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(54) **DISHWASHER**

(57) There is disclosed a dishwasher. The dishwasher comprises a controller (234). The dishwasher further comprises a washing compartment (204) having a first corner region (262), a second corner region (264), a third corner region (266) and a fourth corner region (268). The dishwasher also comprises a rack (212) arranged in the washing compartment (204) for holding one or more items to be washed. An adjustment mechanism (277) is provided for adjusting a position and/or orientation of the rack (212) in the washing compartment. The adjustment

mechanism (277) comprises a first adjuster (278) located at the first corner region of the washing compartment, a second adjuster (280) located at the second corner region of the washing compartment, a third adjuster (282) located at the third corner region of the washing compartment, and a fourth adjuster (284) located at the fourth corner region of the washing compartment. Each of the first to fourth adjusters is independently adjustable by the controller (234).

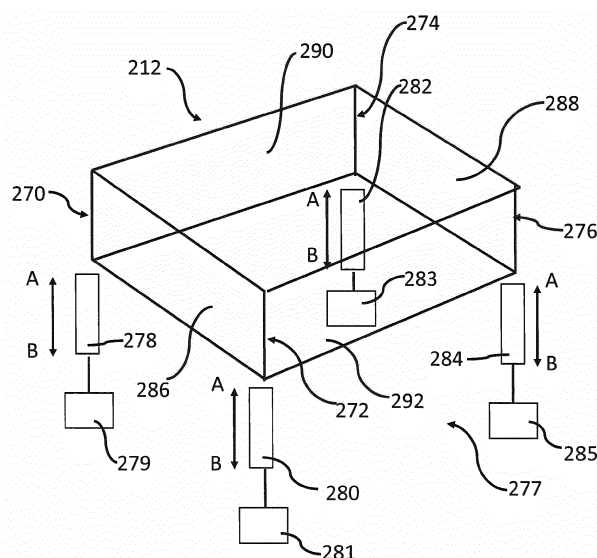


Fig. 3

Description

Technical Field

[0001] The present disclosure relates to a dishwasher.

Background

[0002] Dishwashers (also referred to as dishwashing machines) are used for washing items such as crockery and cutlery. A known dishwasher comprises a washing compartment for holding one or more items to be washed, and a washing mechanism for washing those items. Typically a user can select from a plurality of pre-defined washing cycles via a user interface on a front face of the dishwasher.

Summary

[0003] In a first aspect there is provided a dishwasher comprising: a controller; a washing compartment having a first corner region, a second corner region, a third corner region and a fourth corner region; a rack arranged in the washing compartment for holding one or more items to be washed; an adjustment mechanism for adjusting a position and/or orientation of the rack in the washing compartment, the adjustment mechanism comprising a first adjuster located at the first corner region of the washing compartment, a second adjuster located at the second corner region of the washing compartment, a third adjuster located at the third corner region of the washing compartment, and a fourth adjuster located at the fourth corner region of the washing compartment, and wherein each of the first to fourth adjusters is independently adjustable by the controller.

[0004] According to an example, the adjusting a position and/or orientation of the rack comprises tilting a front side of the rack relative to a rear side of the rack, and/or tilting a left side of the rack relative to a right side of the rack.

[0005] According to an example, each of the first to fourth adjusters comprises a screw arrangement.

[0006] According to an example, the screw arrangement comprises a lead screw arrangement.

[0007] According to an example, the first adjuster is connected to a first motor, the second adjuster is connected to a second motor, the third adjuster is connected to a third motor, and the fourth adjuster is connected to a fourth motor.

[0008] According to an example, the controller is configured to drive the adjustment mechanism so as to move the rack from a first orientation to a second orientation that is different from the first orientation, and to move the rack from the second orientation to a third orientation that is different from the second orientation.

[0009] According to an example, the controller is configured to move the rack from the first orientation to the second orientation as part of a first adjustment operation,

and to move the rack from the second orientation to the third orientation as part of a second adjustment operation, there being a delay between the first adjustment operation and the second adjustment operation.

[0010] According to an example, the controller is configured to move the rack from the first orientation to the second orientation as part of a first adjustment operation, and to move the rack from the second orientation to the third orientation as part of a second adjustment operation, there being no delay between the first adjustment operation and the second adjustment operation.

[0011] According to an example, the controller is configured to prevent certain combinations of operations by the first to fourth adjusters.

[0012] According to an example, the controller is configured to adjust the height and/or orientation of the rack prior to commencement of a washing cycle.

[0013] According to an example, the controller is configured to adjust the height and/or orientation of the rack during a washing cycle.

[0014] According to an example, the controller is configured to adjust the height and/or orientation of the rack between a plurality of heights and/or orientations according to a pre-determined adjustment program.

[0015] According to an example, the controller is configured to continuously perform two or more cycles of the pre-determined adjustment program.

[0016] According to an example, the controller is configured to select the pre-determined adjustment program in response to a determination of a corresponding washing cycle or stage of a washing cycle.

Brief Description of the Drawings

[0017] To assist understanding of the present disclosure and to show how embodiments may be put into effect, reference is made by way of example to the accompanying drawings in which:

Figure 1 shows schematically a dishwasher according to an example.

Figure 2 shows schematically parts of a dishwasher according to an example in plan view.

Figure 3 shows schematically parts of a dishwasher according to an example in isometric view.

Figure 4 shows schematically parts of a dishwasher according to an example in side view.

Figures 5A to 5F show schematically different configurations of a rack of a dishwasher, according to examples.

Detailed Description

[0018] The present disclosure has applicability to dish-

washers (also referred to as dishwashing machines). Dishwashers are used to automate the washing of items associated with food preparation and/or cooking and/or eating. Such items include crockery such as plates, bowls, cups, mugs etc. Such items may also include cutlery such as knives, forks, spoons, or indeed any other cooking or eating utensil. Other items that may be washed include glassware, food containers, saucepans etc.

[0019] Figure 1 schematically shows an example of a dishwasher 100. The dishwasher 100 comprises a main body 102, within which there is a washing compartment (or tub or chamber) 104. In this example the washing compartment 104 comprises a lower portion 106 and an upper portion 108. The lower portion 106 comprises a rack (or basket or tray) 110 for holding items to be washed, and the upper portion 108 comprises a rack (or basket or tray) 112 for holding items to be washed. In examples the racks 110 and 112 can be moved in and out of the washing compartment 104 on roller assemblies.

[0020] Items to be washed are schematically shown at 114. In this case the items to be washed are schematically represented by plates 116 and 118 on rack 112, and plates 120 and 122 on rack 110. Of course there may alternatively be any other type of item to be washed or combination of items to be washed.

[0021] In the example of Figure 1 a washing mechanism 123 comprises spray arm 124 in lower portion 106, and spray arm 126 in upper portion 108. In other examples the upper spray arm 126 may be omitted. Each spray arm comprises a series of holes or nozzles which can spray water upwardly towards the items to be washed 114, while the spray arms 124 and 126 rotate. These are commonly referred to as spray holes. Rotation of the spray arms 124 and 126, whilst ejecting water therefrom, helps to clean the items in a washing load.

