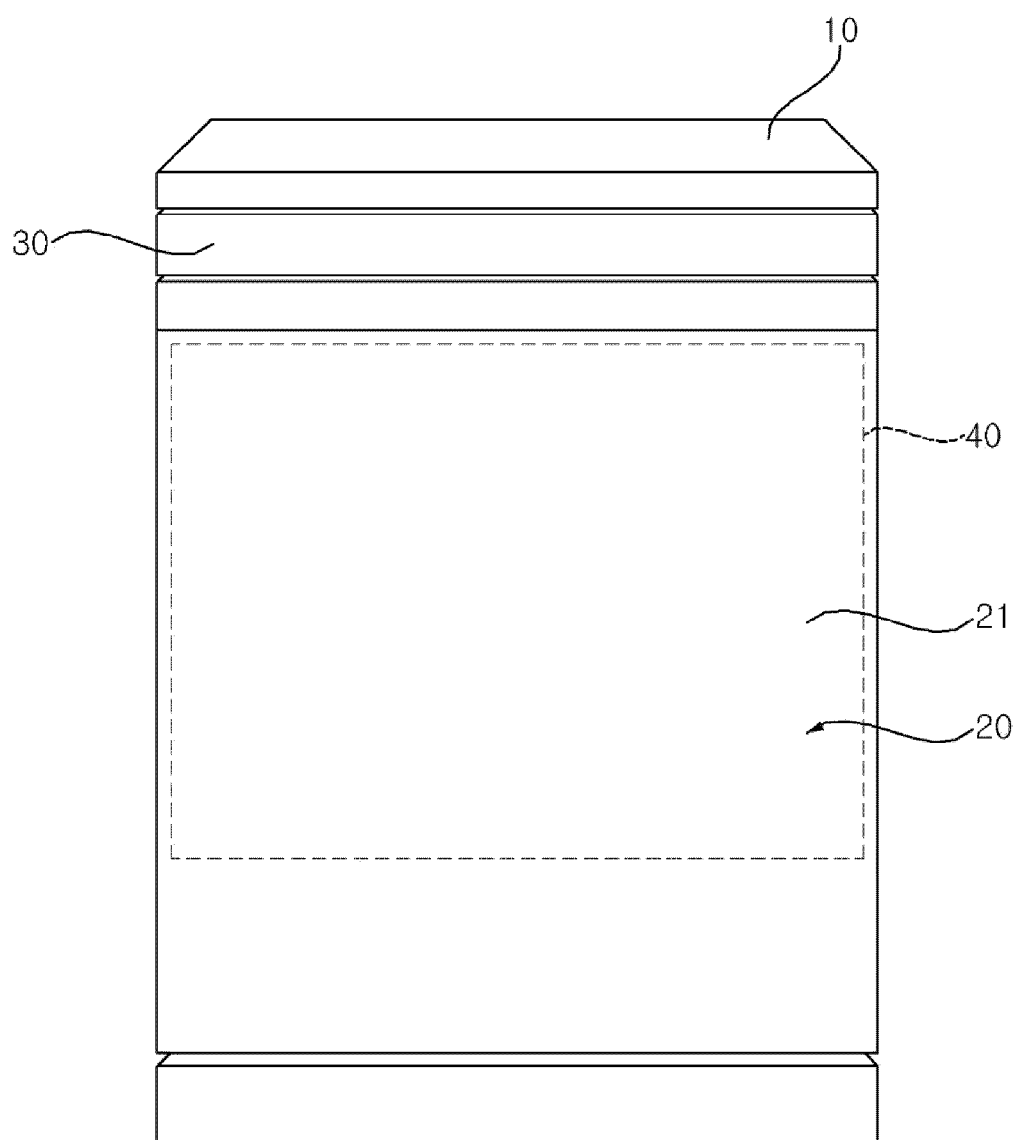


Fig. 2

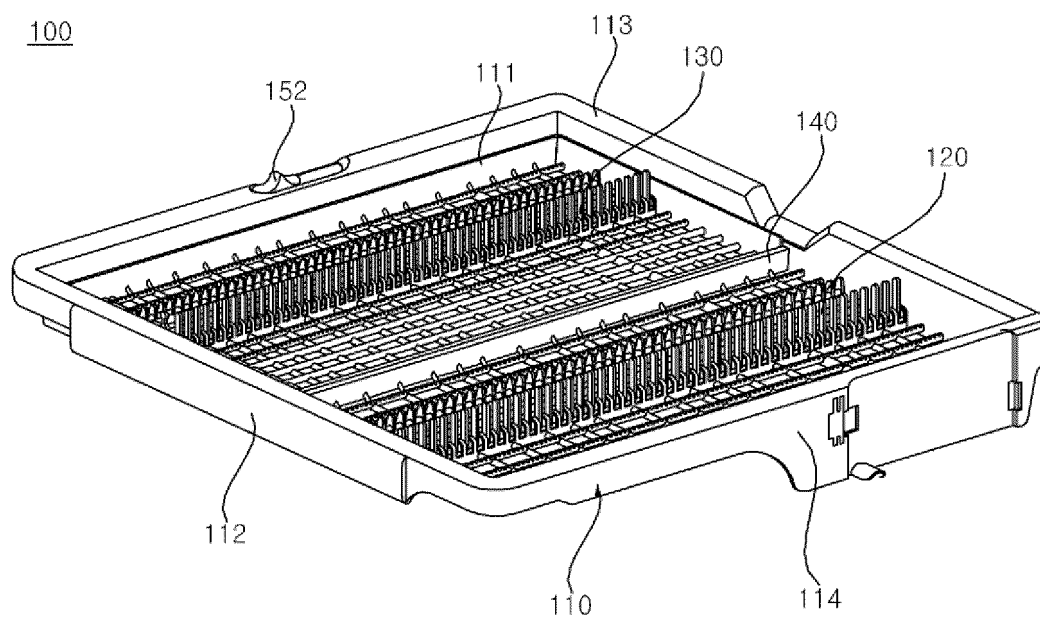


