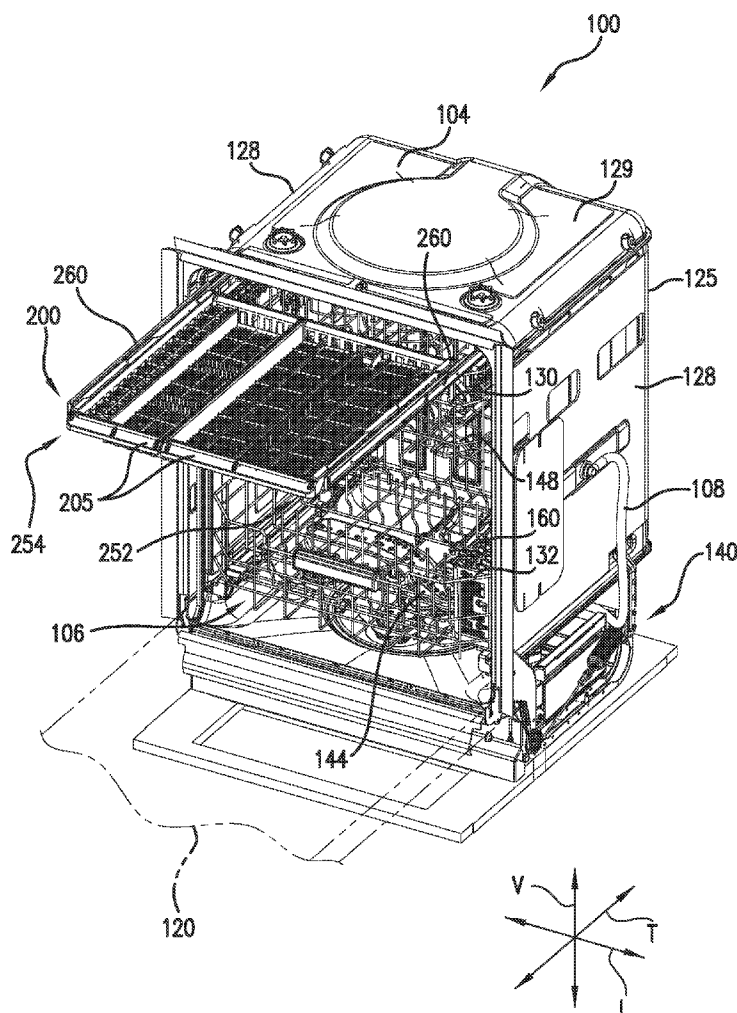




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(19) **United States**(12) **Patent Application Publication**
Shaffer et al.(10) **Pub. No.: US 2015/0196189 A1**(43) **Pub. Date: Jul. 16, 2015**(54) **DISHWASHER APPLIANCE**(22) Filed: **Jan. 10, 2014**(71) Applicant: **General Electric Company,**
Schenectady, NY (US)**Publication Classification**(72) Inventors: **Ryan Joseph Shaffer**, Louisville, KY (US); **Eugenio Gomez**, Louisville, KY (US); **A. Vinodh Magimai Raj**, Hyderabad (IN); **Daniel J. Hart**, Louisville, KY (US); **Brian David Sanzone**, La Grange, KY (US); **Kyle Edward Durham**, Louisville, KY (US); **Daniel Jason Bentley**, Louisville, KY (US); **Rebecca Ann Alvord**, Louisville, KY (US); **Adam Christopher Hofmann**, Louisville, KY (US); **Matthew David Mersch**, Louisville, KY (US)(51) **Int. Cl.**
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CPC *A47L 15/50* (2013.01); *A47L 15/4246* (2013.01)(73) Assignee: **General Electric Company,**
Schenectady, NY (US)(21) Appl. No.: **14/152,285**(57) **ABSTRACT**

A dishwasher appliance is provided. The dishwasher appliance includes a tub that defines a wash chamber and a rack assembly disposed within the wash chamber. The rack assembly includes a frame, a first tray and a second tray. The first and second trays are removably mounted to the frame. The first tray is sized and configured for supporting a plurality of flatware therein. The second tray is sized and configured for supporting a plurality of cooking utensils therein.



