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(54) **DISH-WASHING MACHINE AND SPRAYING MECHANISM**

(57) Disclosed are a dishwasher (100) and a spray mechanism (50). The spray mechanism (50) includes a drive assembly (52), a spray member (54) and a water supply assembly (56); the spray member (54) is provided with at least one spray hole (541) facing a dish rack (30), and spray water is sprayed to the dish rack (30) from the spray hole (541), so as to clean tableware; the water supply assembly (56) supplies the spray water to the spray member (54); and the spray member (54) is connected to the drive assembly (52) and moves relative to the dish rack (30). The spray water sprayed from the spray hole (541) moves along with the spray member (54), and moving spray water may reach everywhere in the dish rack (30), so as to comprehensively clean the tableware in the dish rack (30), thereby eliminating a cleaning dead zone, and improving a washing effect. The water supply assembly (56) is connected to the spray member (54) all the time to supply the spray water to the spray member, thereby ensuring reliability of water supply and making the washing effect better.

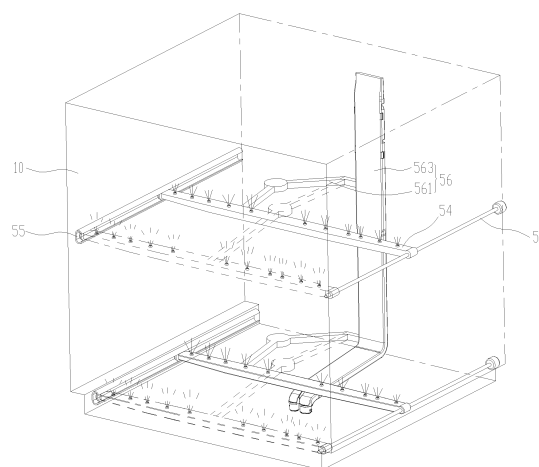


Fig. 4

Description

Cross-Reference to Related Application

[0001] The invention claims the priority for Patent Application No. 201910204131.4, filed to the China National Intellectual Property Administration on March 18, 2019, and entitled "Dishwasher and Spray Mechanism".

Technical Field

[0002] The invention relates to the field of kitchen appliances, in particular to a dishwasher and a spray mechanism.

Background

[0003] A dishwasher, as an apparatus for automatically cleaning tableware such as bowls, chopsticks, dishes, plates, knives and forks, generally includes an inner tub and a dish rack, a spray member, etc. arranged inside the inner tub, among which the dish rack is used for placing tableware to be cleaned, and the spray member is used for spraying spray water on the tableware in the dish rack, to clean the tableware.

[0004] Generally, the spray member is rotationally arranged to spray the spray water rotationally. However, there is a dead zone, unreachable by the spray water, inside the inner tub, which results in poor washing effect.

Summary

[0005] Aiming at the problem of a poor washing effect of a dishwasher, some embodiments of the invention provide a spray mechanism with a better washing effect.

[0006] In some embodiments, the invention provides a spray mechanism, which includes a drive assembly, a spray member provided with at least one spray hole facing a dish rack, and a water supply assembly used for supplying spray water to the spray member, the spray member being connected to the drive assembly and moving relative to the dish rack.

[0007] In the spray mechanism above, the spray member is provided with the spray hole facing the dish rack, and sprays spray water on the dish rack from the spray hole to clean tableware. In addition, the spray member is connected to the drive assembly and is driven by the drive assembly to move relative to the dish rack. The spray water sprayed from the spray hole moves along with the spray member, and the moving spray water reaches everywhere in the dish rack, so as to comprehensively clean the tableware in the dish rack, thereby eliminating a cleaning dead zone, and improving the washing effect. Meanwhile, the water supply assembly is connected to the spray member all the time, so as to be capable of supplying spray water to the spray member, thereby ensuring reliability of water supply to the spray member and the better washing effect of the entire spray

mechanism.

[0008] In some embodiments, the spray water sprayed from the spray hole moves along with the spray member to form a mobile spray zone, and a movement track of the spray zone at least passes through a bottom of the dish rack.

[0009] In some embodiments, the drive assembly drives the spray member to reciprocate relative to the dish rack.

[0010] In some embodiments, the spray member is driven by the drive assembly to reciprocate linearly relative to the dish rack; and the spray member is provided with the plurality of spray holes, the plurality of spray holes being arranged in a direction intersecting with a direction of movement of the spray member.

[0011] In some embodiments, the drive assembly includes a drive member and a screw rod connected to the drive member, wherein the spray member is in threaded connection to the screw rod, the screw rod is driven by the drive member to rotate, and the spray member reciprocates along an axial direction of the screw rod when the screw rod rotates forwards and reversely.

[0012] In some embodiments, the spray mechanism further includes a guide rail arranged on an inner wall of an inner tub, wherein the guide rail and the screw rod are arranged parallel to each other and spaced from each other, one end of the spray member is in threaded connection to the screw rod, and the other end of the spray member reciprocates on the guide rail.

[0013] In some embodiments, the water supply assembly includes a movable pipe arranged in an inner tub, wherein the movable pipe is provided with a water inlet in communication with an external water source and a water outlet in communication with the spray member, and a distance between the water inlet and the water outlet of the movable pipe changes along with movement of the spray member.