Fig. 3

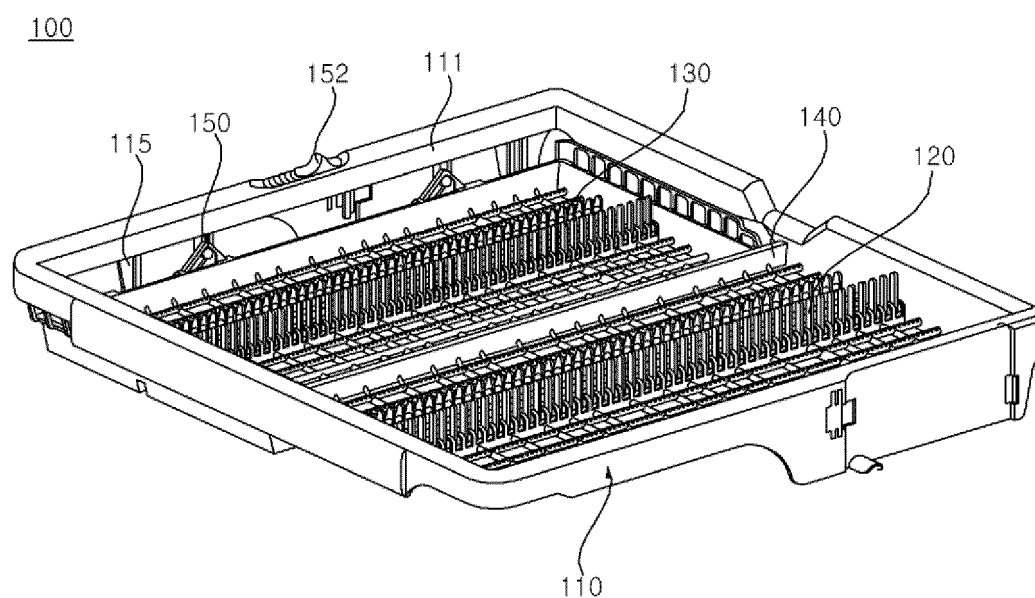


Fig. 4

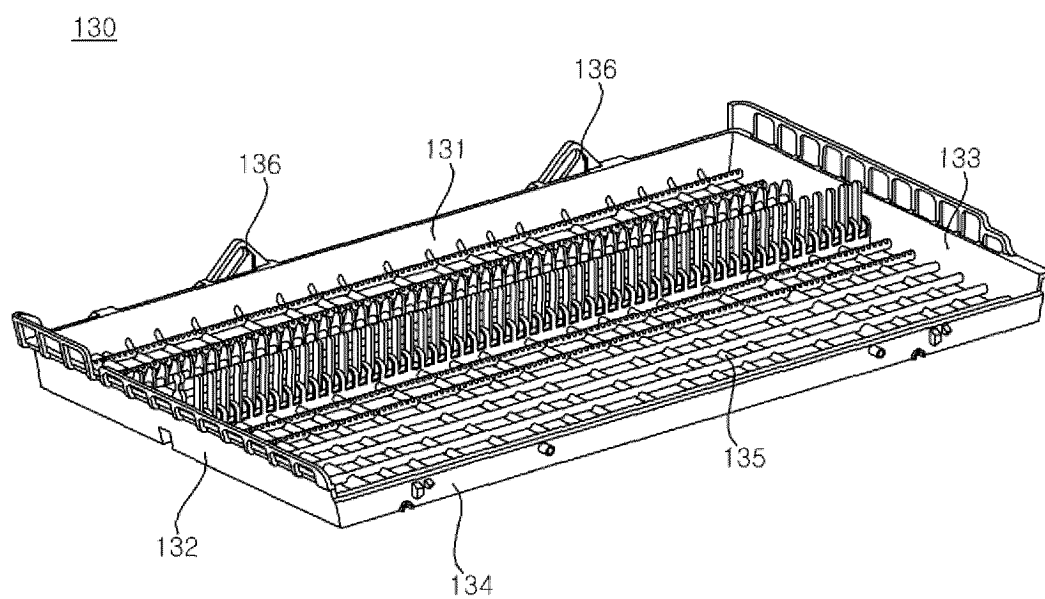