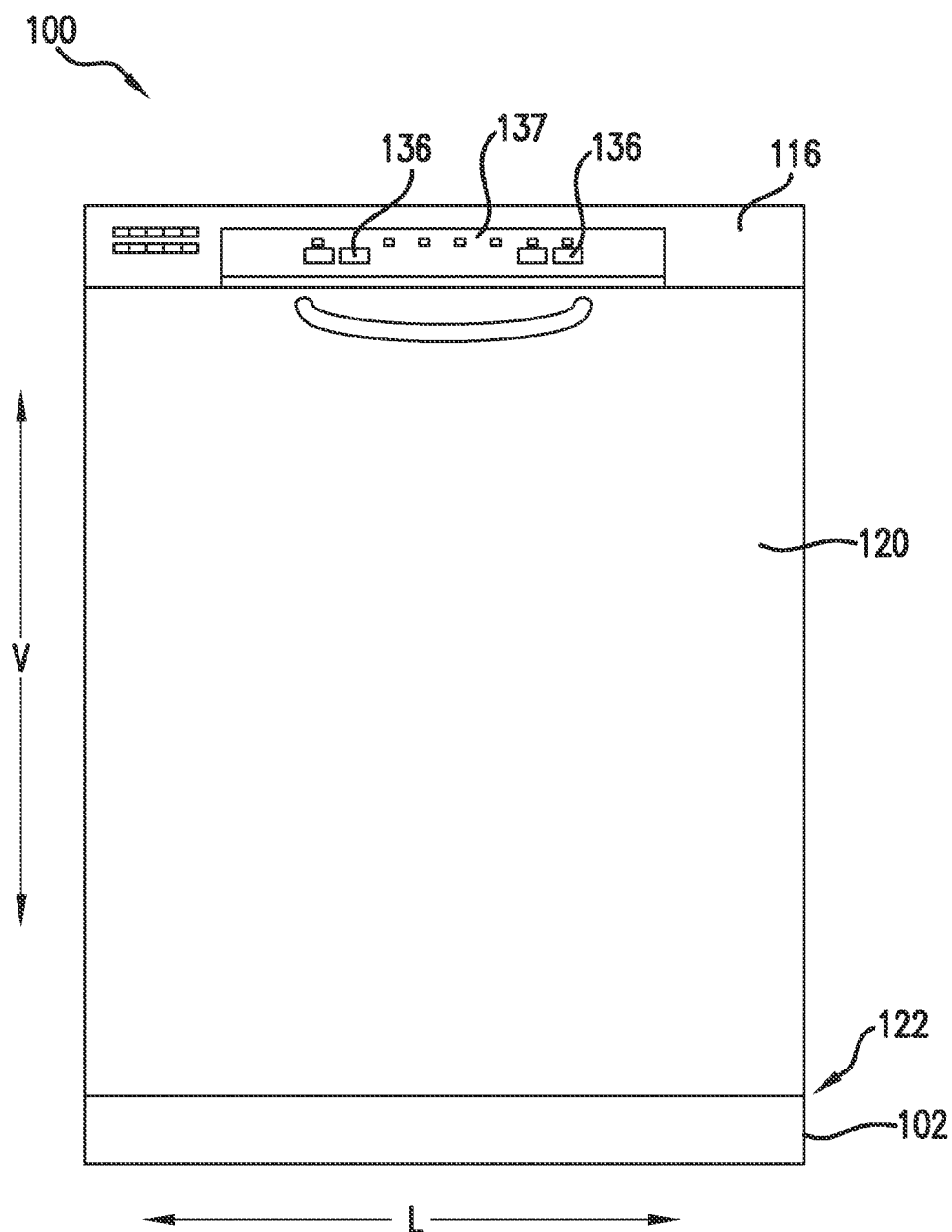
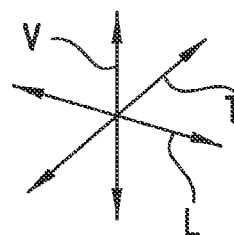
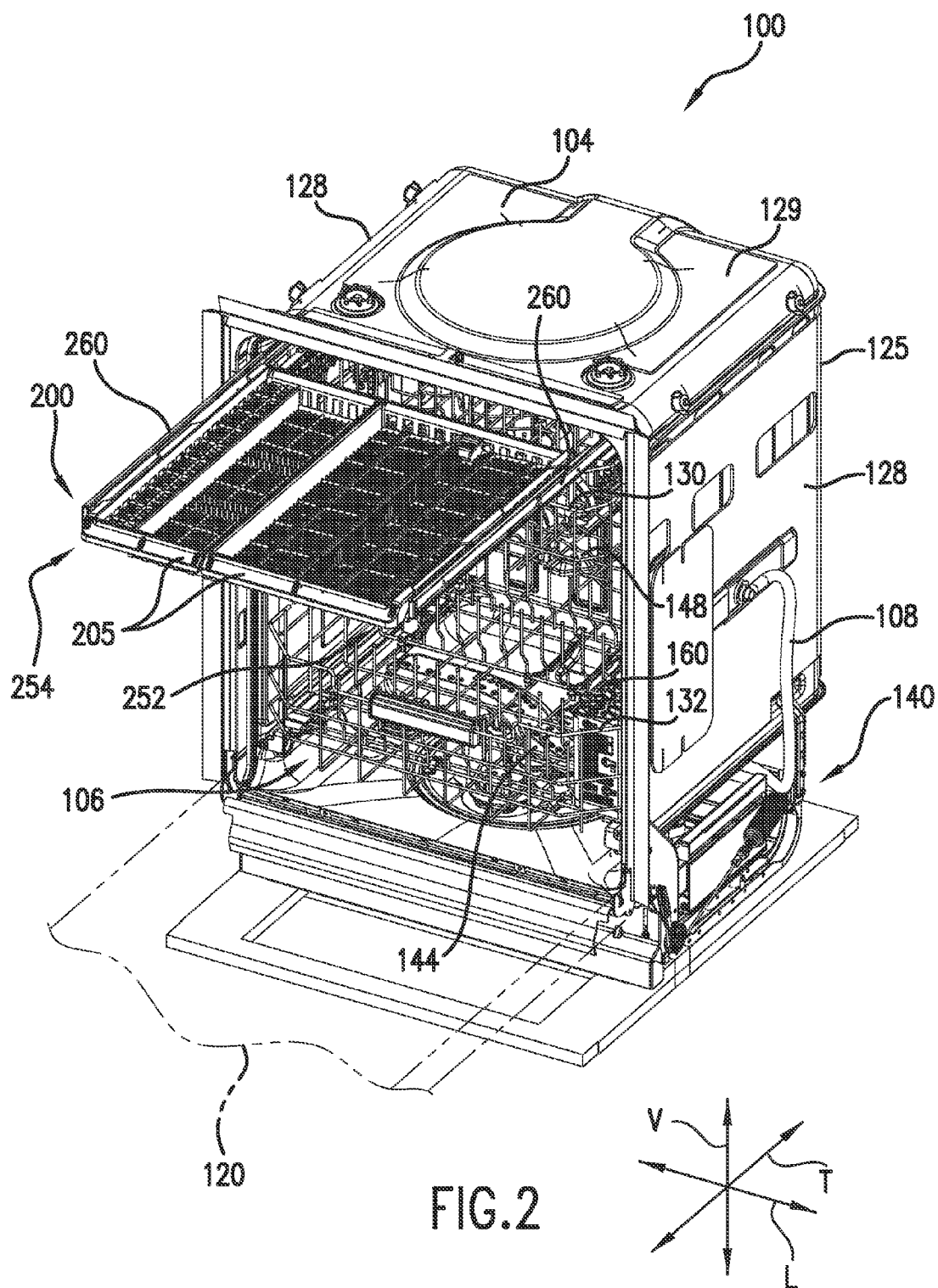
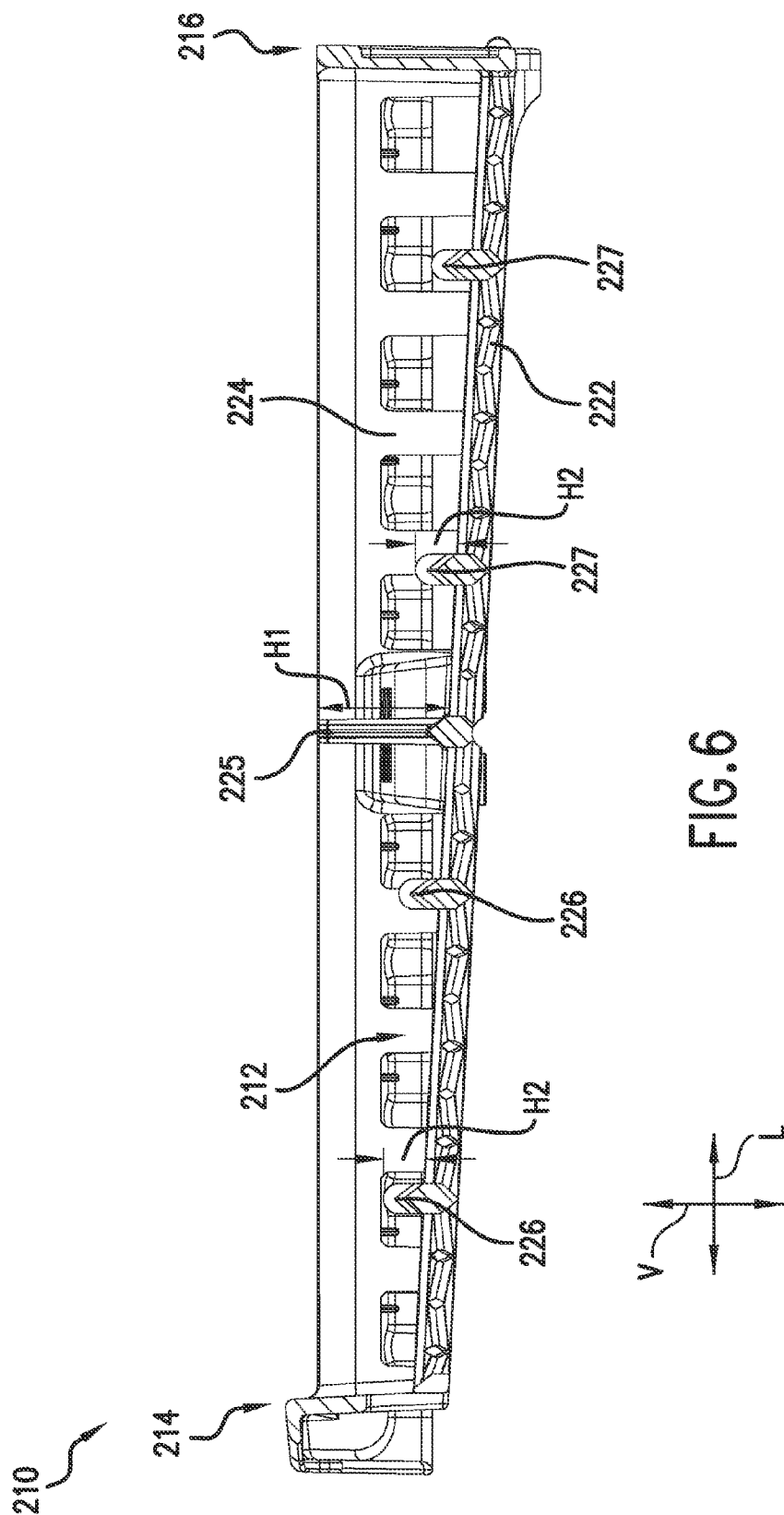


FIG. 1



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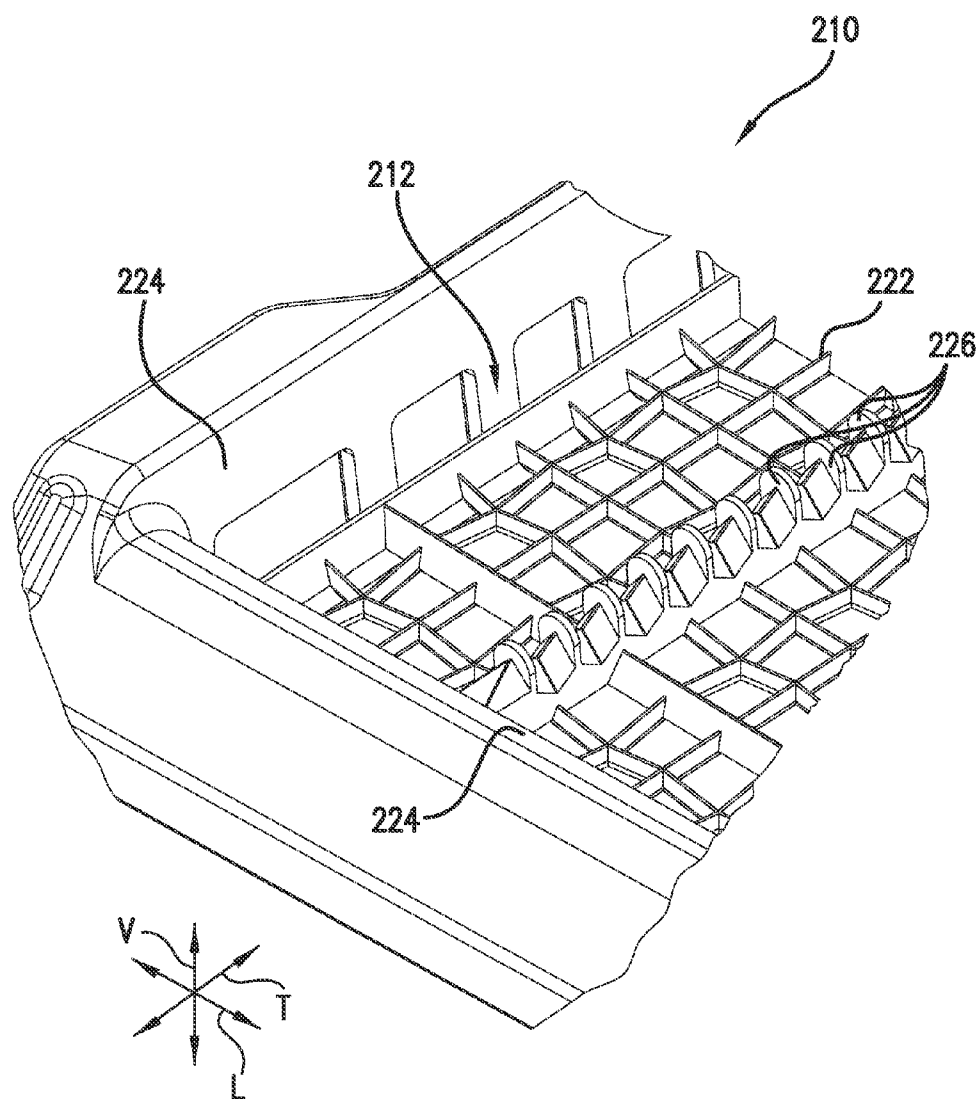