[0014] In some embodiments, the water supply assembly further includes a fixed pipe fixed inside the inner tub, the fixed pipe being in communication with the water inlet of the movable pipe, and the water outlet of the movable pipe moves in a direction close to or away from the fixed pipe along with the spray member.

[0015] In some embodiments, the movable pipe includes a first branch pipe, a second branch pipe and an articulation member, the first branch pipe being connected between the articulation member and the fixed pipe, the second branch pipe being connected between the articulation member and the spray member, and the first branch pipe and the second branch pipe being in communication through the articulation member and rotating relative to each other.

[0016] In some embodiments, the movable pipe is driven by the spray member to deform to be prolonged or shortened.

[0017] In some embodiments, the invention provides a dishwasher, which includes an inner tub, a dish rack and the spray mechanism above, the dish rack and the

spray mechanism being both arranged inside the inner tub, and the spray mechanism being located below the dish rack.

[0018] In some embodiments, a plurality of dish racks are arranged, a plurality of spray mechanisms are also arranged, a lower of each dish rack is provided with the spray mechanism correspondingly, and the plurality of spray mechanisms synchronously move or the plurality of spray mechanisms move separately from each other.

[0019] In some embodiments, the plurality of spray mechanisms are provided with a plurality of water supply assemblies and a plurality of spray members, the plurality of water supply assemblies include a plurality of movable pipes, the plurality of water supply assemblies include a fixed pipe shared by the plurality of movable pipes, water inlets of the plurality of movable pipes are all connected to the fixed pipe, and water outlets of the plurality of movable pipes are all separately connected to the plurality of spray members correspondingly.

Brief Description of the Drawings

[0020]

Fig. 1 is a structural schematic diagram of one view angle of a dishwasher in an embodiment of the invention;

Fig. 2 is a structural schematic diagram of another view angle of the dishwasher shown in Fig. 1;

Fig. 3 is a structural schematic diagram of a spray mechanism in an embodiment of the invention; and

Fig. 4 is a schematic diagram of a working state of the spray mechanism shown in Fig. 3.

[0021] The figures above include the following reference numerals:

10. inner tub; 30. dish rack; 50. spray mechanism; 52. drive assembly; 521. drive member; 523. screw rod; 54. spray member; 541. spray hole; 543. connector; 55. guide rail; 56. water supply assembly; 561. movable pipe; 563. fixed pipe; 565. first branch pipe; 567. second branch pipe; 569. articulation member; and 100. dishwasher.

Detailed Description of the Embodiments

[0022] In order to facilitate understanding of the invention, the following will describe the invention more comprehensively with reference to relevant accompanying drawings. Some embodiments of the invention are given in the accompanying drawings. However, the invention may be implemented in many different forms and is not limited to the embodiments described herein. On the contrary, these embodiments are provided for making contents disclosed in the invention to be understood more

thoroughly and comprehensively.

[0023] It should be noted that when an element is described to be "fixed" to another element, the element may be located directly on another element or there may be an intermediate element. When an element is considered to be "connected" to another element, the element may be directly connected to another element or there may be an intermediate element at the same time.

[0024] Unless otherwise defined, all technical and scientific terms used herein have the same meanings as those commonly understood by those skilled in the technical field of the invention. The terms used in the specification of the invention are merely for the purpose of describing particular embodiments, and are not intended to limit the invention. As used herein, the term "and/or" includes any and all combinations of one or more relevant listed items.

[0025] As shown in Fig. 1-2, in an embodiment of the invention, a dishwasher 100 is provided, which includes an inner tub 10, a dish rack 30 and a spray mechanism 50. The dish rack 30 and the spray mechanism 50 are both arranged inside the inner tub 10, and part of the spray mechanism 50 is located below the dish rack 30. The spray mechanism 50 upwards sprays spray water to clean tableware in the dish rack 30, and downwards discharges sewage, residues, etc. in a washing process under an action of gravity. It may be understood that the spray mechanism 50 may also be arranged at other positions of the dish rack 30, and a mounting position of the spray mechanism 50 is not limited herein.

[0026] As shown in Fig.3 and Fig. 4, the spray mechanism 50 includes a drive assembly 52, a spray member 54 and a water supply assembly 56, the spray member 54 is provided with at least one spray hole 541 facing the dish rack 30, and sprays spray water on the dish rack 30 from the spray hole 541 to clean the tableware. In addition, the spray member 54 is connected to the drive assembly 52, and the spray member 54 is driven by the drive assembly 52 to move relative to the dish rack 30. The spray water sprayed from the spray hole 541 moves along with the spray member 54, and the moving spray water may reach everywhere in the dish rack 30, so as to comprehensively clean the tableware in the dish rack 30, thereby eliminating a cleaning dead zone, and improving a washing effect. Meanwhile, the water supply assembly 56 is connected with the spray member 54 all the time, so as to be capable of supplying spray water to the spray member 54, thereby ensuring reliability of water supply to the spray member 54 and the better washing effect of the entire spray mechanism 50.