Fig. 5

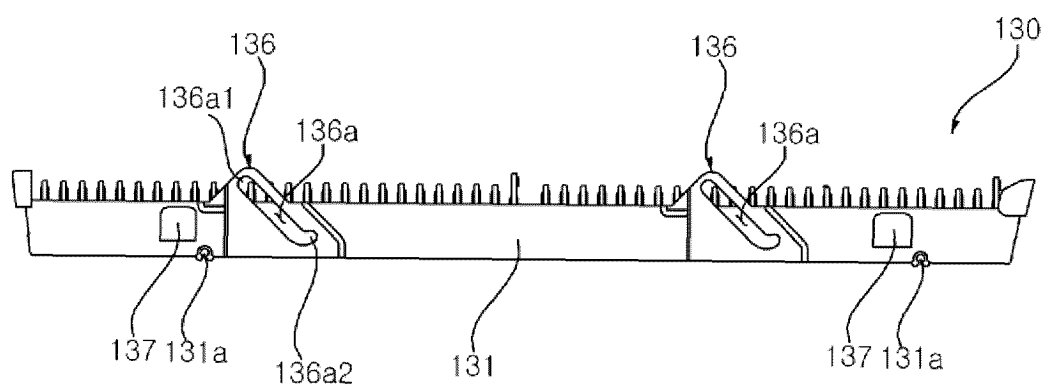


Fig. 6

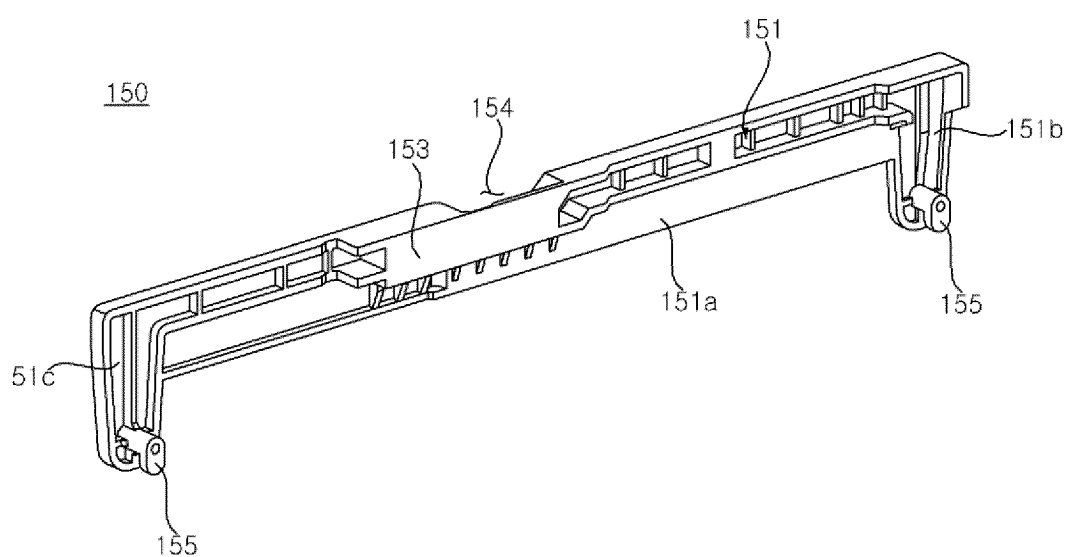