FIG. 7

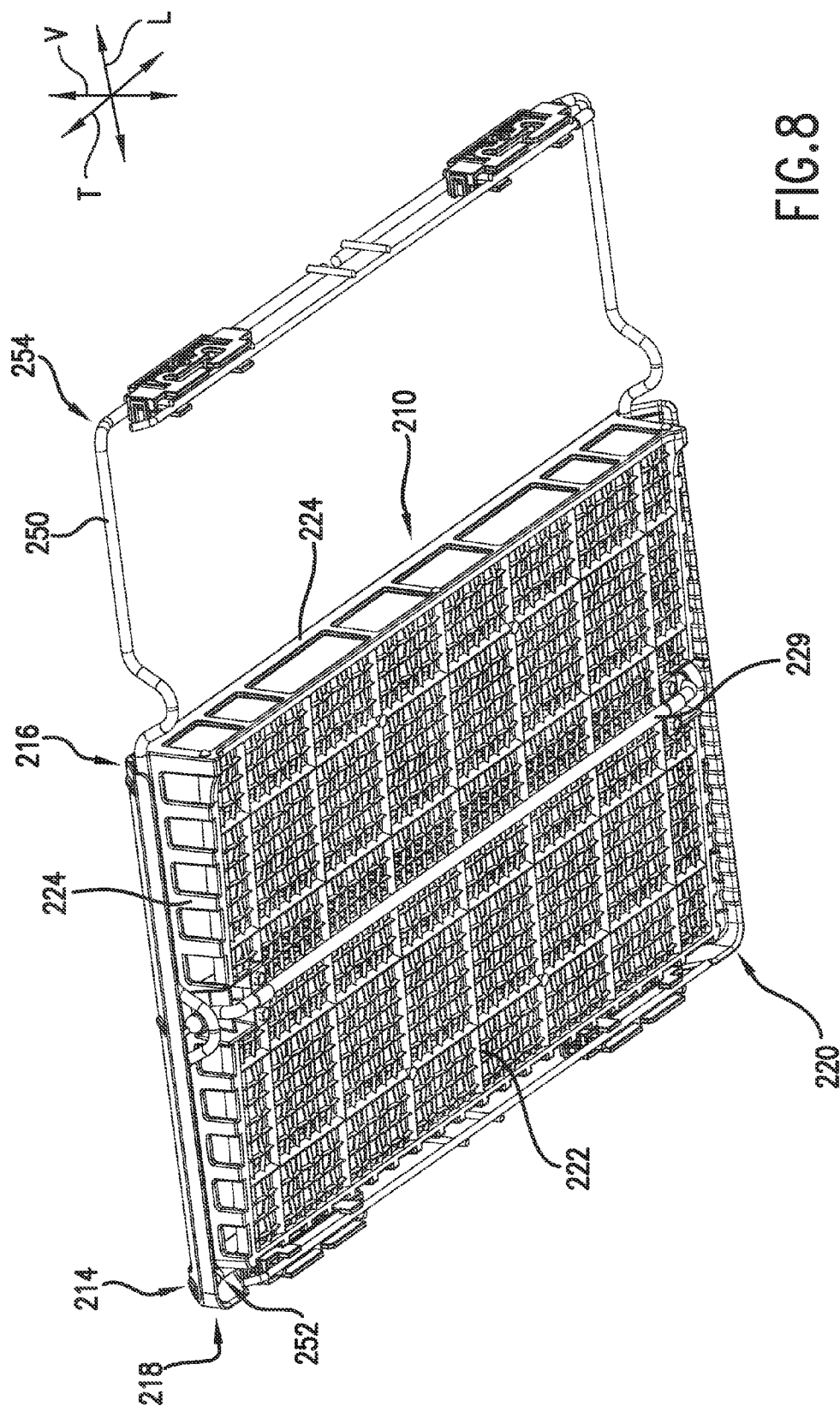
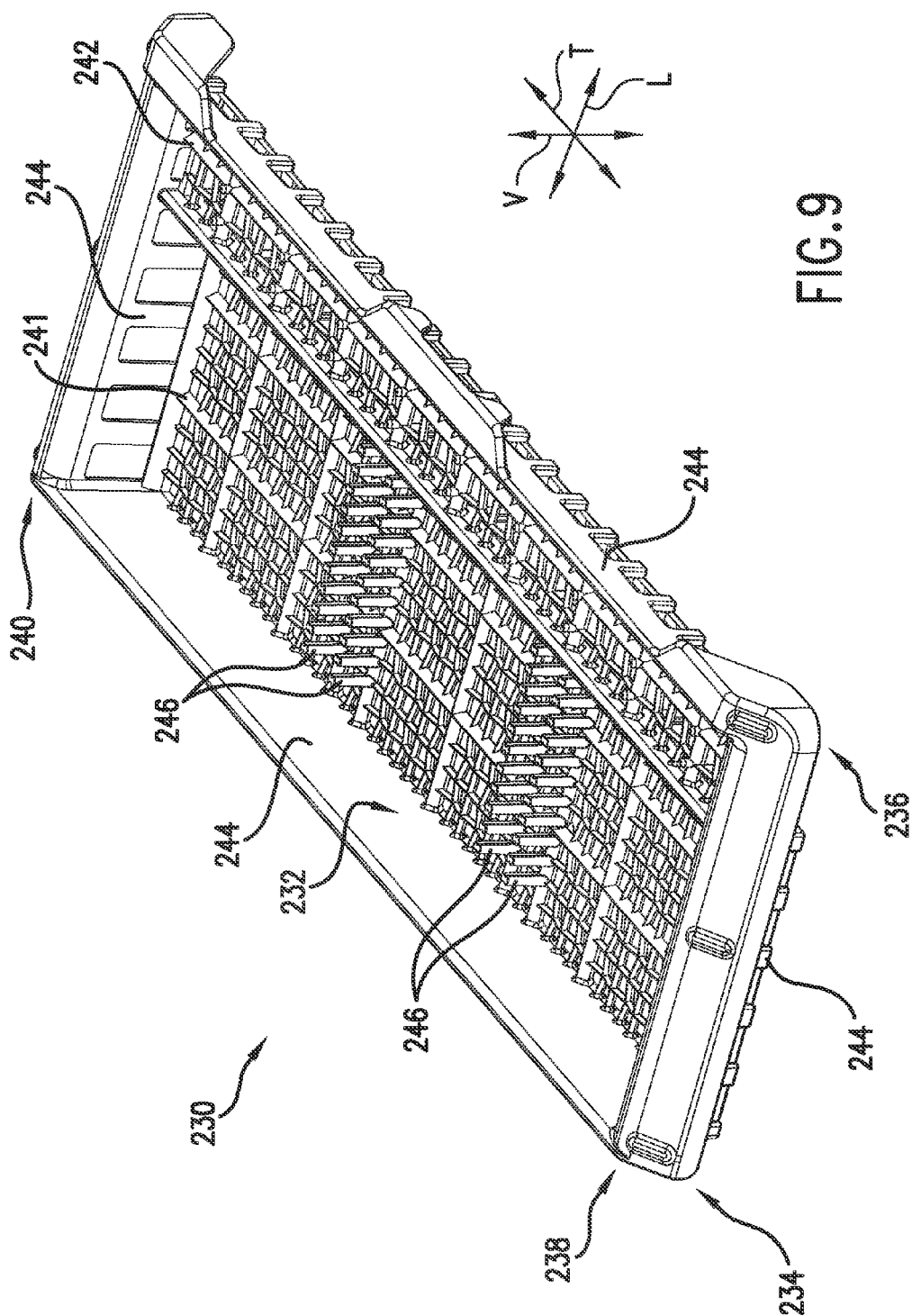
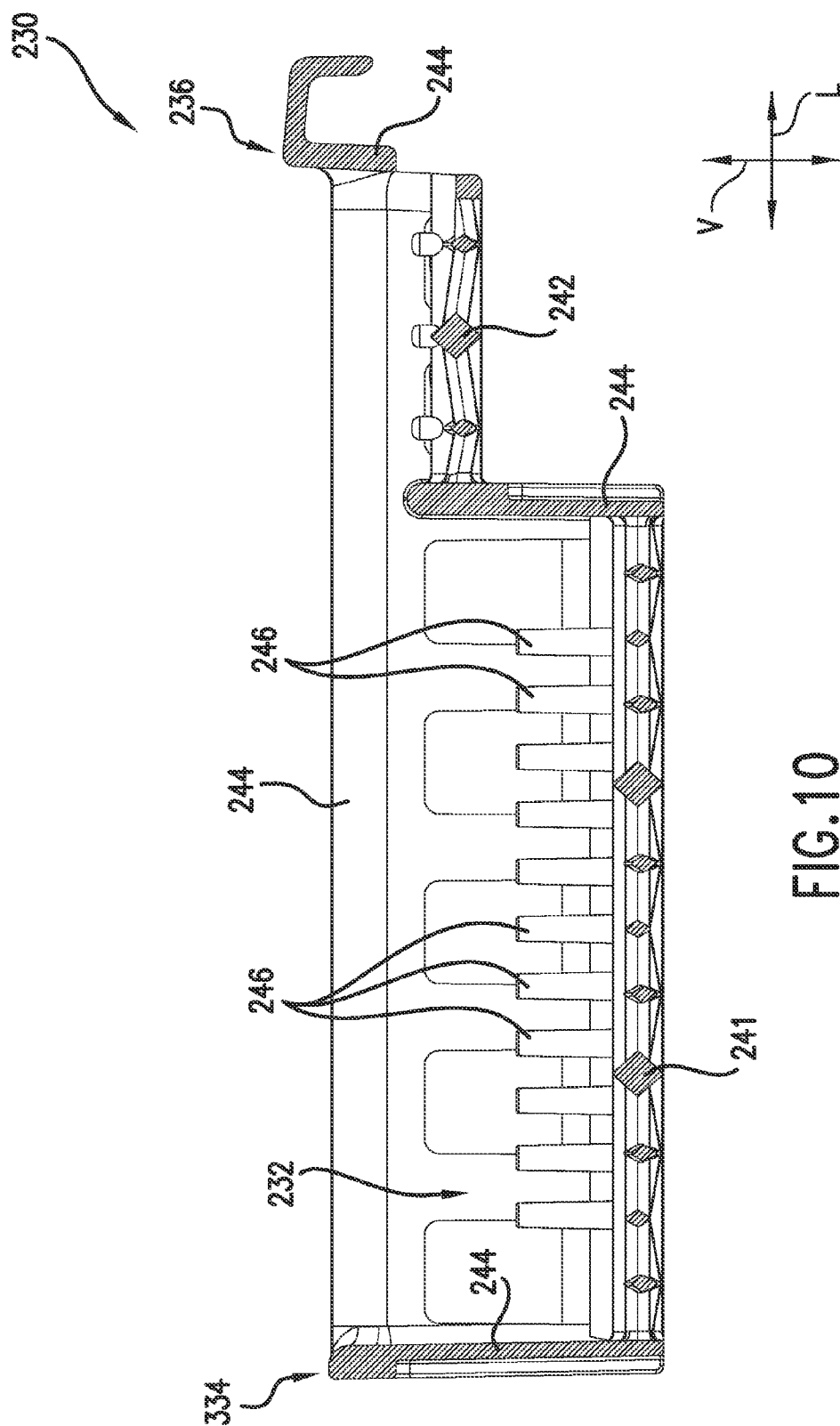