[0027] In some embodiments, the spray water sprayed from the spray hole 541 moves along with the spray member 54 to form a mobile spray zone, through which a spray range covering the entire dish rack 30 is achieved, the cleaning dead zone is eliminated, and the washing effect is improved. In addition, at least a part of a movement track of the spray zone passes through a bottom of the dish rack 30, such that the tableware in the dish rack 30

is reliably cleaned. In some embodiments, the movement track of the spray zone passes through the entire dish rack 30, and the tableware is comprehensively and reliably cleaned through the mobile spray zone.

[0028] In some embodiments, the drive assembly 52 drives the spray member 54 to reciprocate relative to the dish rack 30. The spray member 54 reciprocates, so as to drive the spray zone to pass through the dish rack 30 repeatedly and several times, therefore clean the tableware in the dish rack 30 repeatedly and several times, and improve a cleaning effect.

[0029] In some embodiments, the spray member 54 is driven by the drive assembly 52 to reciprocate linearly relative to the dish rack 30, and the spray member 54 is provided with a plurality of spray holes 541, the plurality of spray holes 541 are arranged in a direction intersecting with a direction of movement of the spray member 54. That is to say, the spray member 54 is provided with the plurality of spray holes 541 in a first direction, and when the spray member 54 moves in a second direction intersecting with the first direction, the spray member forms a square spray area, so as to match a shape of the square dish rack 30, fully cover the dish rack 30 and comprehensively clean the tableware in the dish rack 30.

[0030] As shown in Fig. 4, in an embodiment of the invention, the spray member 54 reciprocates forwards and backwards in a direction close to or away from an opening of the inner tub 10. In some embodiments, the spray member 54 may also be arranged to reciprocate leftwards and rightwards at a view angle shown in Fig. 4, and a movement direction of the spray member 54 is not limited herein. In addition, in some embodiments, a rotary spray head is arranged at the spray hole 541, and the rotary spray head rotates to spray the spray water, such that the spray water moves through movement of the spray member 54, so as to be capable of passing through a plurality of positions of the dish rack 30, and the rotary spray head itself further rotates to spray the spray water, so as to spray the spray water on the plurality of positions of the dish rack 30, thereby further improving the washing effect of the spray water.

[0031] In some embodiments, the drive assembly 52 includes a drive member 521 and a screw rod 523 connected to the drive member 521, the spray member 54 is in threaded connection to the screw rod 523, the screw rod 523 is driven by the drive member 521 to rotate, and the spray member 54 reciprocates, specifically linearly reciprocates, along an axial direction of the screw rod 523 when the screw rod 523 rotates forwards and reversely. That is to say, the spray member 54 is in threaded connection to the screw rod 523, the screw rod 523 converts its own rotary movement into linear movement of the spray member 54, so as to drive the spray member 54 to reciprocate on the screw rod 523, to form the mobile spray zone. Components for driving the spray member 54 to move are simple in structure, and merely need the drive member 521 and the screw rod 523, which do not occupy excessive space in the inner tub 10, and are con-

venient to mount.

[0032] In an embodiment, the spray mechanism 50 further includes a guide rail 55 arranged on an inner wall of an inner tub 10. The guide rail 55 and the screw rod 523 are arranged parallel to each other and spaced from each other, one end of the spray member 54 is in threaded connection to the screw rod 523, the other end of the spray member 54 reciprocates on the guide rail 55, and the guide rail 55 supports the other end of the spray member 54, and matches the spray member 54 to slide along the axial direction of the screw rod 523.

[0033] In an embodiment, a rolling wheel (not shown in the figure) is arranged at a bottom of one end, close to the guide rail 55, of the spray member 54, the rolling wheel is located on the guide rail 55. When the spray member 54 moves, the rolling wheel rolls on the guide rail 55, thereby reducing friction between the spray member 54 and the guide rail 55, and improving flexibility of sliding of the spray member 54. A connector 543 is arranged at one end, close to the screw rod 523, of the spray member 54, the connector 543 is provided with a threaded hole, the connector 543 is in threaded connection to an outside of the screw rod 523 through the threaded hole, and threaded connection between the spray member 54 and the screw rod 523 is achieved through the connector 543 provided with the threaded hole.

[0034] In some embodiments, the water supply assembly 56 includes a movable pipe 561 arranged in the inner tub 10, the movable pipe 561 is provided with a water inlet in communication with an external water source and a water outlet in communication with the spray member 54, and a distance between the water inlet and the water outlet of the movable pipe 561 changes along with movement of the spray member 54. The distance between the water inlet and the water outlet on the movable pipe 561 adapts to the mobile spray member 54, and the movable pipe 561 is connected to the spray member 54 all the time by adjusting the movable pipe 561 itself, so as to supply spray water to the mobile spray member 54 all the time.

[0035] In some embodiments, the water supply assembly 56 further includes a fixed pipe 563 fixed inside the inner tub 10, the fixed pipe 563 is in communication with the water inlet of the movable pipe 561. The water inlet of the movable pipe 561 is fixed through the fixed pipe 563, and the fixed pipe 563 supplies spray water to the movable pipe 561. The water outlet of the movable pipe 561 is in communication with the spray member 54, and the movable pipe 561 is connected between the fixed pipe 563 and the spray member 54. The water outlet of the movable pipe 561 moves in a direction close to or away from the fixed pipe 563 along with the spray member 54. The spray water in the fixed pipe 563 is delivered to the mobile spray member 54 through the movable pipe 561, so as to guarantee reliability of water supply.