Fig. 7

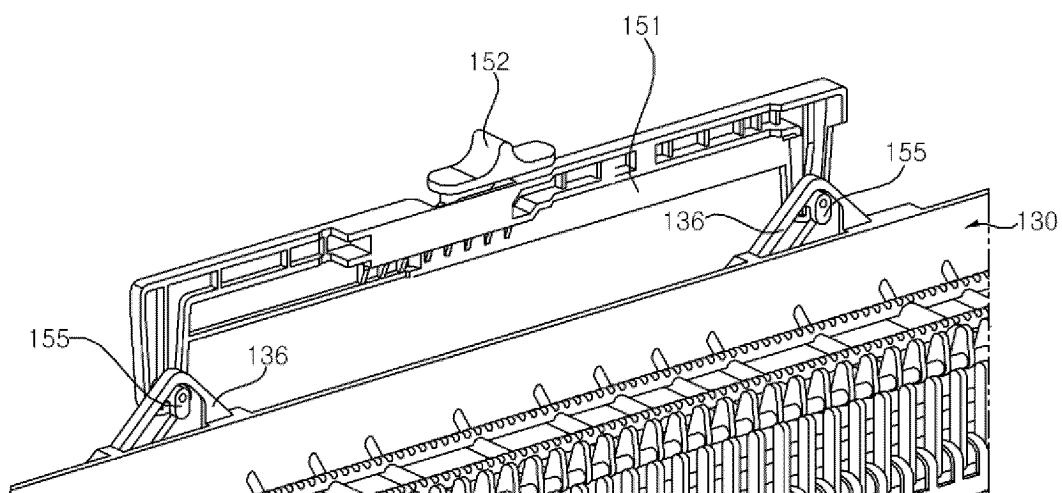


Fig. 8