[0022] In the example of Figure 1 the spray arm 124 is connected to shaft 125. The shaft 125 enables rotation of spray arm 124 about a central axis of the shaft 125. The shaft 125 and spray arm 124 may be considered to be comprised in a spray arm assembly 121. In the example of Figure 1 the spray arm 126 is connected to shaft 127. The shaft 127 enables rotation of spray arm 126 about a central axis of the shaft 127. The shaft 127 and spray arm 126 may be considered to be comprised in a spray arm assembly 129.

[0023] The dishwasher 100 further comprises water inlet schematically shown at 128 and water outlet schematically shown at 130, for enabling water to be fed in to and taken away from the dishwasher respectively. In some examples a heater element (not shown) is provided for heating water as necessary. In other examples hot and cold water is drawn from a building's supply as required. A power connection is schematically shown at 132, which enables the dishwasher to be connected to mains electrical power for powering the dishwasher.

[0024] A water pump is schematically shown at 150.

The water pump 150 is constructed and arranged to distribute water around the dishwasher 100. For example, the water pump 150 can pump water to spray arms 124 and 126. Water that has been sprayed falls back down to a base or sump 152 of the dishwasher 100, from where that water can be recycled (after filtering, in some examples) by the pump 150.

[0025] In some examples rotation of the spray arms 124 and 126 is effected by the force of water being ejected from spray holes of the spray arms. In such examples the spray holes may be arranged and/or oriented so as to facilitate such rotation. Additionally or alternatively one or more motors, shown schematically at 148 may be provided for powering rotation of the spray arms 124 and 126.

[0026] A controller is schematically shown at 134 for controlling operations of the dishwasher. The controller may comprise at least one memory and at least one processor. The controller 134 can, for example, cause the dishwasher to operate according to one or more pre-determined washing cycles selected via a user interface 136. The available washing cycles may differ from each other by temperature and/or duration, for example. Via the user interface 136 a user may also be able to select whether the washing cycle is for a full or half load. A display 138 is also provided which can display information to the user. This may include information such as confirming a user's washing cycle selection, as well as information such as time remaining of a washing cycle that is in progress. The display 138 may also display one or more alarm states to a user, for example by use of a flashing light. A speaker may also be provided in some examples, so that an audible alarm can be provided to a user (for example a buzzer). An alarm state may, for example, indicate an end of a wash.

[0027] A door of the dishwasher 100 is schematically shown at 140. The door 140 is connected to main body 120 via hinges 142 and 144. In Figure 1 the door is in an open position enabling access to washing compartment 104. The door 140 may be moved to a closed position so that the washing compartment 104 is then enclosed. The door 140 may also include a receptacle for holding dishwashing detergent (e.g. a detergent cube) which can be released in to the dishwasher during a wash. The receptacle for holding washing detergent may of course also be positioned elsewhere within the dishwashing machine. The dishwasher may also include one or more further receptacles for containing dishwasher salt and/or rinse aid, for example.

[0028] A washing cycle generally comprises three main stages: (i) wetting; (ii) injection of detergent, (iii) rinsing. In some examples a stage (iv) of drying, for example using heaters, may also be included. In some examples one or more of these stages may be omitted. For example a rinse wash may include just a rinsing cycle. Whichever steps are included or not included, the washing of the washing load may be generally termed a washing cycle.

[0029] The present inventor has identified a problem that during a washing cycle some items may not be satisfactorily washed. This may be as a result of the washing racks (e.g. racks 110 and 112 in Figure 1) being typically oriented at 90° to the upwardly sprayed water during a washing cycle. Accordingly items to be washed on the racks may not be fully or satisfactorily subjected to the spray water. For example front and rear faces of a plate may not be fully sprayed. Accordingly, as described in more detail below, in examples one or more racks of a dishwasher can be moved and/or tilted in the washing compartment so that the items to be washed may be washed more comprehensively.

[0030] Some examples will now be described with respect to Figures 2 to 5F. It will be understood that aspects of the examples of Figures 2 to 5F may be combined with features of the example dishwasher of Figure 1.

[0031] Figure 2 is a plan view of a washing compartment 204 of a dishwasher. The washing compartment is generally square or rectangular in plan view. The washing compartment 204 comprises a front side 254 (e.g. proximate to where a door of the dishwasher is positioned), and a back or rear side 256 opposite the front side. The washing compartment 204 further comprises a left side 258 and a right side 260 (when viewing Figure 2). The washing compartment comprises a first corner or corner region 262, a second corner or corner region 264, a third corner or corner region 266 and a fourth corner or corner region 268.

[0032] Also shown schematically in Figure 2 is a rack 212 for holding one or more items to be washed. The rack 212 is generally square or rectangular in plan view. The rack 212 comprises a front or first side 286, and a rear or second side 288 opposite the front side 288. The rack 212 further comprises a third or left side 290, and a fourth or right side 292 (when viewing Figure 2). The rack 212 comprises a first corner or corner region 270, a second corner or corner region 272, a third corner or corner region 274 and a fourth corner or corner region 276.

[0033] An adjustment mechanism is schematically shown at 277. The adjustment mechanism 277 is configured and arranged for adjusting a position (e.g. height) and/or orientation of the rack in the washing compartment. The "height" may be considered relative to a fixed point of the washing machine, for example a base 252 of the washing compartment 204. In examples the adjustment mechanism 277 comprises an adjuster or actuator in each corner of the washing compartment 204. In the example of Figure 2 the adjustment mechanism 277 comprises a first adjuster 278 located proximate to the first corner region 262 of the washing compartment 204, a second adjuster 280 located proximate to the second corner region 264 of the washing compartment 204, a third adjuster 282 located proximate to the third corner region 266 of the washing compartment 204, and a fourth adjuster 284 located proximate to the fourth corner region 268 of the washing compartment 204. Likewise, when the rack 212 is fully inserted in the washing compartment

204, the first adjuster 278 is located proximate to the first corner region 270 of the rack 212, the second adjuster 280 is located proximate to the second corner region 272 of the rack 212, the third adjuster 282 is located proximate to the third corner region 274 of the rack 212, and the fourth adjuster 284 is located proximate to the fourth corner region 276 of the rack 212.

[0034] In examples, the adjustment mechanism 277 is controllable by controller 234. The controller 234 comprises a memory 233 and a processor 235. In examples, each of the first adjuster 278, second adjuster 280, third adjuster 282 and fourth adjuster 284 is independently controllable by the controller 234.

[0035] In examples, the adjustment mechanism 277 is constructed and arranged to interact with the rack 212 so as to adjust a position and/or orientation of the rack 212 in the washing compartment 204. That is, in examples the first adjuster 278 is arranged to selectively cause upward (in the direction of arrow A) or downward (in the direction of arrow B) movement of first corner region 270 of rack 212. Likewise, the second adjuster 280 is arranged to selectively cause upward (in the direction of arrow A) or downward (in the direction of arrow B) movement of second corner region 272 of rack 212. Likewise, the third adjuster 282 is arranged to selectively cause upward (in the direction of arrow A) or downward (in the direction of arrow B) movement of third corner region 274 of rack 212. Likewise, the fourth adjuster 284 is arranged to selectively cause upward (in the direction of arrow A) or downward (in the direction of arrow B) movement of fourth corner region 276 of rack 212. As mentioned above, movement of the respective corners of the rack 212 can be independently controlled. That is, each of adjusters 278, 280, 282 and 284 can be independently actuated or activated. Where two or more of the adjusters 278, 280, 282 and 284 are activated, this may occur simultaneously or as consecutive activations.