FIG. 8





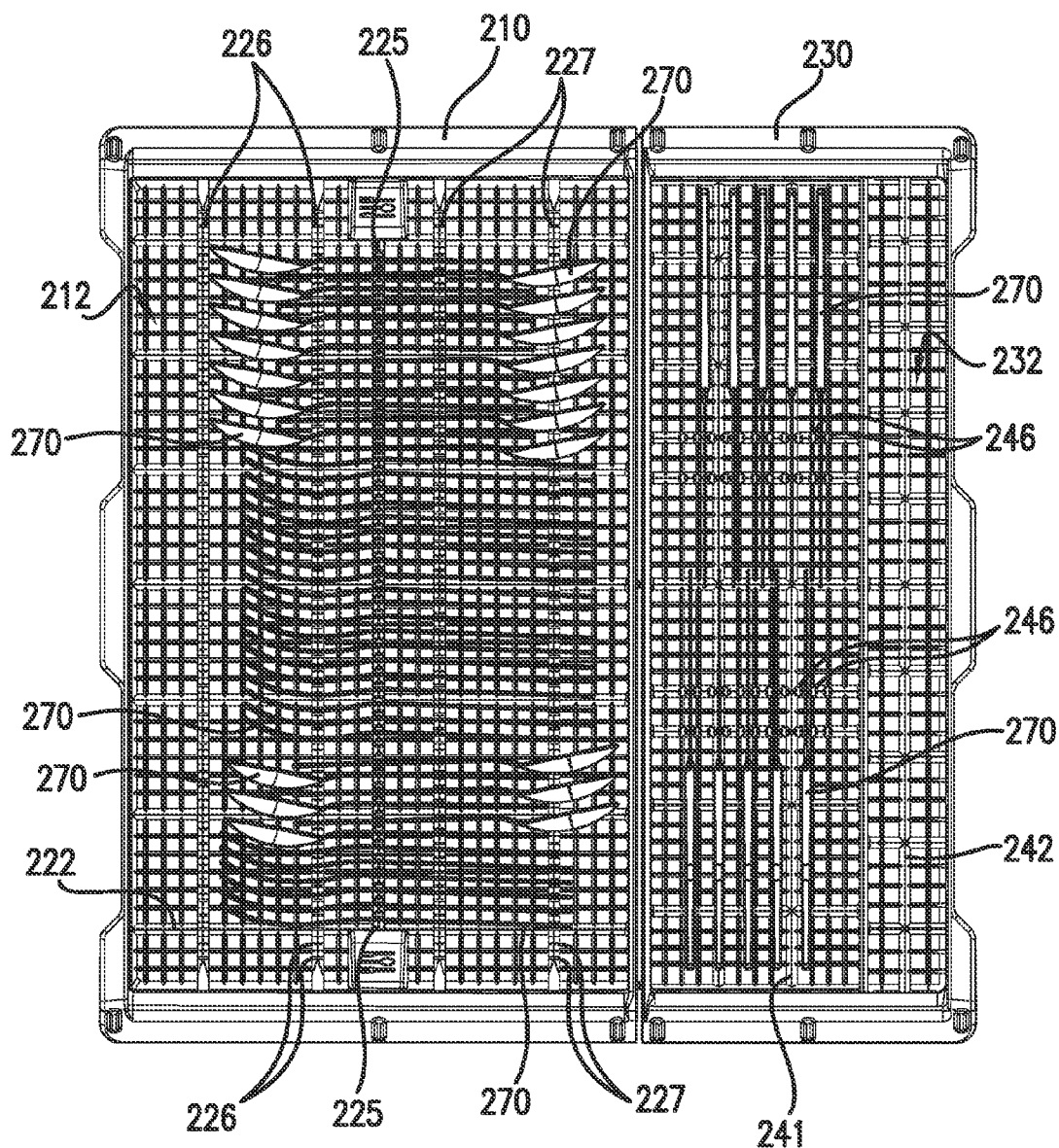


FIG. 11

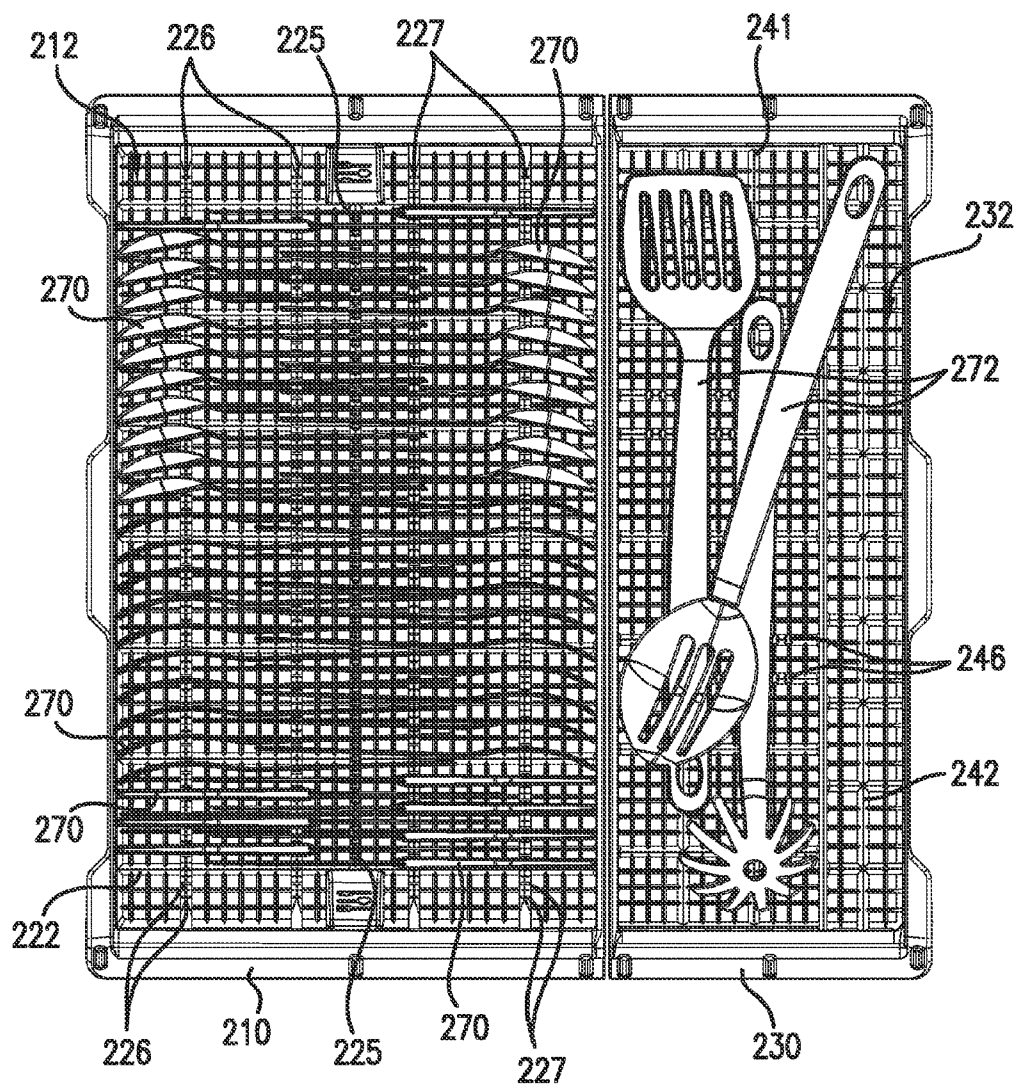


FIG.12

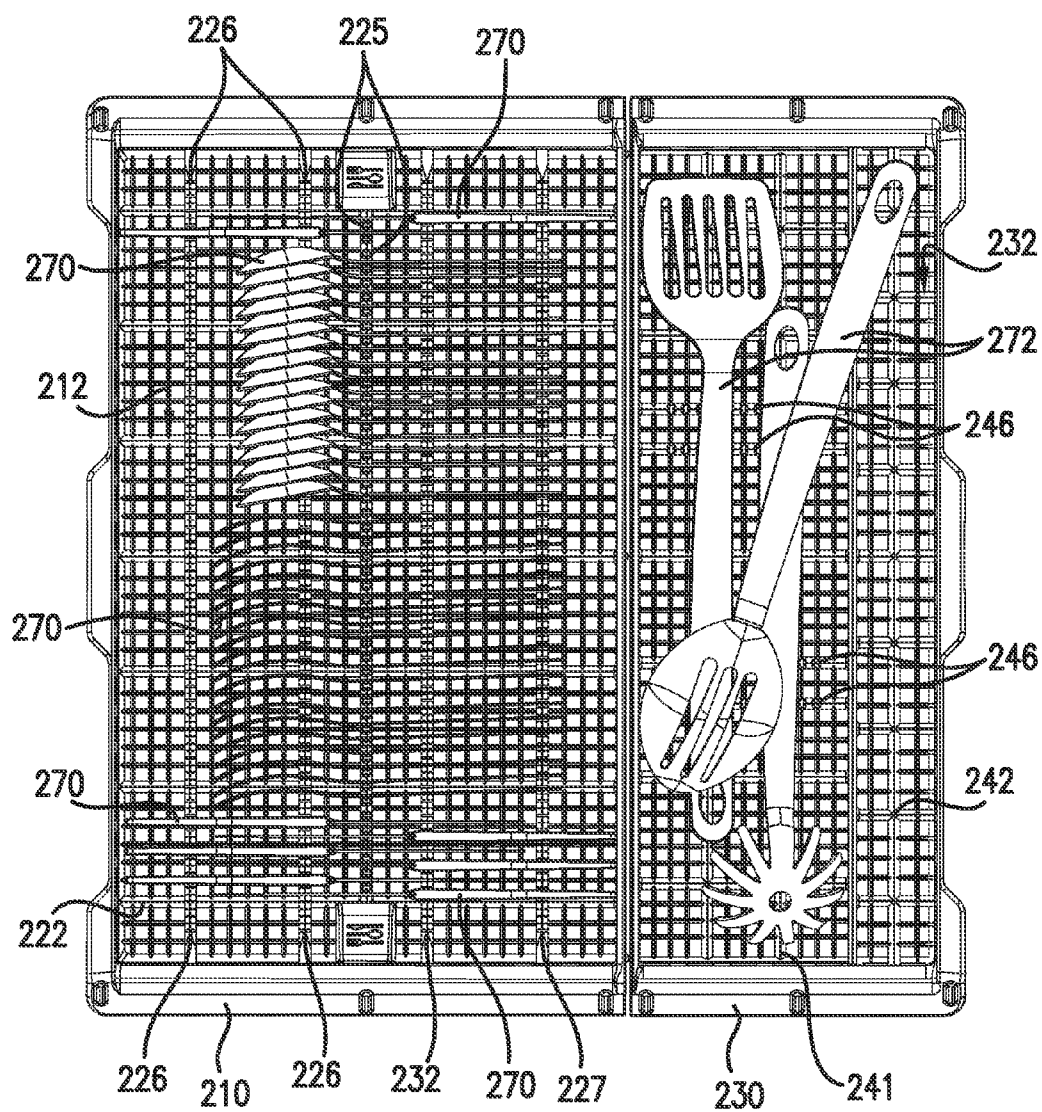


FIG.13

DISHWASHER APPLIANCE**FIELD OF THE INVENTION**

[0001] The present subject matter relates generally to dishwasher appliances and rack assemblies for the same.

BACKGROUND OF THE INVENTION

[0002] Dishwasher appliances generally include a tub that defines a wash chamber. Certain dishwasher appliances also include a rack assembly mounted within the wash chamber. The rack assembly is configured for receipt of articles for washing. For example, a user can slide the rack assembly out of the wash chamber and load suitable articles into the rack assembly. After loading is complete, the user may slide the rack assembly back into the wash chamber.

[0003] Certain dishwasher appliances include a rack assembly with a tray for receiving flatware. Due to tines and other support features within the tray, loading items other than flatware into the tray can be difficult or inconvenient. In addition, certain consumers find reaching across the rack assembly to load flatware on a far side of the tray difficult or inconvenient.

[0004] Flatware supported within the rack assembly is generally laid horizontally and supported with tines within the tray. Within the rack assembly, the flatware is sprayed with wash fluid to clean the flatware. However, tines are generally arranged for holding the flatware in a particular orientation and position. Such positioning and orientation can provide little space between adjacent flatware. Wash performance of an associated dishwasher can be negatively affected if the space between adjacent flatware is too small. In particular, insufficient wash fluid can flow between the adjacent pieces of flatware if the space between adjacent pieces of flatware is too small.

[0005] Accordingly, a dishwasher appliance with features for facilitating washing of flatware and cooking utensils within a rack assembly of the dishwasher appliance would be useful. In addition, a dishwasher appliance with features for assisting a user with loading articles into the rack assembly, e.g., such that the user can avoid excessively reaching across the rack assembly, would be useful. Also, a dishwasher appliance with features for holding flatware within a tray of the rack assembly such that the pieces of flatware are suitably spaced from each other would be useful.

BRIEF DESCRIPTION OF THE INVENTION

[0006] The present subject matter provides a dishwasher appliance. The dishwasher appliance includes a tub that defines a wash chamber and a rack assembly disposed within the wash chamber. The rack assembly includes a frame, a first tray and a second tray. The first and second trays are removably mounted to the frame. The first tray is sized and configured for supporting a plurality of flatware therein. The second tray is sized and configured for supporting a plurality of cooking utensils therein. Additional aspects and advantages of the invention will be set forth in part in the following description, or may be apparent from the description, or may be learned through practice of the invention.