[0036] In an embodiment, when the spray member 54 moves in the direction close to the fixed pipe 563, the distance between the water inlet and the water outlet of

the movable pipe 561 is shortened, to adapt to a shorter distance between the spray member 54 and the fixed pipe 563. When the spray member 54 moves in the direction away from the fixed pipe 563, the distance between the water inlet and the water outlet of the movable pipe 561 is prolonged, to adapt to a longer distance between the spray member 54 and the fixed pipe 563.

[0037] In some embodiments, the movable pipe 561 includes a first branch pipe 565, a second branch pipe 567 and an articulation member 569, among which the first branch pipe 565 is connected between the articulation member 569 and the fixed pipe 563, the second branch pipe 567 is connected between the articulation member 569 and the spray member 54, the first branch pipe 565 and the second branch pipe 567 are in communication with each other through the articulation member 569 and rotate relative to each other, and the first branch pipe 565 is articulated with the second branch pipe 567 through the articulation member 569, such that the first branch pipe 565 and the second branch pipe 567 rotate relative to each other. It may be understood that an end, away from the articulation member 569, of the first branch pipe 565 serves as the water inlet of the movable pipe 561, and an end, away from the articulation member 569, of the second branch pipe 567 serves as the water outlet of the movable pipe 561. When an included angle between the first branch pipe 565 and the second branch pipe 567 changes, a distance between the end, away from the articulation member 569, of the first branch pipe 565 and the end, away from the articulation member 569, of the second branch pipe 567 changes accordingly, that is, the distance between the water inlet and the water outlet of the movable pipe 561 changes with change of the included angle between the first branch pipe 565 and the second branch pipe 567, thereby realizing the function that the movable pipe 561 moves along with the spray member 54 and supplies spray water all the time.

[0038] In an embodiment, when the spray member 54 moves in the direction away from the fixed pipe 563, the included angle between the first branch pipe 565 and the second branch pipe 567 becomes larger, and the distance between the water inlet and the water outlet of the movable pipe 561 becomes larger. When the spray member 54 moves in the direction close to the fixed pipe 563, the included angle between the first branch pipe 565 and the second branch pipe 567 becomes smaller, and the distance between the water inlet and the water outlet of the movable pipe 561 becomes smaller.

[0039] It may be understood that in some other embodiments, the movable pipe 561 may deform to be stretchable, the movable pipe 561 is driven by the spray member 54 to be prolonged or shortened, so as to adapt to different distances between the mobile spray member 54 and the fixed pipe 563. In one embodiment, when the spray member 54 moves in the direction away from the fixed pipe 563, the movable pipe 561 deforms to be prolonged. When the spray member 54 moves in the direction close to the fixed pipe 563, the movable pipe 561

deforms to be shortened. In an embodiment, the movable pipe 561 is in a form of a corrugated pipe.

[0040] In some embodiments, a plurality of dish racks 30 are arranged, a plurality of spray mechanisms 50 are also arranged, a lower of each dish rack 30 is provided with the spray mechanism 50 correspondingly, so as to clean tableware in each dish rack 30.

[0041] In some embodiments, the plurality of spray mechanisms 50 synchronously move, one of the plurality of the spray mechanisms 50 is provided with the drive member 521 above, the remaining spray mechanisms 50 of the plurality of spray mechanisms 50 are not provided with the drive members 521 above, that is, the plurality of spray mechanisms 50 are only provided with one drive mechanism 521. The drive mechanism 521 is connected with the screw rod 523 in the spray mechanism 50 where the drive mechanism is located, and the drive member 521 is in transmission connection to screw rods 523 in the other spray mechanisms 50 through a driving belt. The drive member 521 drives the screw rods 523 in the plurality of spray mechanisms 50 to synchronously rotate, such that the plurality of spray mechanisms 50 synchronously move and synchronously wash the plurality of dish racks 30. In some other embodiments, the plurality of spray mechanisms 50 move independently from each other, each spray mechanism 50 is provided with one drive member 521, and the each spray mechanism 50 is independently controlled by the corresponding drive member 521.

[0042] In some embodiments, the plurality of spray mechanisms 50 are provided with a plurality of water supply assemblies 56 and a plurality of spray members 54, the plurality of water supply assemblies 56 include a plurality of movable pipes 561, the plurality of water supply assemblies 56 include a fixed pipe 563 shared by the plurality of movable pipes 561, water inlets of the plurality of movable pipes 561 are all connected with the fixed pipe 563, and water outlets of the plurality of movable pipes 561 are all separately connected with the plurality of spray members 54 correspondingly. Water is supplied to the plurality of movable pipes 561 through one fixed pipe 563, such that the integral structure is compact, and mounting is convenient.