[0036] In some examples, and as shown schematically in Figure 3, each adjuster is driven by a respective motor. As shown in Figure 3, first adjuster 278 is driven by a first motor 279, second adjuster 280 is driven by a second motor 281, third adjuster 282 is driven by a third motor 283, and fourth adjuster 284 is driven by a fourth motor 285. In examples, each of motors 279, 281, 283 and 285 is independently controllable by processor 234. In some examples, each motor comprises a DC motor.

[0037] In some examples, each adjuster 278, 280, 282 and 284 comprises a screw mechanism, whereby rotation of a screw of the screw mechanism causes corresponding movement of the adjuster, and therefore corresponding movement of the rack 212.

[0038] In some examples the screw mechanism comprises a lead screw mechanism. An example of a lead screw mechanism is shown in Figure 4, which shows corner 270 of rack 212 interacting with adjuster 278. The adjuster comprises a screw 294. The screw 294 is powered for rotation by motor 279. A movable member 296 is located on a thread of the screw 294. The movable

member 296 is arranged to be in physical contact with rack 212. When the screw is rotated in a first direction (e.g. clockwise or anticlockwise) the member 296 is arranged to move in direction A (i.e. upwardly). This causes corresponding upward movement of corner 270 of rack 212. When the screw is rotated in a second direction which is opposite the first direction (e.g. the other of clockwise or anticlockwise) the member 296 is arranged to move in direction B (i.e. downwardly). This causes corresponding downward movement of corner 270 of rack 212. Adjusters 280, 282 and 284 may operate in a similar fashion.

[0039] The adjusters may also be constructed and arranged in alternative fashions. For example, and referring to Figure 3 for reference, screw 294 may directly engage a corresponding threaded bore in corner region 270 of rack 212. Again, selective rotation of the screw 294 in the clockwise or anticlockwise direction will cause corresponding upward or downward movement of corner region 270. In such an example the member 296 can be omitted.

[0040] The screw mechanisms described above enable fine positional adjustment by the adjusters. The screw mechanisms also enable smooth movement by the adjusters, and avoid jerky movements which may cause damage of items to be washed. The screw mechanisms are also self-locking, so that if for any reason power is lost to one or more of the screw mechanisms then this will not cause the corresponding portion of the rack to fall, which again may avoid damage to items to be washed.

[0041] In some examples the adjusters 278, 280, 282 and 284 may comprise a magnet arrangement. For example, each adjuster may comprise an electromagnet, with corresponding permanent magnets on the rack 212. Selective firing of the electromagnets will accordingly cause corresponding movement of the rack.

[0042] It will be understood that the location of the adjusters 278, 280, 282 and 284, and the ability of the adjusters 278, 280, 282 and 284 to operate independently, enables the rack 212 to be moved up and down in the washing compartment, and/or to be oriented in a number of orientations in the washing compartment. Figures 5A to 5F schematically show rack 212 in washing compartment 204.

[0043] In Figures 5A and 5B the rack 212 is in a rest or reference position, in which the rack 212 is substantially parallel to the base 252 of the washing compartment. Figure 5A shows a side view of the rack 212. As shown in Figure 5A front 286 of rack 212 is not raised with respect to rear 288 of rack 212, or vice versa. Figure 5B is a front or rear view of rack 212. As shown in Figure 5B side 290 of rack 212 is not raised with respect to side 292 of rack 212, or vice versa.

[0044] Figures 5C to 5F schematically show tilting of the rack 212 in the washing compartment. In Figures 5C to 5F the rack is tilted or angled or oriented with respect to base 252.

[0045] Figures 5C and 5D are schematic side views of rack 212 in washing compartment 204. In Figure 5C the adjusters have caused the rack 212 to be moved so that the front 286 is higher than the rear 288 in the washing compartment 204. This may be caused by raising front 286, and/or lowering rear 288. In Figure 5D the adjusters have caused the rack 212 to be moved so that the rear 288 is higher than the front 286 in the washing compartment 204. This may be caused by raising rear 288, and/or lowering front 286.

[0046] Figures 5E and 5F are schematic front or rear views of rack 212 in washing compartment 204. In Figure 5E the adjusters have caused the rack 212 to be moved so that the side 290 is higher than side 292 in the washing compartment 204. This may be caused by raising the side 290, and/or lowering the side 292. In Figure 5F the adjusters have caused the rack 212 to be moved so that the side 292 is higher than side 290. This may be caused by raising the side 292, and/or lowering the side 290.

[0047] It will be understood that the angles of tilt of rack 212 shown in Figures 5C to 5F are by way of example only and that the adjusters may cause the rack 212 to be tilted by greater or smaller amounts. In some examples each adjuster has a first, inextended configuration, and a second, fully extended configuration. In examples each adjuster is configured such that it may assume the inextended configuration or the fully extended configuration, or indeed any position between the inextended and fully extended configurations. For example, this may be so where the extenders comprise screw mechanisms.

[0048] It will also be understood that examples are not limited to tilting just the front 286 of the rack 212 relative to the rear 288, or tilting just the side 290 of the rack 212 relative to the side 292 (although this is also possible). In examples, combinations of these movements or orientations are possible. For example, front 286 may be tilted relative to rear 288 (Figure 5A or 5B), whilst at the same time side 290 may be tilted relative to side 292.

[0049] Where both the front 286 is tilted relative to the rear, and the first side 290 is tilted relative to the second side 292, then in some examples this is effected by two separate and consecutive tilting operation e.g. (i) tilt front 286 relative to rear 288, then (ii) tilt first side 290 relative to second side 292 (or vice versa). In other examples these two operations can be carried out simultaneously.

[0050] In some examples the controller 234 is configured to prevent certain combinations of operations by the first to fourth adjusters 278, 280, 282, and 284. For example the controller may be configured to prevent diagonally opposing adjusters from performing a movement that is opposite from other diagonally opposing adjusters. For example adjusters 278 and 284 increasing the height of the rack 212 whilst adjusters 280 and 282 decrease the height of the rack may be prevented, as this could introduce undesirable bending stresses in the rack 212.

[0051] In some examples the tilting of the rack 212 is carried out prior to a washing cycle (e.g. prior to a wetting stage). For example, a user may load the dishwasher,

close the door 140 of the dishwasher and initiate a washing cycle by pressing a button on the user interface 136 of the dishwasher. The dishwasher may then automatically begin a tilting operation of the rack 212 before the wetting cycle is begun. Of course, in other examples a tilting operation of the rack 212 may be carried out at any point before, during or after initiation of a washing cycle. For example, a tilting operation may be conducted after a washing cycle has been completed. This may help with draining of water from washed items, particularly items which may have been upturned during a wash.

[0052] In some examples, the rack may be caused to be tilted during the washing cycle. For example the tilting may occur during any one or more of: the wetting stage; the insertion of detergent stage; the rinsing stage; the drying stage.

[0053] In some examples a tilting operation may include two or more different orientations of the rack 212. For example the rack may be moved from a first orientation to a second orientation that is different from the first orientation, then to a third orientation that is different than the second orientation (and the third orientation may be different from the first orientation) and so on. In some examples moving the rack from the first orientation to the second orientation may be considered a first adjustment operation, and moving the rack from the second orientation to the third orientation may be considered a second adjustment operation. In some examples there is a delay between the first adjustment operation and the second adjustment operation. In some examples there is no delay between the first adjustment operation and the second adjustment operation. In some examples a transition between different orientations of the rack may be carried out continuously during a washing cycle or stage of a washing cycle. For example the rack may be continuously cycled between different orientations for a period of time. In some examples, the adjusting a position and/or orientation of the rack may comprise continuous oscillation or reciprocation of each corner of the rack for a period of time. This may maximise exposure of the items in the rack to sprayed washing water.