[0007] In a first exemplary embodiment, a dishwasher appliance is provided. The dishwasher appliance defines a vertical direction, a lateral direction and a transverse direction. The vertical, lateral and transverse directions are mutually perpendicular. The dishwasher appliance includes a tub

that defines a wash chamber. A rack assembly is disposed within the wash chamber. The rack assembly includes a frame, a first tray and a second tray. The first tray is removably mounted to the frame. The first tray is sized and configured for supporting a plurality of flatware therein. The second tray is also removably mounted to the frame. The second tray is sized and configured for supporting a plurality of cooking utensils therein.

[0008] In a second exemplary embodiment, a dishwasher appliance is provided. The dishwasher appliance defines a vertical direction, a lateral direction and a transverse direction. The vertical, lateral and transverse directions are mutually perpendicular. The dishwasher appliance includes a tub that defines a wash chamber. The wash chamber extends between a top portion and a bottom portion along the vertical direction. A bottom rack assembly is disposed within the wash chamber at the bottom portion of the wash chamber. A top rack assembly is disposed within the wash chamber at the top portion of the wash chamber. The top rack assembly includes a frame, a first tray and a second tray. The first tray is removably mounted to the frame. The first tray is sized and configured for supporting a plurality of flatware therein. The second tray is also removably mounted to the frame. The second tray is sized and configured for supporting a plurality of cooking utensils therein. A middle rack assembly is disposed within the wash chamber between the top and bottom rack assemblies along the vertical direction.

[0009] These and other features, aspects and advantages of the present invention will become better understood with reference to the following description and appended claims. The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] A full and enabling disclosure of the present invention, including the best mode thereof, directed to one of ordinary skill in the art, is set forth in the specification, which makes reference to the appended figures.

[0011] FIG. 1 provides a front, elevation view of a dishwasher appliance according to an exemplary embodiment of the present subject matter.

[0012] FIG. 2 provides a perspective view of the exemplary dishwasher appliance of FIG. 1 with trays of an upper rack assembly of the exemplary dishwasher appliance in a first configuration on a frame of the upper rack assembly.