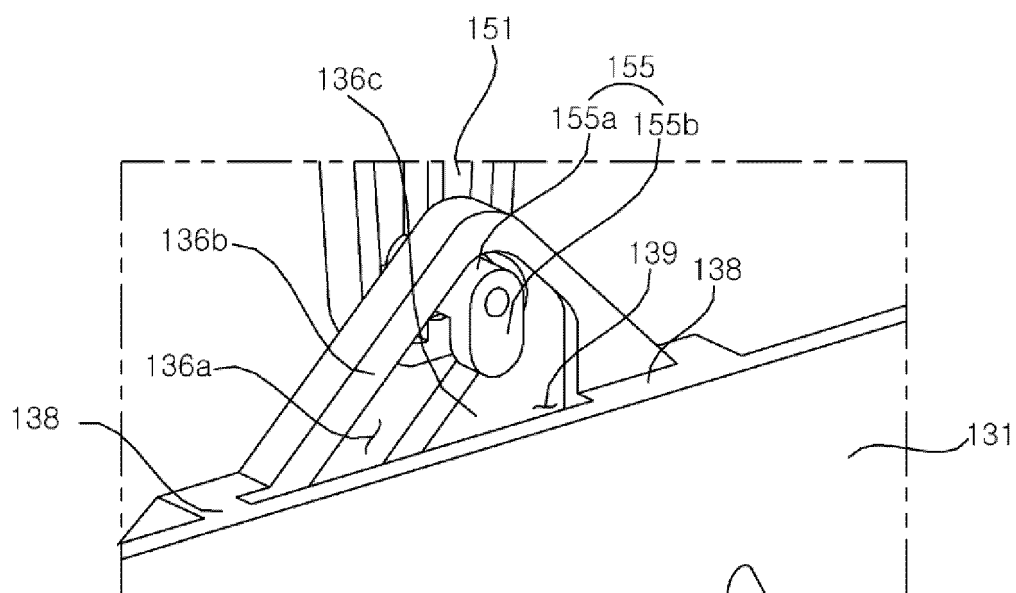


Fig. 9

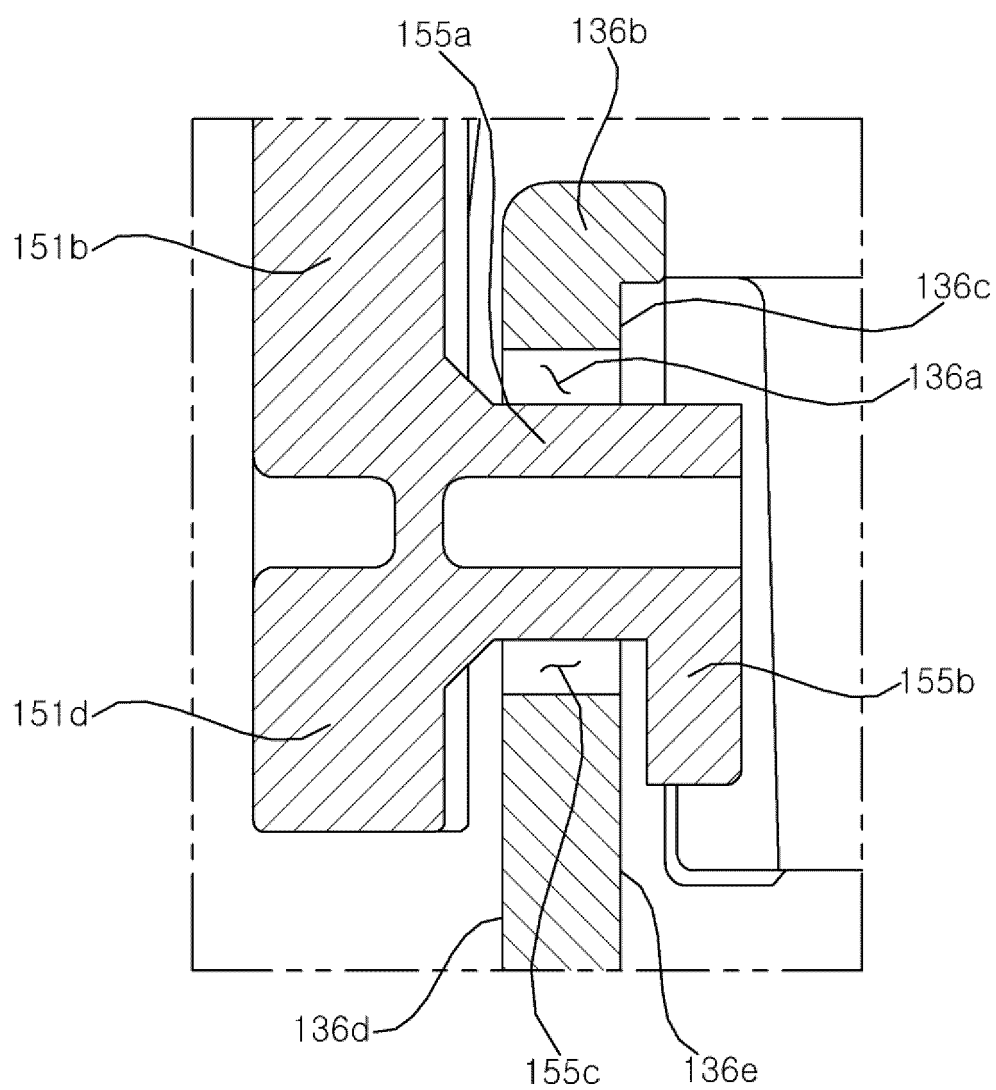


Fig. 10