[0054] In some examples the controller is configured to cause adjustment of only one of the adjusters 278, 280, 282, and 284 at any one time. In some examples the controller may cause adjustment of two or more of the 278, 280, 282, and 284 simultaneously.

[0055] In some examples the controller 234 is configured to adjust the height and/or orientation of the rack 212 according to a pre-determined adjustment program. The pre-determined adjustment program may comprise a plurality (which may for example be three or more) different orientations of the rack 212. In some examples the controller is configured to statically maintain the rack 212 in each of the plurality of different orientations for a period of time.

[0056] In some examples the controller is configured to continuously perform two or more cycles of the pre-determined adjustment program. That is in some exam-

ples there is no delay between each of the two or more cycles.

[0057] In some examples the controller is configured to select the pre-determined adjustment program in response to a determination of a corresponding washing cycle or stage of a washing cycle. For example a pre-determined adjustment program may correspond to a wetting stage or an insertion of detergent stage or a rinsing stage or a drying stage.

[0058] It will be understood that positioning the independently adjustable adjusters 278, 280, 282, 284 at the four corners 262, 264, 266, 268 of the washing compartment 204, so as to adjust a position of respective four corners 270, 272, 274, 276 of the rack 204 may provide some advantages. For example it may enable an orientation of the rack 212 to be adjusted in a number of ways, and is not restricted to tilting in just one direction. The configuration also enables fine alterations of the height/orientation of the rack 212. By adjusting height or position of each corner of the rack 212 independently, an angle of the rack 212 may be varied in three-dimensions. As a result of this an angle of spray water incident on the items to be washed may be varied extensively. This may improve the dishwasher's ability to remove stains from items being washed.

[0059] It will be understood that although in Figures 2 to 5F adjustment of one rack is shown, where two or more racks are present in a dishwasher then those racks may be similarly adjusted.

[0060] It will be understood that the processor or processing system or circuitry referred to herein may in practice be provided by a single chip or integrated circuit or plural chips or integrated circuits, optionally provided as a chipset, an application-specific integrated circuit (ASIC), field-programmable gate array (FPGA), digital signal processor (DSP), graphics processing units (GPUs), etc. The chip or chips may comprise circuitry (as well as possibly firmware) for embodying at least one or more of a data processor or processors, a digital signal processor or processors, baseband circuitry and radio frequency circuitry, which are configurable so as to operate in accordance with the exemplary embodiments. In this regard, the exemplary embodiments may be implemented at least in part by computer software stored in (non-transitory) memory and executable by the processor, or by hardware, or by a combination of tangibly stored software and hardware (and tangibly stored firmware).

[0061] Reference is made herein to data storage for storing data, such as memory. This may be provided by a single device or by plural devices. Suitable devices include for example a hard disk and non-volatile semiconductor memory.

[0062] Although at least some aspects of the embodiments described herein with reference to the drawings comprise computer processes performed in processing systems or processors, the invention also extends to computer programs, particularly computer programs on

or in a carrier, adapted for putting the invention into practice. The program may be in the form of non-transitory source code, object code, a code intermediate source and object code such as in partially compiled form, or in any other non-transitory form suitable for use in the implementation of processes according to the invention. The carrier may be any entity or device capable of carrying the program. For example, the carrier may comprise a storage medium, such as a solid-state drive (SSD) or other semiconductor-based RAM; a ROM, for example a CD ROM or a semiconductor ROM; a magnetic recording medium, for example a floppy disk or hard disk; optical memory devices in general; etc.

[0063] The examples described herein are to be understood as illustrative examples of embodiments of the invention. Further embodiments and examples are envisaged. Any feature described in relation to any one example or embodiment may be used alone or in combination with other features. In addition, any feature described in relation to any one example or embodiment may also be used in combination with one or more features of any other of the examples or embodiments, or any combination of any other of the examples or embodiments. Furthermore, equivalents and modifications not described herein may also be employed within the scope of the invention, which is defined in the claims.

Claims

1. A dishwasher comprising:
 - a controller;
 - a washing compartment having a first corner region, a second corner region, a third corner region and a fourth corner region;
 - a rack arranged in the washing compartment for holding one or more items to be washed;
 - an adjustment mechanism for adjusting a position and/or orientation of the rack in the washing compartment, the adjustment mechanism comprising a first adjuster located at the first corner region of the washing compartment, a second adjuster located at the second corner region of the washing compartment, a third adjuster located at the third corner region of the washing compartment, and a fourth adjuster located at the fourth corner region of the washing compartment, and
 - wherein each of the first to fourth adjusters is independently adjustable by the controller.
2. An adjustment mechanism according to claim 1, the adjusting a position and/or orientation of the rack comprising tilting a front side of the rack relative to a rear side of the rack, and/or tilting a left side of the rack relative to a right side of the rack.
3. A dishwasher according to claim 1 or claim 2, each of the first to fourth adjusters comprising a screw arrangement.
4. A dishwasher according to claim 3, the screw arrangement comprising a lead screw arrangement.
5. A dishwasher according to any of claims 1 to 4, the first adjuster is connected to a first motor, the second adjuster is connected to a second motor, the third adjuster is connected to a third motor, and the fourth adjuster is connected to a fourth motor.
6. A dishwasher according to any of claims 1 to 5, the controller configured to drive the adjustment mechanism so as to move the rack from a first orientation to a second orientation that is different from the first orientation, and to move the rack from the second orientation to a third orientation that is different from the second orientation.
7. A dishwasher according to claim 6, wherein the controller is configured to move the rack from the first orientation to the second orientation as part of a first adjustment operation, and to move the rack from the second orientation to the third orientation as part of a second adjustment operation, there being a delay between the first adjustment operation and the second adjustment operation.
8. A dishwasher according to claim 6, wherein the controller is configured to move the rack from the first orientation to the second orientation as part of a first adjustment operation, and to move the rack from the second orientation to the third orientation as part of a second adjustment operation, there being no delay between the first adjustment operation and the second adjustment operation.
9. A dishwasher according to any of claims 1 to 8, the controller configured to prevent certain combinations of operations by the first to fourth adjusters.
10. A dishwasher according to any of claims 1 to 9, the controller configured to adjust the height and/or orientation of the rack prior to commencement of a washing cycle.
11. A dishwasher according to any of claims 1 to 10, the controller configured to adjust the height and/or orientation of the rack during a washing cycle.
12. A dishwasher according to any of claims 1 to 11, the controller configured to adjust the height and/or orientation of the rack between a plurality of heights and/or orientations according to a pre-determined adjustment program.

13. A dishwasher according to claim 12, the controller configured to continuously perform two or more cycles of the pre-determined adjustment program.

14. A dishwasher according to claim 12 or claim 13, the controller configured to select the pre-determined adjustment program in response to a determination of a corresponding washing cycle or stage of a washing cycle.