[0013] FIG. 3 provides a partial, perspective view of the exemplary dishwasher appliance of FIG. 1 with trays of the upper rack assembly removed from the frame of the upper rack assembly.

[0014] FIG. 4 provides a perspective view of the exemplary dishwasher appliance of FIG. 1 with trays of the upper rack assembly in a second configuration on the frame of the upper rack assembly.

[0015] FIG. 5 provides a top, perspective view of a first tray of the exemplary dishwasher appliance of FIG. 1.

[0016] FIG. 6 provides a side, section view of the first tray of FIG. 5.

[0017] FIG. 7 provides a partial perspective view of the first tray of FIG. 5.

[0018] FIG. 8 provides a bottom, perspective view of the first tray of FIG. 5 mounted to the frame of the upper rack assembly.

[0019] FIG. 9 provides a top, perspective view of a second tray of the exemplary dishwasher appliance of FIG. 1.

[0020] FIG. 10 provides a side, section view of the second tray of FIG. 9.

[0021] FIGS. 11, 12 and 13 provide top, plan views of the first tray of FIG. 5 and the second tray of FIG. 9 with a plurality of flatware positioned therein in various arrangements.

DETAILED DESCRIPTION

[0022] Reference now will be made in detail to embodiments of the invention, one or more examples of which are illustrated in the drawings. Each example is provided by way of explanation of the invention, not limitation of the invention. In fact, it will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the scope or spirit of the invention. For instance, features illustrated or described as part of one embodiment can be used with another embodiment to yield a still further embodiment. Thus, it is intended that the present invention covers such modifications and variations as come within the scope of the appended claims and their equivalents.

[0023] FIG. 1 provides a front, elevation view of a dishwasher appliance 100 according to an exemplary embodiment of the present subject matter. FIG. 2 provides a perspective view of dishwasher appliance 100 with a wash chamber or compartment 106 of dishwasher appliance 100 revealed. Dishwasher appliance 100 defines a vertical direction V, a lateral direction L, and a transverse direction T. Vertical direction V, lateral direction L, and transverse direction T are mutually perpendicular and form an orthogonal directional system.

[0024] Dishwasher appliance 100 includes a tub 104 that defines wash compartment 106. Tub 104 has a pair of side walls 128, a back wall 125, and a top wall 129 that assist with defining wash compartment 106. Side walls 128 are spaced apart from each other, e.g., along the lateral direction L. Back wall 125 and top wall 129 extend between and connect side walls 128, e.g., along the lateral direction L. Tub 104 also includes door 120 hinged at its bottom 122 for movement between a normally closed configuration (shown in FIG. 1) in which wash compartment 106 is sealed shut, e.g., for washing operation, and an open configuration (shown in FIGS. 2, 3 and 4) for loading and unloading of articles from dishwasher appliance 100.

[0025] Turning to FIG. 2, tub side walls 128 accommodate middle and lower rack assemblies 130 and 132. Each of the middle and lower racks assemblies 130 and 132 is fabricated from lattice structures that include a plurality of wires or elongated members. Dishwasher appliance 100 also includes an upper rack assembly 200 positioned above middle and lower racks assemblies 130 and 132, e.g., along the vertical direction V, at a top portion of wash compartment 106. Each rack assembly 130, 132 and 200 is adapted for movement between an extended loading position (not shown) in which the rack assembly is substantially positioned outside the wash compartment 106, and a retracted position (shown in FIGS. 1 and 2) in which the rack assembly is located inside the wash compartment 106.

[0026] Dishwasher appliance 100 includes a lower spray assembly 144 that is mounted within a lower region 146 of the wash compartment 106 and above a tub sump portion 142 so as to be in relatively close proximity to the lower rack assembly

132. A mid-level spray assembly 148 is located in an upper region of the wash compartment 106 and may be located in close proximity to middle rack assembly 130. Additionally, an upper spray assembly (not shown) may be located above the upper rack assembly 200 and mounted to top wall 129 of tub 104.

[0027] The lower and mid-level spray assemblies 144 and 148 and the upper spray assembly are fed by a pump (not shown) for circulating water and wash fluid (e.g., detergent, water, and/or rinse aid) in the tub 104. The pump is located in a machinery compartment 140 located below the bottom sump portion 142 of the tub 104, as generally recognized in the art. A conduit or circulation piping 108 directs water and/or wash fluid from the pump to lower spray assembly 144 and mid-level spray assembly 148.

[0028] Each spray assembly includes an arrangement of discharge ports or orifices for directing wash fluid onto dishes or other articles located in the middle and lower rack assemblies 130, 132, silverware basket 160 and upper rack assembly 200. Lower spray assembly 144 is rotatably mounted in wash compartment 106. Accordingly, the arrangement of the discharge ports on lower spray assembly 144 may provide a rotational force by virtue of washing fluid flowing through the discharge ports. The resultant rotation of the lower spray assembly 144 can provide coverage of dishes and other dishwasher contents with a washing spray.

[0029] The dishwasher appliance 100 is further equipped with a controller 137 to regulate operation of the dishwasher appliance 100. Controller 137 may include a memory and microprocessor, such as a general or special purpose microprocessor operable to execute programming instructions or micro-control code associated with a cleaning cycle. The memory may represent random access memory such as DRAM, or read only memory such as ROM or FLASH. Alternatively, controller 137 may be constructed without using a microprocessor, e.g., using a combination of discrete analog and/or digital logic circuitry (such as switches, amplifiers, integrators, comparators, flip-flops, AND gates, and the like) to perform control functionality instead of relying upon software.

[0030] Controller 137 may be positioned in a variety of locations throughout dishwasher appliance 100. In the illustrated exemplary embodiment, controller 137 is located within a control panel 116 of door 120. In alternative exemplary embodiments, controller 116 may be positioned beneath tub 104 or at any other suitable location on dishwasher appliance 100. Typically, controller 137 includes a user interface panel 136 through which a user may select various operational features and modes and monitor progress of the dishwasher appliance 100. In one exemplary embodiment, user interface 136 represents a general purpose I/O ("GPIO") device or functional block. In another exemplary embodiment, user interface 136 includes input components, such as one or more of a variety of electrical, mechanical or electro-mechanical input devices including rotary dials, push buttons, and touch pads. User interface 136 may include a display component, such as a digital or analog display device designed to provide operational feedback to a user.

[0031] It should be appreciated that the present subject matter is not limited to any particular style, model, or other configuration of dishwasher appliance and that dishwasher appliance 100 depicted in FIGS. 1 and 2 is provided for illustrative purposes only. For example, the present subject

matter may be used in dishwasher appliances having other rack configurations or spray assembly arrangements.

[0032] As may be seen in FIG. 2, upper rack assembly 200 includes, e.g., molded plastic, baskets or trays 205 that are discrete from each other. As discussed in greater detail below, trays 205 are configured for receiving and supporting flatware and/or cooking utensils therein. In FIG. 2, trays 205 are in a first configuration on a frame 250 of upper rack assembly 200. FIG. 3 provides a partial, perspective view dishwasher appliance 100 with trays 205 of upper rack assembly 200 removed from frame 250 of upper rack assembly 200. FIG. 4 also provides a perspective view of dishwasher appliance 100 with trays 205 of upper rack assembly 200 in a second configuration on frame 250 of upper rack assembly 200. Thus, as may be seen in FIGS. 2, 3 and 4, trays 205 are removably mounted to frame 250 and positions of trays 205 on frame 250 are selectively adjustable. For example, a user of dishwasher appliance 100 can remove trays 205 from frame 250 and flip the position of trays 205. In such a manner, a user can place a desired one of trays 205 closer to the user or in a preferred position or configuration. Trays 205 are discussed in greater detail below.

[0033] Upper rack assembly 200 also includes a pair of slide rails 260. Slide rails 260 are mounted to tub 104 and frame 250. Each slide rail of slide rails 260 includes a first rail 262 and a second rail 264 as may be seen in FIG. 3. First and second rails 262 and 264 are mounted to each other such that first and second rails 262 and 264 are slidable relative to each other, e.g., along the transverse direction T. In partial, bearings (not shown) disposed between first and second rails 262 and 264 can permit movement or sliding of second rail 264 relative to first rail 262. First rail 262 is mounted to tub 104, and second rail 264 is mounted to frame 250. First rail 262 can be mounted to tub 104 using any suitable method or mechanism, and second rail 264 can be mounted to frame 250 using any suitable method or mechanism. As will be understood by those skilled in the art, slide rail 260 can also include a third rail (not shown). The third rail can permit slide rail 260 to position trays 205 completely outside wash compartment 106 of tub 104, e.g., when slide rail 260 is extended.

[0034] Trays 205 include a first tray 210 and a second tray 230. First and second trays 210 and 230 are removably mounted to frame 250 as shown in FIGS. 2, 3 and 4. As discussed in greater detail below, first tray 210 is sized and configured for supporting a plurality of flatware 270 (FIG. 12) therein and second tray 230 is sized and configured for supporting a plurality of cooking utensils 272 (FIG. 12) therein. Thus, first and second trays 210 can be sized and configured differently in order to support various articles for washing therein.