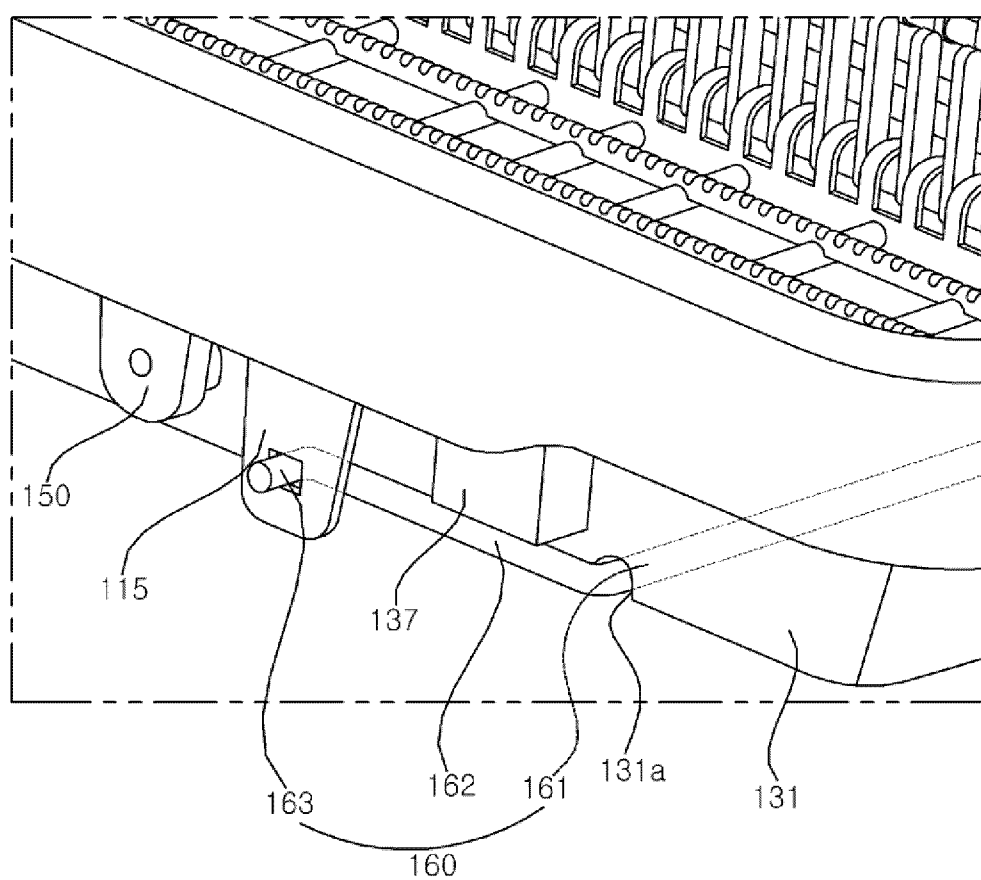


Fig. 11

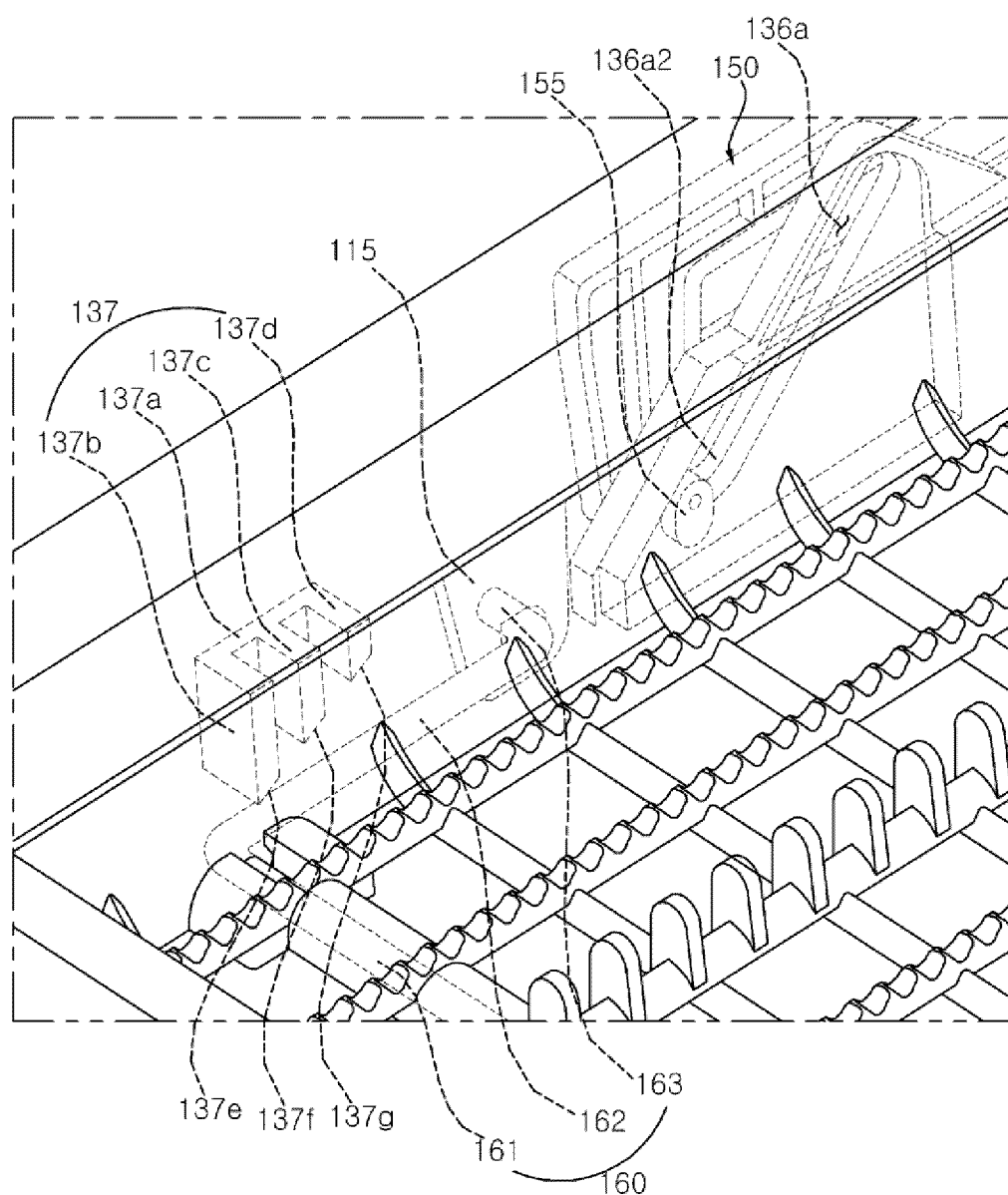