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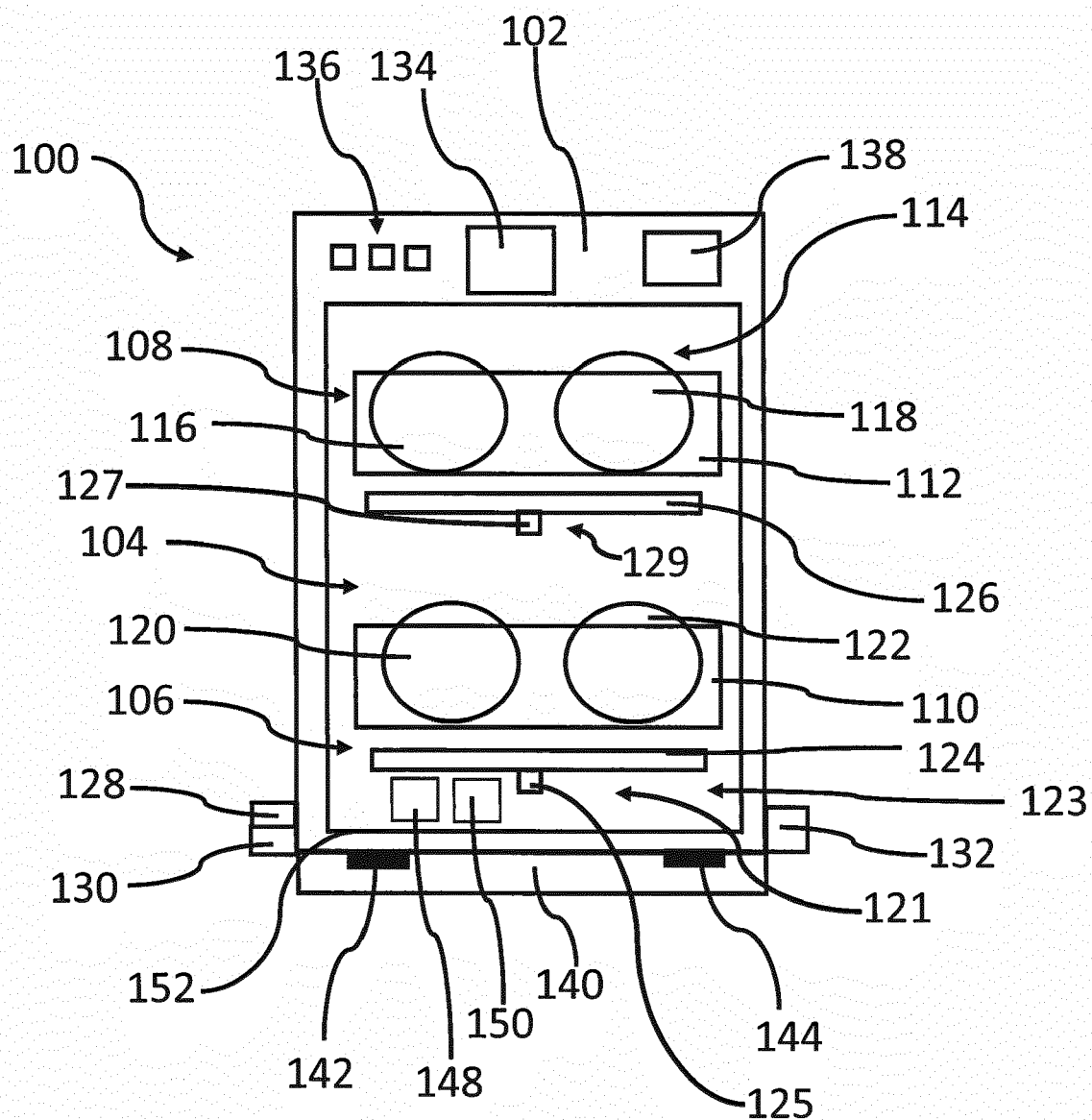
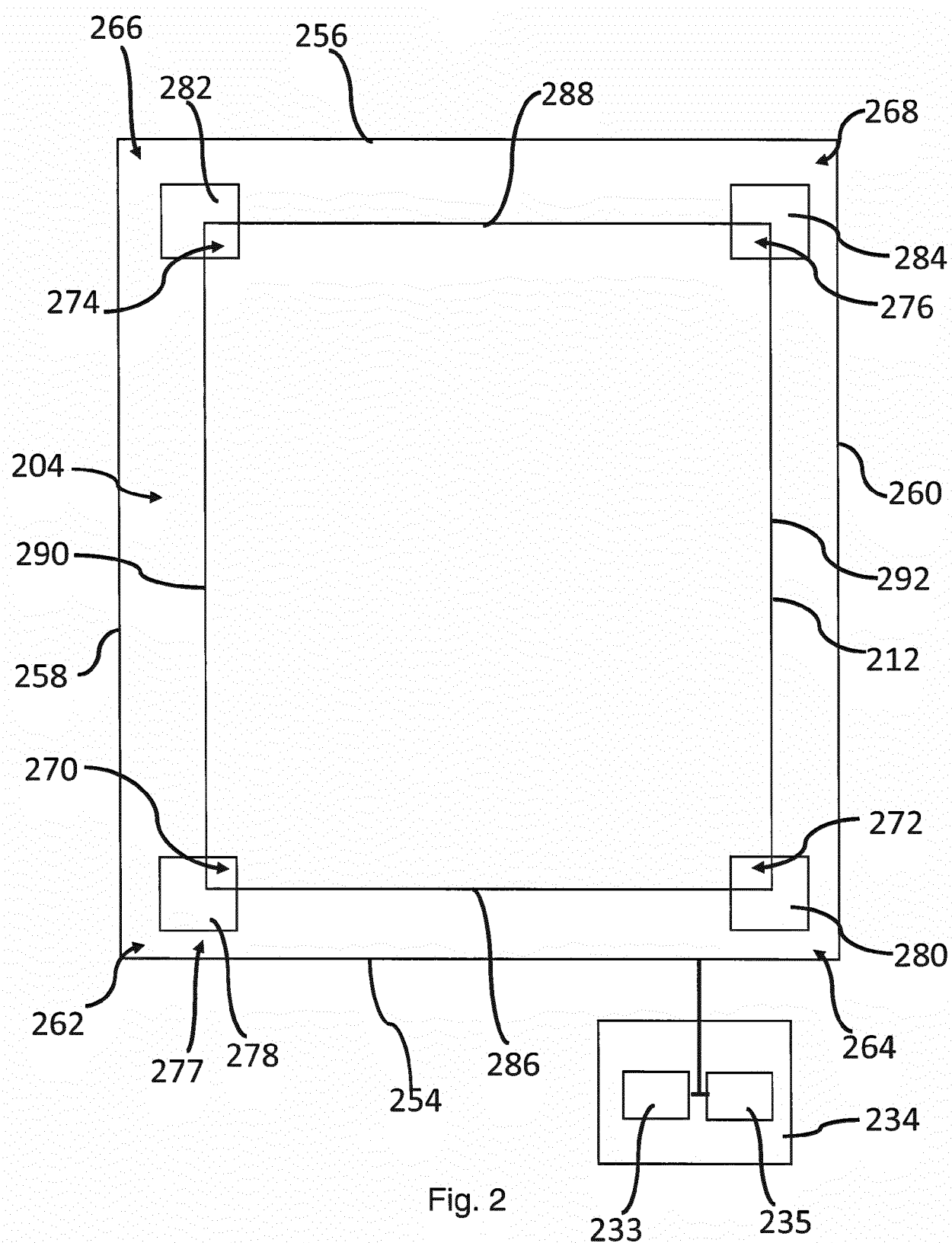