[0043] In an embodiment of the invention, the invention further provides the spray mechanism 50. The spray mechanism 50 includes a drive assembly 52, a spray member 54 and a water supply assembly 56, the spray member 54 is provided with at least one spray hole 541 facing a dish rack 30, spray water is sprayed on the dish rack 30 from the spray hole 541 to clean tableware. In addition, the spray member 54 is connected to the drive assembly 52, and the spray member 54 is driven by the drive assembly 52 to move relative to the dish rack 30. The spray water sprayed from the spray hole 541 moves along with the spray member 54, and the moving spray water reaches everywhere in the dish rack 30, so as to comprehensively clean the tableware in the dish rack 30, thereby eliminating a cleaning dead zone, and improving

a washing effect. Meanwhile, the water supply assembly 56 is connected to the spray member 54 all the time, so as to be capable of supplying spray water to the spray member 54, thereby ensuring reliability of water supply to the spray member 54 and the better washing effect of the entire spray mechanism 50.

[0044] Various technical features of the embodiments above may be arbitrarily combined. To simplify description, all possible combinations of the various features of the embodiments above are not described. However, if only the combinations of these technical features do not conflict, they shall be considered within the scope of description of the specification.

[0045] The embodiments above are merely several types of embodiments of the invention, and are specifically described in details, but cannot be interpreted as limiting the scope of the patent for the invention consequently. It shall be noted that for those of ordinary skill in the art, they may make several transformations and improvements without deviating from a concept of the invention, these transformations and improvements shall all fall within the protection scope of the invention. Hence, the protection scope of the patent for the invention shall be subject to the appended claims.

Claims

1. A spray mechanism, comprising:

a drive assembly (52);
a spray member (54), the spray member (54) being provided with at least one spray hole (541) facing a dish rack (30); and
a water supply assembly (56) configured to supply spray water to the spray member (54);
wherein the spray member (54) is connected to the drive assembly (52) and movable relative to the dish rack (30).

2. The spray mechanism according to claim 1, wherein, the spray water sprayed from the spray hole (541) moves along with the spray member (54) to form a mobile spray zone, and a movement track of the spray zone at least passes through a bottom of the dish rack (30).

3. The spray mechanism according to claim 1, wherein, the drive assembly (52) drives the spray member (54) to reciprocate relative to the dish rack (30).

4. The spray mechanism according to claim 3, wherein, the spray member (54) is driven by the drive assembly (52) to reciprocate linearly relative to the dish rack (30); and
the spray member (54) is provided with the plurality of spray holes (541), the plurality of spray holes (541) being arranged in a direction intersecting with a di-

rection of movement of the spray member (54).

5. The spray mechanism according to claim 4, wherein, the drive assembly (52) comprises a drive member (521) and a screw rod (523) connected to the drive member (521), wherein the spray member (54) is in threaded connection to the screw rod (523), the screw rod (523) is driven by the drive member (521) to rotate, and the spray member (54) reciprocates along an axial direction of the screw rod (523) when the screw rod (523) rotates forwards and reversely.

6. The spray mechanism according to claim 5, wherein, the spray mechanism further comprises a guide rail (55) arranged on an inner wall of an inner tub (10), wherein the guide rail (55) and the screw rod (523) are arranged parallel to each other and spaced from each other, one end of the spray member (54) is in threaded connection to the screw rod (523), and the other end of the spray member (54) reciprocates on the guide rail (55).

7. The spray mechanism according to any one of claims 1-6, wherein, the water supply assembly (56) comprises a movable pipe (561) arranged in an inner tub (10), wherein the movable pipe (561) is provided with a water inlet in communication with an external water source and a water outlet in communication with the spray member (54), and a distance between the water inlet and the water outlet of the movable pipe (561) changes along with movement of the spray member (54).

8. The spray mechanism according to claim 7, wherein, the water supply assembly (56) further comprises a fixed pipe (563) fixed inside the inner tub (10), the fixed pipe (563) being in communication with the water inlet of the movable pipe (561), and the water outlet of the movable pipe (561) moves in a direction close to or away from the fixed pipe (563) along with the spray member (54).

9. The spray mechanism according to claim 8, wherein, the movable pipe (561) comprises a first branch pipe (565), a second branch pipe (567) and an articulation member (569), the first branch pipe (565) being connected between the articulation member (569) and the fixed pipe (563), the second branch pipe (567) being connected between the articulation member (569) and the spray member (54), and the first branch pipe (565) and the second branch pipe (567) being in communication through the articulation member (569) and rotating relative to each other.

10. The spray mechanism according to claim 9, wherein, the movable pipe (561) is driven by the spray member (54) to deform to be prolonged or shortened.

11. A dishwasher, comprising an inner tub (10), a dish rack (30) and the spray mechanism (50) according to any one of claims 1-10, the dish rack (30) and the spray mechanism (50) being both arranged inside the inner tub (10), and the spray mechanism (50) being located below the dish rack (30). 5
12. The dishwasher according to claim 11, wherein, a plurality of dish racks (30) are provided, a plurality of spray mechanisms (50) are also provided, the spray mechanism (50) is correspondingly arranged below each dish rack (30), and the plurality of spray mechanisms (50) synchronously move or the plurality of spray mechanisms (50) move separately from each other. 10 15
13. The dishwasher according to claim 12, wherein, the plurality of spray mechanisms (50) are provided with a plurality of water supply assemblies (56) and a plurality of spray members (54), the plurality of water supply assemblies (56) comprise a plurality of movable pipes (561), the plurality of water supply assemblies (56) comprise a fixed pipe (563) shared by the plurality of movable pipes (561), water inlets of the plurality of movable pipes (561) are all connected to the fixed pipe (563), and water outlets of the plurality of movable pipes (561) are all separately connected to the plurality of spray members (54) correspondingly. 20 25 30