Fig. 12

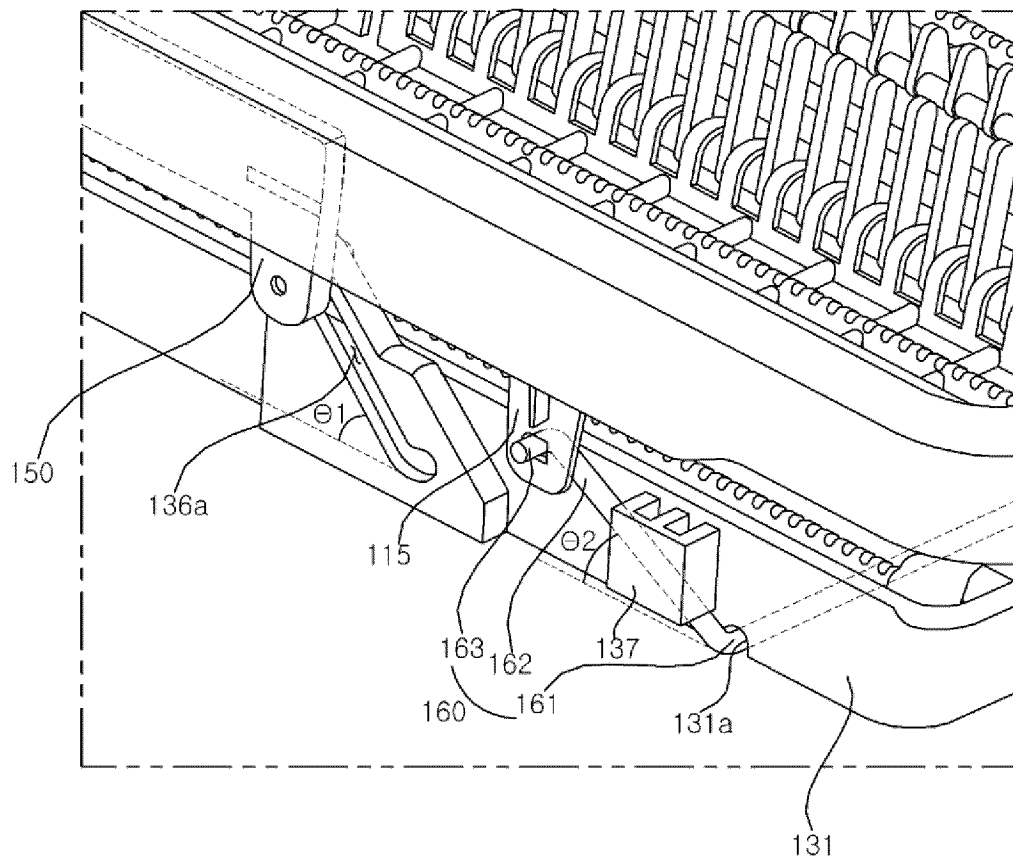
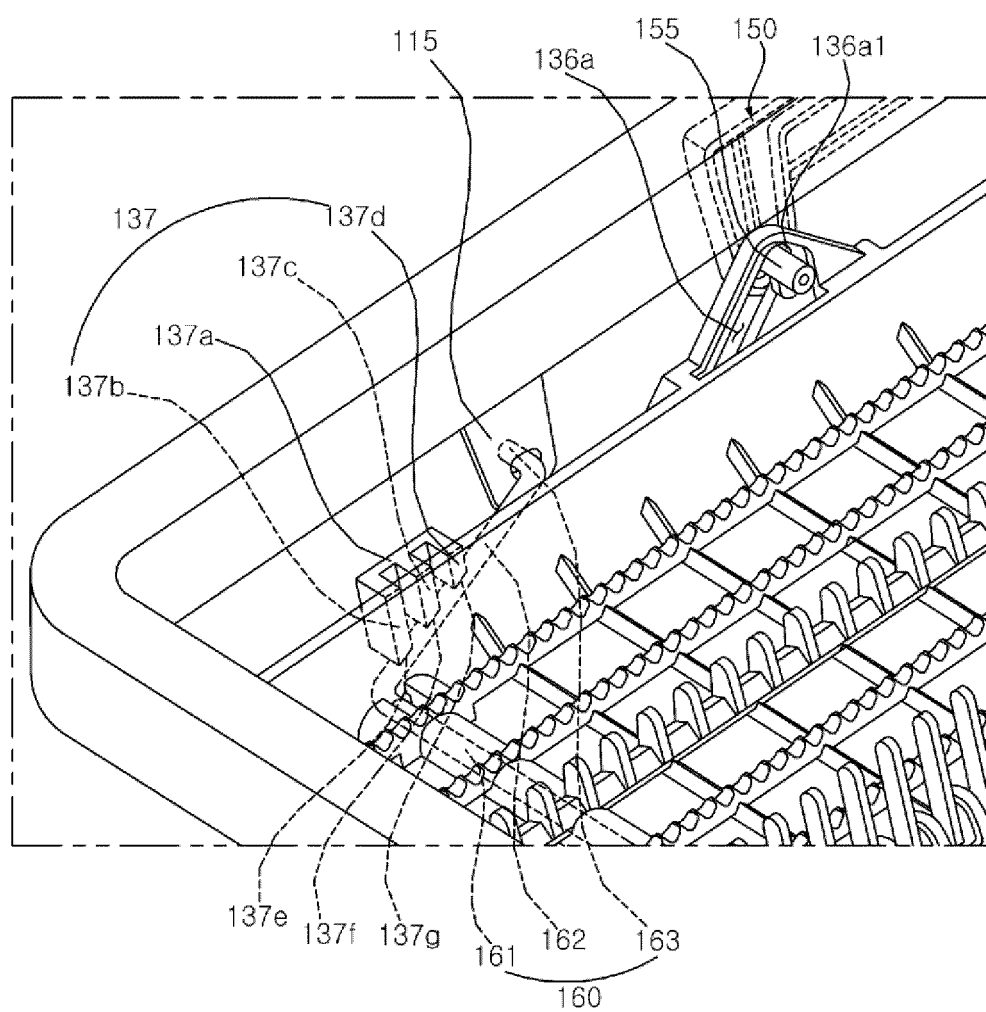