Fig. 1



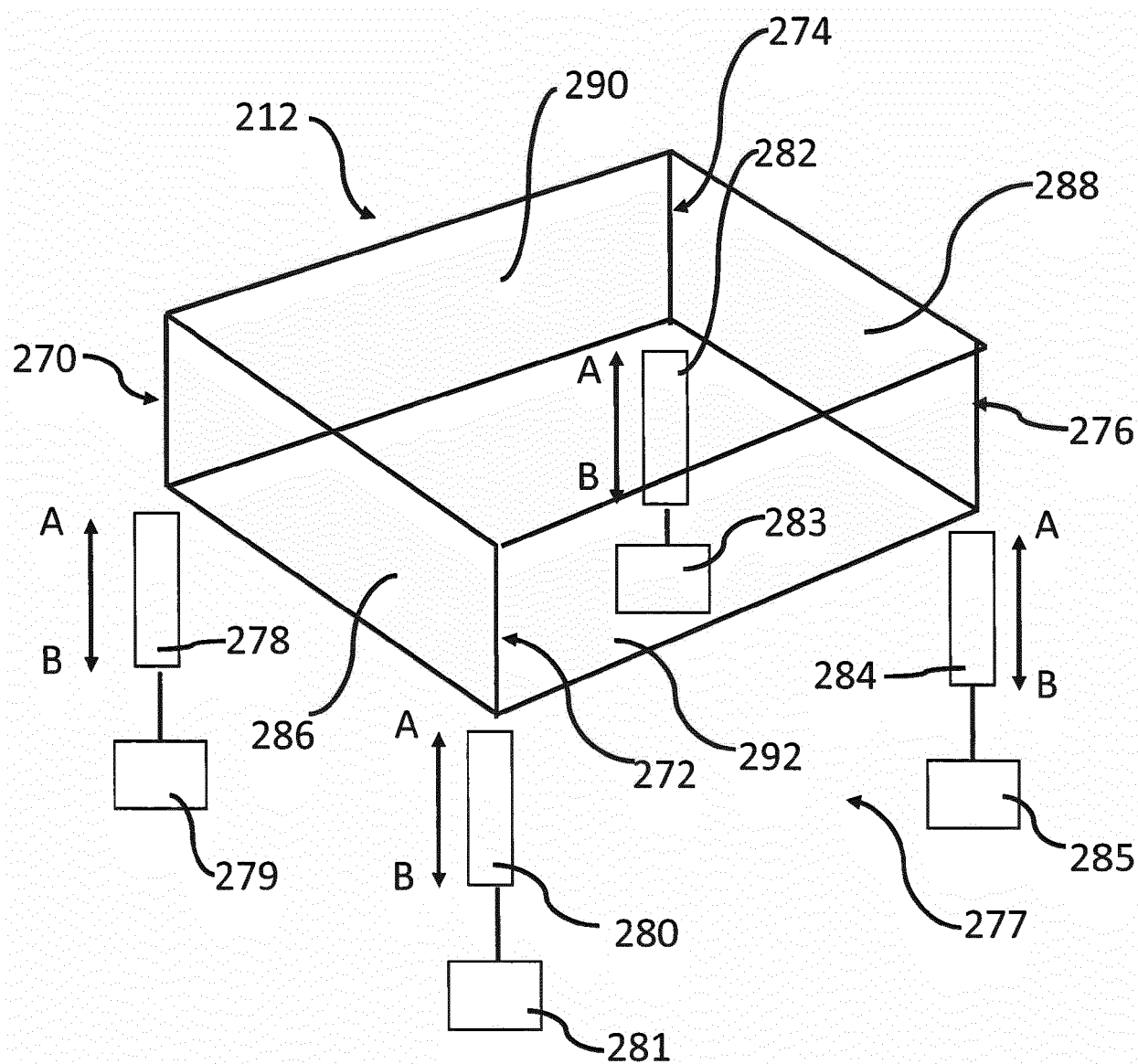
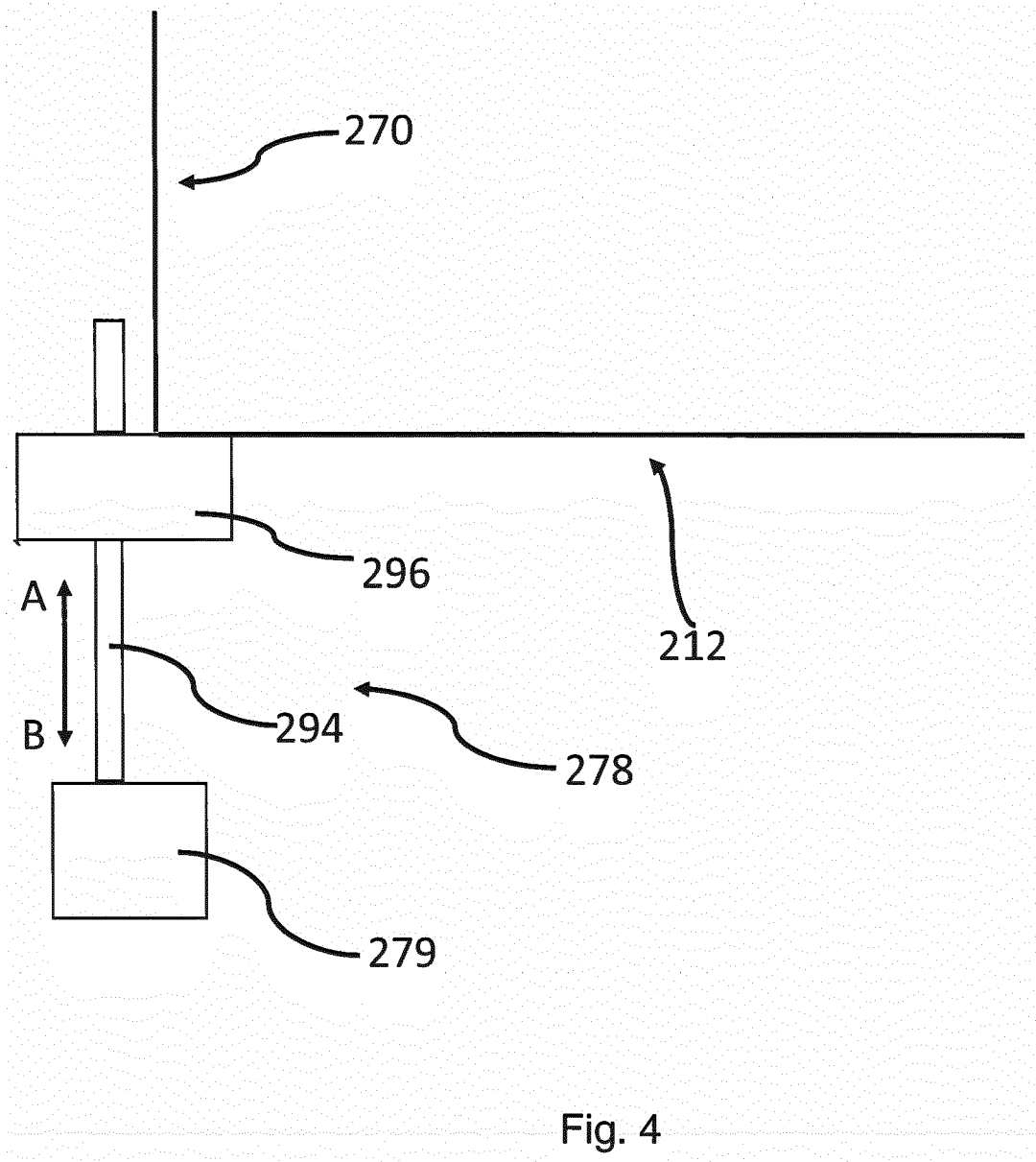