[0035] As may be seen in FIG. 3, first tray 210 defines a width W1, e.g., along the lateral direction L. In particular, first tray 210 extends between a first side portion 214 and a second side portion 216, e.g., along the lateral direction L. First tray 210 extends, e.g., along the lateral direction L, between first and second side portions 214 and 216 of first tray 210 by about the width W1. Similarly, second tray 230 defines a width W2, e.g., along the lateral direction L. In particular, second tray 230 extends between a first side portion 234 and a second side portion 236, e.g., along the lateral direction L. Second tray 230 extends, e.g., along the lateral direction L, between first and second side portions 234 and 236 of second tray 230 by about the width W2. The width W1 of first tray 210 and the width W2 of second tray 230 can be any suitable

widths. For example, the width W2 of second tray 230 may be less than the width W1 of first tray 210. As another example, the width W2 of second tray 230 may be greater than the width W1 of first tray 210. Thus, first and second trays 210 and 230 can have different widths.

[0036] First tray 210 also defines a length L1, e.g., along the transverse direction T. In particular, first tray 210 extends between a first end portion 218 and a second end portion 220, e.g., along the transverse direction T. First tray 210 extends, e.g., along the transverse direction T, between first and second end portions 218 and 220 of first tray 210 by about the length L1. Similarly, second tray 230 defines a length L2, e.g., along the transverse direction T. In particular, second tray 230 extends between a first end portion 238 and a second end portion 240, e.g., along the transverse direction T. Second tray 230 extends, e.g., along the transverse direction T, between first and second end portions 238 and 240 of second tray 230 by about the length L2. The length L1 of first tray 210 and the length L2 of second tray 230 can be any suitable lengths. For example, the length L2 of second tray 230 may be about equal to the length L1 of first tray 210. Thus, first and second trays 210 and 230 can have the same lengths.

[0037] Frame 250 can be constructed from any suitable material. For example, frame 250 may be constructed of or with an elongated metal wire, such as a plastic coated metal wire. Frame 250 extends between a first side portion 252 and a second side portion 254, e.g., along the lateral direction L. First and second trays 210 and 230 are selectively mountable to frame 250 at either of the first side portion 252 of frame 250 or the second side portion 254 of frame 250. In particular, as may be seen in FIG. 2, first tray 210 is positioned at or adjacent first side portion 252 of frame 250 and second tray 230 is positioned at or adjacent second side portion 254 of frame 250 when rack assembly 200 is in the first configuration. Conversely, as may be seen in FIG. 4, first tray 210 is positioned at or adjacent second side portion 254 of frame 250 and second tray 230 is positioned at or adjacent first side portion 252 of frame 250 when rack assembly 200 is in the second configuration. As may be seen in FIG. 3, a user can remove first and second trays 210 and 230 from frame 250 in order to adjust rack assembly 200 between the first and second configurations.

[0038] FIG. 5 provides a top, perspective view of first tray 210. FIG. 6 provides a side, section view of first tray 210. FIG. 7 provides a partial perspective view of first tray 210. As may be seen in FIGS. 5, 6 and 7, first tray 210 defines an interior volume 212. In particular, first tray 210 includes a bottom wall 222 and side walls 224 that assist with defining interior volume 212 of first tray 210. Flatware 270 and/or cooking utensils 272 (FIG. 12) may be positioned or disposed within interior volume 212 of first tray 210, e.g., on bottom wall 222. As may be seen in FIG. 6, bottom wall 222 of first tray 210 may be sloped. In particular, bottom wall 222 of first tray 210 may sloped downwardly from first side portion 214 of first tray 210 to second side portion 216 of first tray 210. As may be seen in FIG. 7, bottom wall 222 of first tray 210 may also define a plurality of openings to permit wash fluid to drain from interior volume 212 of first tray 210. In particular, bottom wall 222 of first tray 210 may define a weaved shape or pattern, e.g., to support flatware 270 thereon and/or permit wash fluid to drain from interior volume 212 of first tray 210. First tray 210 may be constructed with injection molded plastic to assist with defining the weaved shape or pattern of bottom wall 222 of first tray 210.

[0039] First tray 210 has a plurality of vertical projections 225 mounted to bottom wall 222 of first tray 210 and positioned within interior volume 212 of first tray 210. Vertical projections 225 are spaced apart from each other, e.g., along the transverse direction T, at a middle portion of first tray 210. For example, vertical projections 225 may be dispersed or distributed, e.g., along the transverse direction T, between first and second end portions 218 and 220 of first tray 210 within interior volume 212 of first tray 210. Vertical projections 225 can have any suitable shape or cross-section, e.g., in a plane that is perpendicular to the vertical direction V. For example, vertical projections 225 may have a circular, oval, diamond, square, star, triangular, octagonal, hexagonal shape or cross-section, e.g., in a plane that is perpendicular to the vertical direction V, or any combination thereof. Vertical projections 225 are configured for supporting flatware 270 therebetween as discussed in greater detail below.

[0040] First tray 210 also includes a plurality of first vertical supports 226 and a plurality of second vertical supports 227. First and second vertical supports 226 and 227 are mounted to bottom wall 222 of first tray 210 and positioned within interior volume 212 of first tray 210. First vertical supports 226 are spaced apart from each other, e.g., along the transverse direction T, and second vertical supports 227 are also spaced apart from each other, e.g., along the transverse direction T. First and second vertical supports 226 and 227 are positioned opposite each other relative to vertical projections 225. In particular, first vertical supports 226 may be positioned at or adjacent first end portion 218 of first tray 210, and second vertical supports 227 may be positioned at or adjacent second end portion 220 of first tray 210. First and second vertical supports 226 and 227 are configured for supporting flatware 270 as discussed in greater detail below.

[0041] Each of vertical projections 225 define a height H1 along the vertical direction V. Similarly, each of first and second vertical supports 226 and 227 also define a height H2 along the vertical direction V. The height H1 of vertical projections 225 and the height H2 of first and second vertical supports 226 and 227 can be any suitable heights. For example, the height H2 of first and second vertical supports 226 and 227 may be less than the height H1 of vertical projections 225, e.g., less than half the height H1 of vertical projections 225. Thus, vertical projections 225 can be taller than first and second vertical supports 226 and 227. In such a manner vertical projections 225 can support and orient flatware 270 within first tray 210, and first and second vertical supports 226 and 227 separate and maintain proper spacing between adjacent flatware 270.

[0042] FIG. 8 provides a bottom, perspective view of first tray 210 mounted to frame 250. As may be seen in FIG. 8, rack assembly 200 includes a support bracket 229, such as an elongated metal rod, bar or strap. Support bracket 229 is mounted to first tray 210, e.g., at bottom wall 222 of first tray 210. For example, support bracket 229 may be molded into bottom wall 222, snap fit to bottom wall 222, glued or adhered to bottom wall 222, fastened to bottom wall 222, etc. Support bracket 229 extends between first and second end portions 218 and 220 of first tray 210 and opposite transverse sides of frame 250. Support bracket 229 limits movement of bottom wall 222 of first tray 210, e.g., downwardly, along the vertical direction V. As an example, support bracket 229 includes hooked ends for engaging frame 250 and coupling support bracket 229 to frame 250. Thus, when flatware 270 is loaded into interior volume 212 of first tray 210, support bracket 229

can limit sagging or creeping of bottom wall 222 of first tray 210. It should be understood that second tray 230 can also include a support bracket, such as support bracket 229.

[0043] FIG. 9 provides a top, perspective view of second tray 230. FIG. 10 provides a side, section view of second tray 230. As may be seen in FIGS. 9 and 10, second tray 230 defines an interior volume 232. In particular, second tray 230 includes a first bottom wall 241, a second bottom wall 242 and side walls 244 that assist with defining interior volume 232 of second tray 230. Flatware 270 and/or cooking utensils 272 (FIG. 12) may be positioned or disposed within interior volume 232 of second tray 230, e.g., on first bottom wall 241 and/or second bottom wall 242.

[0044] As may be seen in FIG. 10, first and second bottom walls 241 and 242 of second tray 230 may be substantially parallel to each other such that first and second bottom walls 241 and 242 of second tray 230 are vertically offset from each other. In particular, first and second bottom walls 241 and 242 may be spaced apart from each other along the vertical direction V. First bottom wall 241 is positioned at or adjacent first side portion 234 of second tray 230 and second bottom wall 242 is positioned at or adjacent second side portion 236 of second tray 230.

[0045] By vertically offsetting first and second bottom walls 241 and 242 of second tray 230, various cooking utensils 272 can be loaded or supported within interior volume 232 of second tray 230. For example, relatively large cooking utensils 272, such as spatulas, ladles, etc., can be supported on first bottom wall 241 of second tray 230, and relatively small cooking utensils, such as chopsticks, fondue forks, etc., can be supported on second bottom wall 242 of second tray 230. By providing separate spaces for smaller and larger cooking utensils 272, wash fluid flow within interior volume 232 of second tray 230 and across cooking utensils 272 can be facilitated.

[0046] Like first tray 210, first and second bottom walls 241 and 242 of second tray 230 may define a plurality of openings to permit wash fluid to drain from interior volume 232 of second tray 230. In particular, first and second bottom walls 241 and 242 of second tray 230 may define a weaved shape or pattern, e.g., to support flatware 270 and/or cooking utensils 272 thereon and/or permit wash fluid to drain from interior volume 232 of second tray 230. Second tray 230 may be constructed with injection molded plastic to assist with defining the weaved shape or pattern of first and second bottom walls 241 and 242 of second tray 230.