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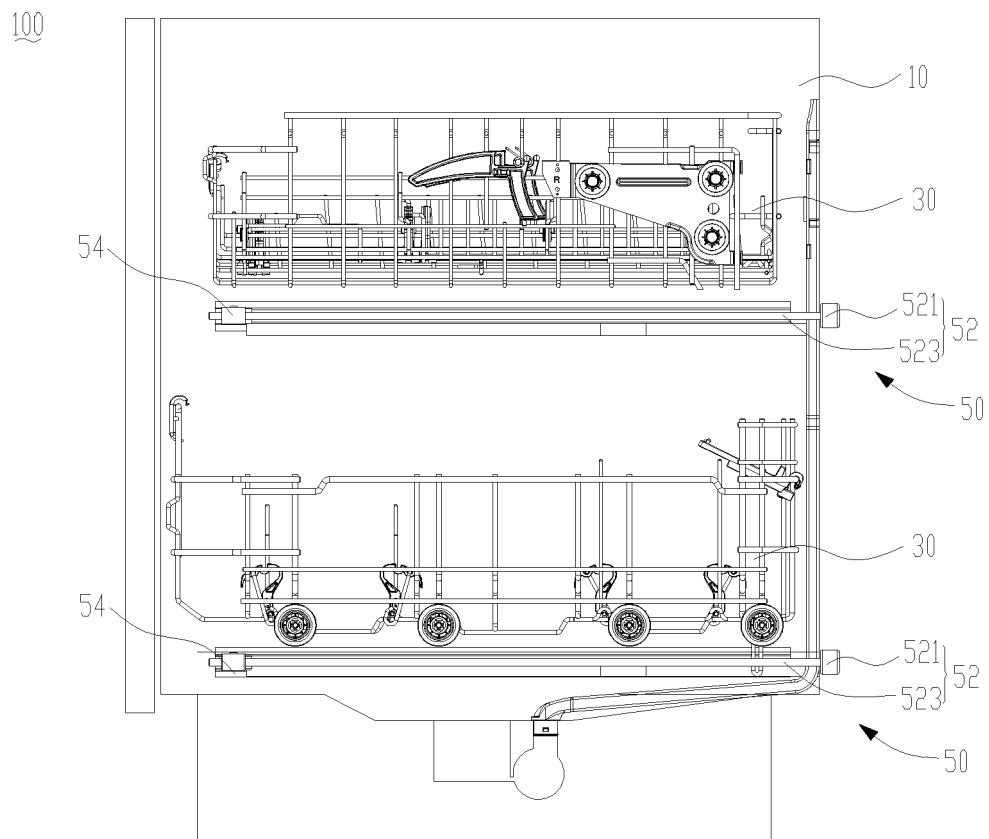