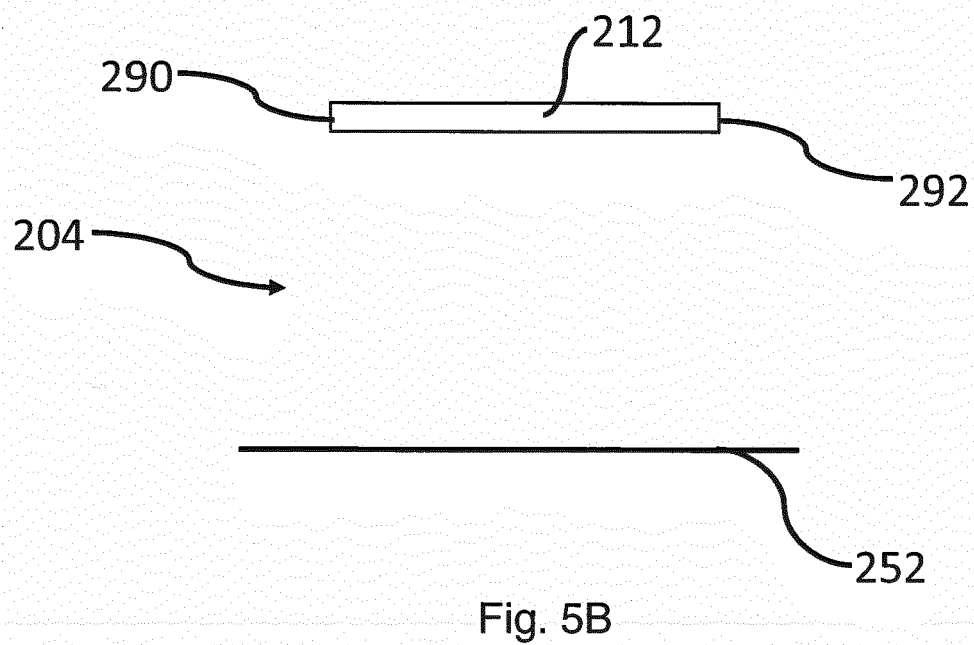
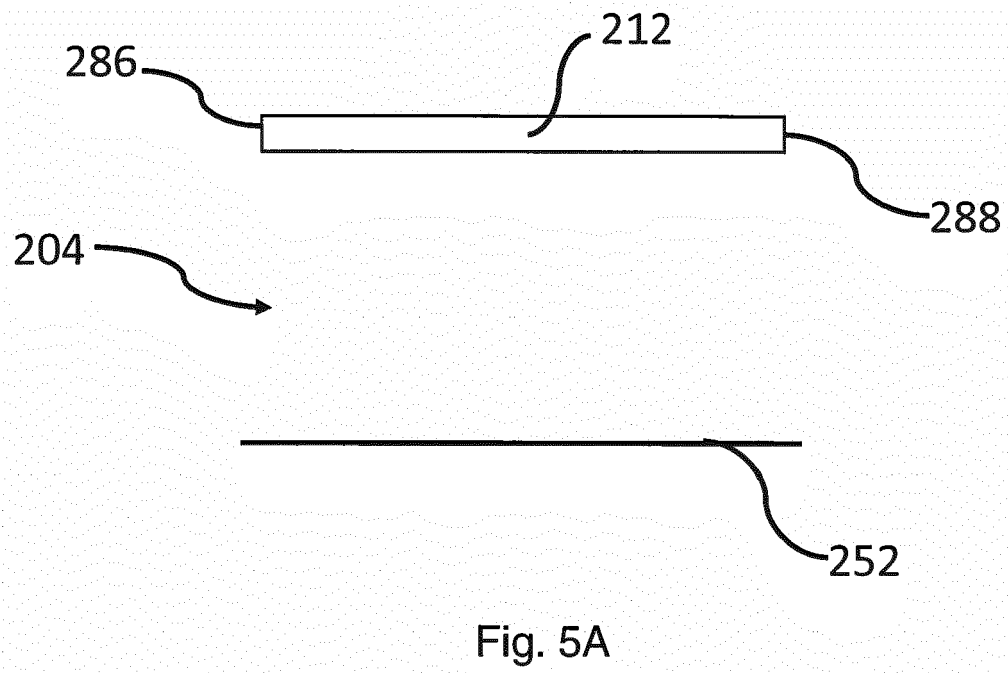