Fig. 13



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2022/021738

A. CLASSIFICATION OF SUBJECT MATTER

A47L 15/50(2006.01)i

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 15/50(2006.01); A47L 15/00(2006.01); A47L 15/14(2006.01); A47L 15/42(2006.01)

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

Korean utility models and applications for utility models: IPC as above

Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & keywords: 식기세척기(dishwasher), 선반(shelf), 랙(rack), 바스켓(basket), 승강(lift), 슬릿(slit), 걸림부(hanging part), 지지부(support), 레그(leg), 샤프트(shaft), 와이어(wire), 지지블록(support block)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2017-0021641 A (LG ELECTRONICS INC.) 28 February 2017 (2017-02-28) See paragraphs [0030]-[0075] and figures 1-6.	1-4,7,13
A		5-6,8-12
Y	EP 0901770 B1 (ELECTROLUX ZANUSSI S.P.A.) 23 May 2001. See paragraphs [0010]-[0013] and figure 4.	1-4,7,13
A	CN 209863709 U (FOSHAN SHUNDE MIDEA WASHING APPLIANCES MFG CO., LTD.) 31 December 2019 (2019-12-31) See paragraphs [0038]-[0066] and figures 1-9.	1-13
A	CN 106361245 A (FOSHAN SHUNDE MIDEA WASHING APPLIANCES MFG CO., LTD. et al.) 01 February 2017 (2017-02-01) See paragraphs [0089]-[0101] and figures 13-22.	1-13
A	CN 212939639 U (QINGDAO HAIER DISHWASHER CO., LTD. et al.) 13 April 2021 (2021-04-13) See claims 1-10 and figures 1-10.	1-13

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:

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“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

20 April 2023

Date of mailing of the international search report

24 April 2023

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2022/021738

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CN 209863709 U	31 December 2019	None	
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