[0047] Second tray 230 also includes a plurality of vertical tines 246. Vertical tines 246 are mounted to first bottom wall 241 and positioned within interior volume 232 of second tray 230. Vertical tines 246 are spaced apart from each other, e.g., along the lateral direction L. In particular, vertical tines 246 may be dispersed or distributed, e.g., along the lateral direction L, between first and second end portions 238 and 240 of second tray 230 within interior volume 232 of second tray 230. Vertical tines 246 are configured for supporting flatware 270 and/or cooking utensils 272 therebetween as discussed in greater detail below.

[0048] FIGS. 11, 12 and 13 provide top, plan views of first tray 210 and second tray 230 with flatware 270 and cooking utensils 272 positioned therein in various arrangements. In FIG. 11, flatware 270, including spoons and forks, are positioned within interior volume 212 of first tray 210. In particular, handles of flatware 270 are positioned between vertical projections 225 and heads of flatware 270 are positioned

between first and second vertical supports 226 and 227. Pieces of flatware 270 are alternately placed (e.g., an orientation of flatware 270 within first tray 270 is alternated) such that a suitable space or gap between adjacent flatware 270 is provided. Vertical projections 225 and first and second vertical supports 226 and 227 also support flatware 270 by portions of flatware 270 other than heads of flatware 270. In such a manner, vertical projections 225 and first and second vertical supports 226 and 227 may not hinder or obstruct a flow of wash fluid towards heads of flatware 270 within first tray 210. Flatware 270, such as knives, is also positioned within interior volume 232 of second tray 230 and between vertical tines 246.

[0049] In FIG. 12, flatware 270, including spoons, forks and knives, are also positioned within interior volume 212 of first tray 210. In particular, handles of flatware 270 are positioned between vertical projections 225 and heads of flatware 270 are positioned between first and second vertical supports 226 and 227. Pieces of flatware 270 are alternately placed such that a suitable space or gap between adjacent flatware 270 is provided. Cooking utensils 272 are also positioned within interior volume 232 of second tray 230.

[0050] Turning to FIG. 13, flatware 270 is loaded within first tray 210 such that pieces of flatware 270 are not alternately placed as discussed above. In particular, flatware 270 is loaded within first tray 210 such that pieces of flatware 270 are nested together with heads and handles of adjacent flatware 270 aligned and positioned adjacent each other. When flatware 270 is nested, adjacent flatware 270 are positioned closer together relative to the positioning of flatware 270 in FIGS. 11 and 12, and it can be more difficult for wash fluid to hit surfaces of flatware 270. By alternating the orientation of flatware 270 as shown in FIGS. 11 and 12, spacing between adjacent flatware 270 can be increased, allowing more wash fluid to hit the surfaces of flatware 270. However, certain consumers prefer nesting flatware 270 as shown in FIG. 13. First tray 270 is configured for permitting both alternating and nesting of flatware 270.

[0051] As may be seen in FIGS. 11, 12 and 13, by providing first and second trays 210 and 230, rack assembly 200 can support flatware 270 and/or cooking utensils 272 in various arrangements and/or orientations. In particular, rack assembly 200 can support flatware 270 and/or cooking utensils 272 such that suitable spacing is provided between adjacent flatware 270 and/or cooking utensils 272 in order to provide sufficient wash fluid flow therebetween and permit suitable cleaning of flatware 270 and/or cooking utensils 272.

[0052] This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they include structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims.

What is claimed is:

1. A dishwasher appliance defining a vertical direction, a lateral direction and a transverse direction, the vertical, lateral and transverse directions being mutually perpendicular, the dishwasher appliance comprising:

a tub defining a wash chamber;
a rack assembly disposed within the wash chamber, the rack assembly comprising
a frame;
a first tray removably mounted to the frame, the first tray sized and configured for supporting a plurality of flatware therein; and
a second tray removably mounted to the frame, the second tray sized and configured for supporting a plurality of cooking utensils therein.

2. The dishwasher appliance of claim 1, wherein the first tray defines a width along the lateral direction and the second tray defines a width along the lateral direction, the width of the second tray being different than the width of the first tray.

3. The dishwasher appliance of claim 2, wherein the first tray defines a length along the transverse direction and the second tray defines a length along the transverse direction, the length of the second tray being about equal to the length of the first tray.

4. The dishwasher appliance of claim 1, wherein the first tray defines an interior volume, the first tray having a plurality of vertical projections positioned within the interior volume of the first tray, the plurality of vertical projections spaced apart from each other along the transverse direction at a middle portion of the first tray.

5. The dishwasher appliance of claim 3, wherein the first tray has a first plurality of vertical supports and a second plurality of vertical supports positioned within the interior volume of the first tray, the first and second pluralities of vertical supports positioned opposite each other relative to the plurality of vertical projections.

6. The dishwasher appliance of claim 4, wherein each of the first and second pluralities of vertical supports define a height along the vertical direction and each of the plurality of vertical projections define a height along the vertical direction, the height of each of the first and second pluralities of vertical supports being less than the height of each of the plurality of vertical projections.

7. The dishwasher appliance of claim 1, wherein the second tray extends between a first side portion and a second side portion along the lateral direction, the second tray has a first bottom wall positioned at the first side portion of the second tray and a second bottom wall positioned at the second side portion of the second tray, the first and second bottom walls spaced apart from each other along the vertical direction.

8. The dishwasher appliance of claim 7, wherein the second tray includes a plurality of vertical tines mounted to the first bottom wall, the plurality of vertical tines spaced apart from each other along the lateral direction.

9. The dishwasher appliance of claim 1, wherein the rack assembly includes a support bracket mounted to the first tray at a bottom wall of the first tray or the second tray at a bottom wall of the second tray, the support bracket extending between opposite sides of the frame, the support bracket limiting movement of the bottom wall of the first tray or the bottom wall of the second tray along the vertical direction.

10. The dishwasher appliance of claim 1, wherein the frame extends between a first side portion and a second side portion along the lateral direction, the first and second trays selectively mountable to the frame at either of the first side portion of the frame or the second side portion of the frame.

11. The dishwasher appliance of claim 10, wherein the first tray is positioned at the first side portion of the frame and the second tray is positioned at the second side portion of the

frame when the rack assembly is in a first configuration, the first tray positioned at the second side portion of the frame and the second tray is positioned at the first side portion of the frame when the rack assembly is in a second configuration, the rack assembly selectively adjustable between the first and second configurations.

12. The dishwasher appliance of claim **1**, wherein the first tray or the second tray includes a sloped bottom wall.

13. The dishwasher appliance of claim **1**, wherein the rack assembly comprises a pair of slide rails, the pair of slide rails mounted to the tub and the frame such that a position of the frame along the transverse is selectively adjustable.

14. A dishwasher appliance defining a vertical direction, a lateral direction and a transverse direction, the vertical, lateral and transverse directions being mutually perpendicular, the dishwasher appliance comprising:

- a tub defining a wash chamber, the wash chamber extending between a top portion and a bottom portion along the vertical direction;
- a bottom rack assembly disposed within the wash chamber at the bottom portion of the wash chamber;
- a top rack assembly disposed within the wash chamber at the top portion of the wash chamber, the top rack assembly comprising
 - a frame;
 - a first tray removably mounted to the frame, the first tray sized and configured for supporting a plurality of flatware therein;
 - a second tray removably mounted to the frame, the second tray sized and configured for supporting a plurality of cooking utensils therein; and
- a middle rack assembly disposed within the wash chamber between the top and bottom rack assemblies along the vertical direction.

15. The dishwasher appliance of claim **14**, wherein the first tray defines a width along the lateral direction and the second tray defines a width along the lateral direction, the width of the second tray being different than the width of the first tray.

16. The dishwasher appliance of claim **14**, wherein the first tray defines a length along the transverse direction and the second tray defines a length along the transverse direction, the length of the second tray being about equal to the length of the first tray.

17. The dishwasher appliance of claim **14**, wherein the first tray defines an interior volume, the first tray having a plurality of vertical projections positioned within the interior volume of the first tray, the plurality of vertical projections spaced apart from each other along the transverse direction at a middle portion of the first tray, the first tray also having a first plurality of vertical supports and a second plurality of vertical supports positioned within the interior volume of the first tray, the first and second pluralities of vertical supports positioned opposite each other relative to the plurality of vertical projections.

18. The dishwasher appliance of claim **17**, wherein each of the first and second pluralities of vertical supports define a height along the vertical direction and each of the plurality of vertical projections define a height along the vertical direction, the height of each of the first and second pluralities of vertical supports being less than the height of each of the plurality of vertical projections.

19. The dishwasher appliance of claim **14**, wherein the second tray extends between a first side portion and a second side portion along the lateral direction, the second tray has a first bottom wall positioned at the first side portion of the second tray and a second bottom wall positioned at the second side portion of the second tray, the first and second bottom walls spaced apart from each other along the vertical direction.

20. The dishwasher appliance of claim **14**, wherein the top rack assembly includes a support bracket mounted to the first tray at a bottom wall of the first tray or the second tray at a bottom wall of the second tray, the support bracket extending between opposite sides of the frame, the support bracket limiting movement of the bottom wall of the first tray or the bottom wall of the second tray along the vertical direction.

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