Fig. 3





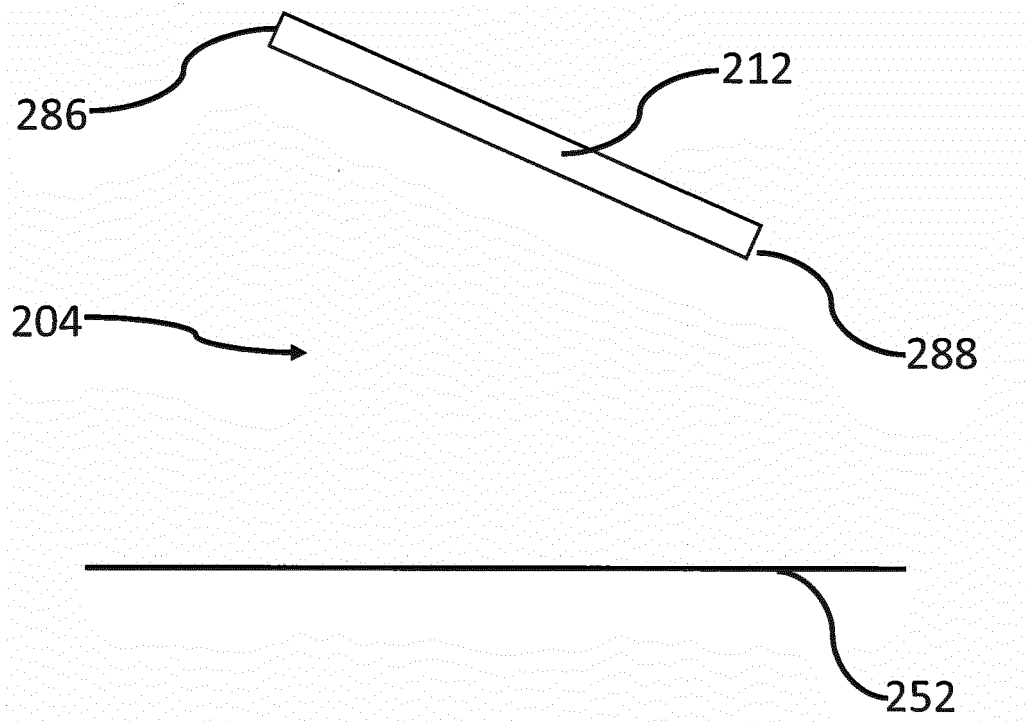


Fig. 5C

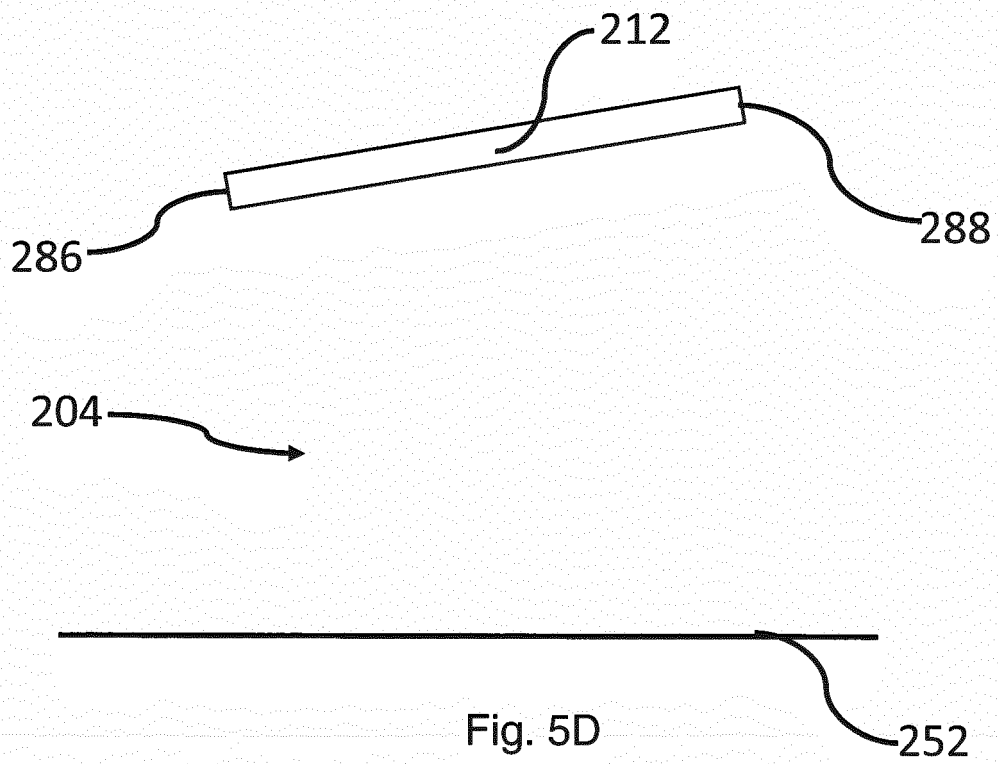


Fig. 5D

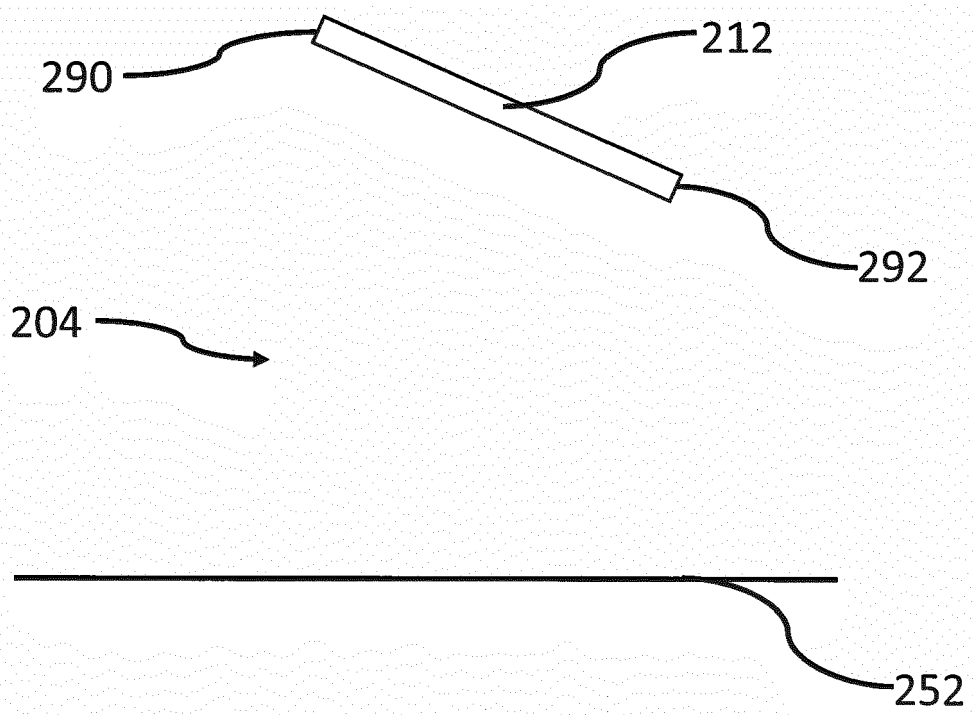


Fig. 5E

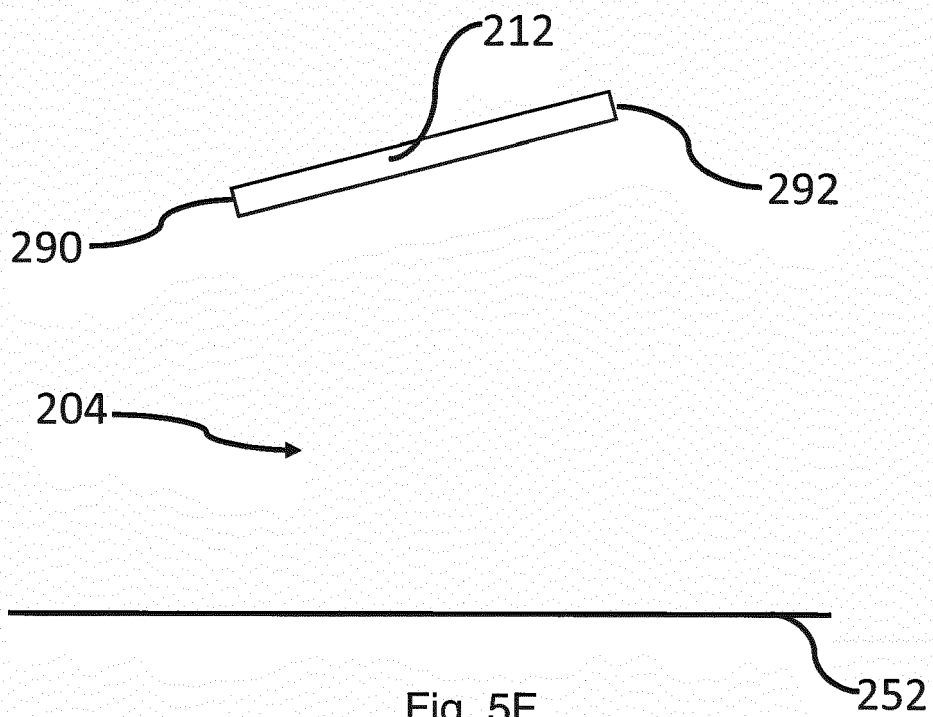


Fig. 5F



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Place of search Munich		Date of completion of the search 13 September 2018	Examiner Lodato, Alessandra
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