Fig. 1

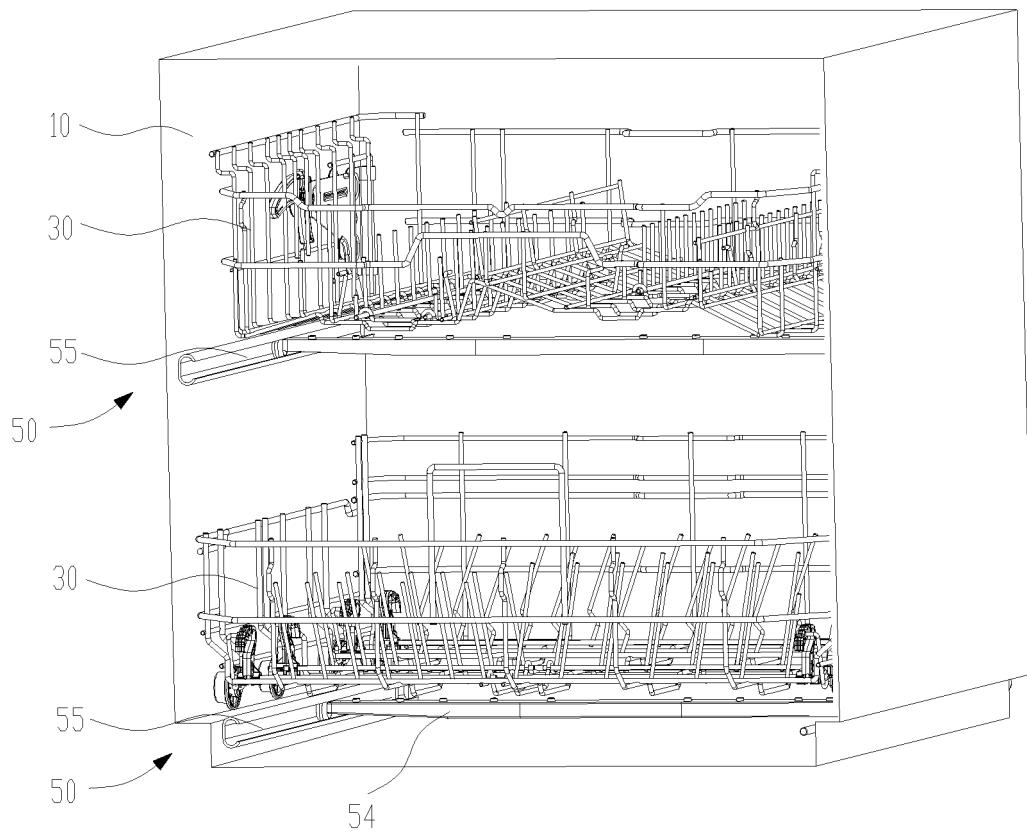


Fig. 2

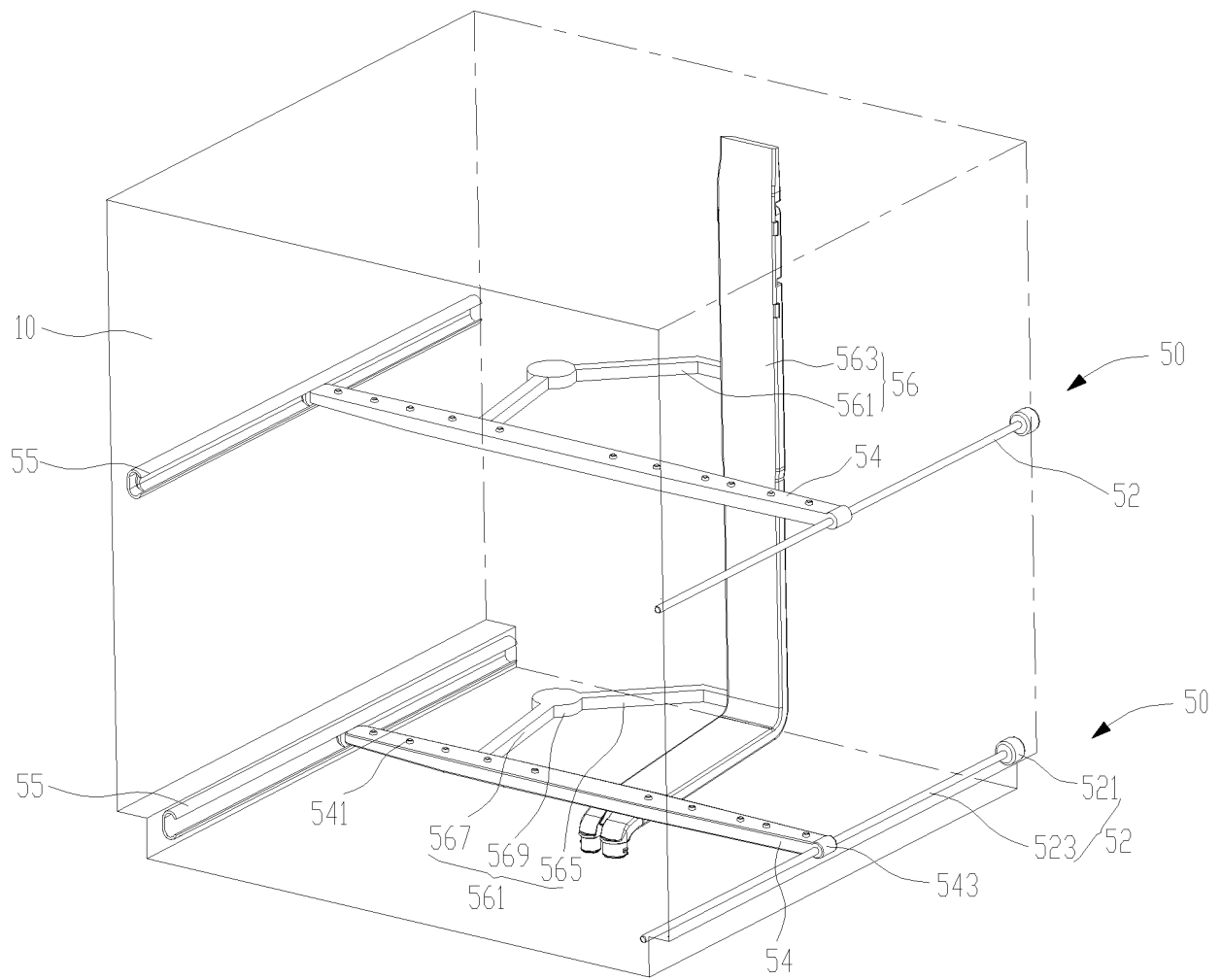


Fig. 3

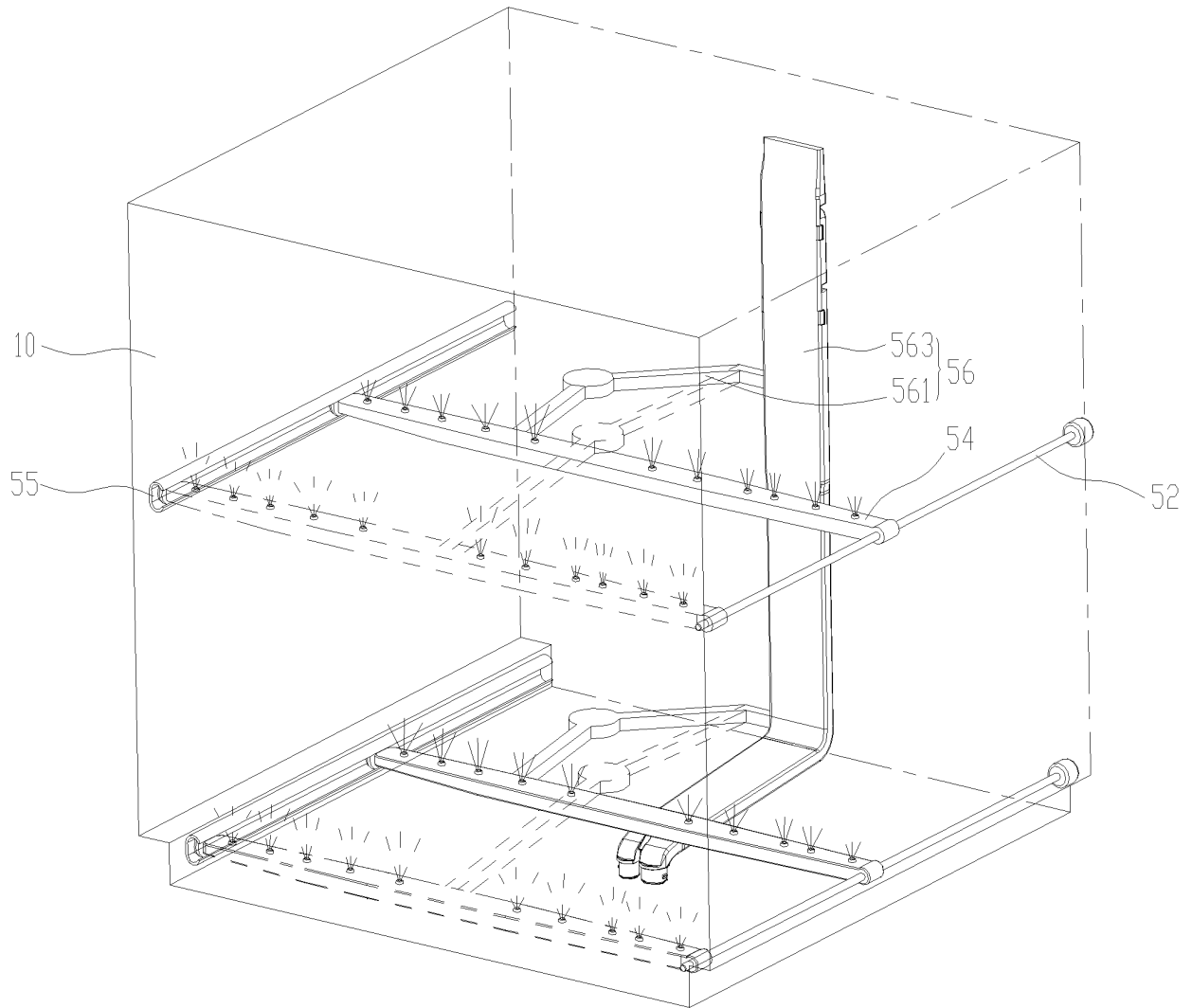


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/127619

5	A. CLASSIFICATION OF SUBJECT MATTER A47L 15/18(2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC	
10	B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A47L15/- Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched	
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) VEN; CNABS; CNTXT: 喷淋, 喷洒, 喷管, 喷臂, 喷头, 喷, 洗碗, 细碟, 餐具, 清洗, 清洁, 平移, 往复, 滑动, 移动, 直线, 水平移, 丝杆, 丝杠, spray+, dishwasher, dish, wash, mov+, slide, lead, screw, reciprocate+	
20	C. DOCUMENTS CONSIDERED TO BE RELEVANT	
	Category*	Citation of document, with indication, where appropriate, of the relevant passages
	X	CN 201481362 U (XIAMEN SHENYING TECHNOLOGY CO., LTD.) 26 May 2010 (2010-05-26) description, paragraphs [0052]-[0074], and figures 1-6
25	Y	CN 201481362 U (XIAMEN SHENYING TECHNOLOGY CO., LTD.) 26 May 2010 (2010-05-26) description, paragraphs [0052]-[0074], and figures 1-6
	Y	CN 103284674 A (SINCERE-HOME HOME APPLIANCE MANUFACTURING CO., LTD.) 11 September 2013 (2013-09-11) description, paragraphs [0018]-[0020], and figures 1 and 2
30	Y	CN 109124531 A (SUZHOU KEJIETAI ELECTRICAL APPLIANCE CO., LTD.) 04 January 2019 (2019-01-04) description, paragraphs [0030]-[0042], and figures 1-8
35	X	CN 107137037 A (HEFEI HUAGAI BIOTECHNOLOGY CO., LTD.) 08 September 2017 (2017-09-08) description, paragraphs [0014]-[0032], and figures 1-5
40	☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.	
45	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "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
50	Date of the actual completion of the international search 19 March 2020	Date of mailing of the international search report 26 March 2020
55	Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088 China Facsimile No. (86-10)62019451	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.

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