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(54) **WASHING MACHINE**

(57) The present disclosure provides a washing machine (10). The washing machine includes a frame assembly (100), a roller assembly (200) and a fixing assembly (300). The frame assembly includes a supporting beam (110) which is provided with a first mounting hole (111). The roller assembly (200) includes a mounting bracket (210) which is provided with a second mounting hole (211). The fixing assembly (300) includes a connecting member (310), a first anti-vibration pad (320), a

second anti-vibration pad (330), and a fastener (340). The connecting member (310) includes a connecting portion (311) and a connecting rod (312). The first anti-vibration pad (320) is assembled on the connecting rod (312) and fits with the connecting portion (311) to clamp the supporting beam (110); and the second anti-vibration pad (330) is assembled on the connecting rod (312) and fits with the first anti-vibration pad (320) to clamp the mounting bracket (210).

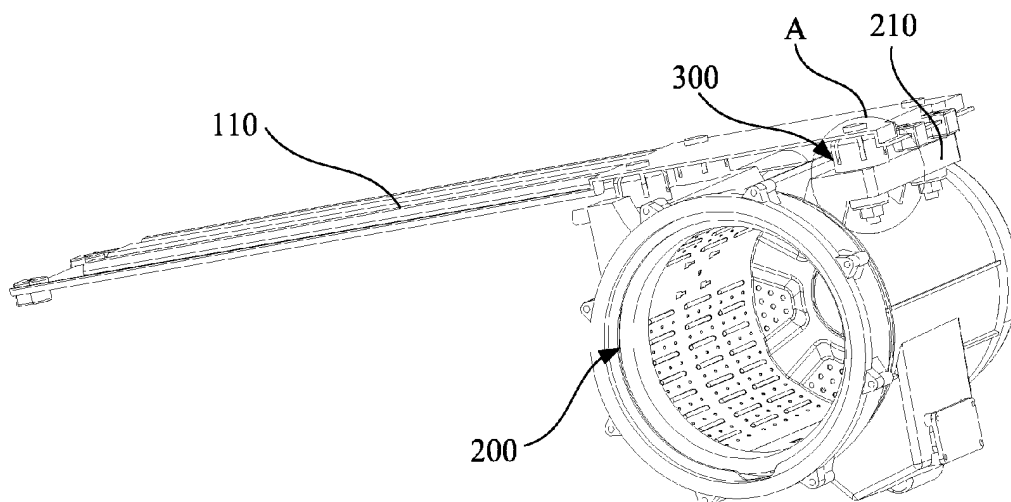


FIG. 2

Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of cleaning technology, and in particular, to a washing machine.

BACKGROUND

[0002] Currently, with the improvement of the production level, people have higher and higher requirements for washing machines. In addition to be able to clean thoroughly, the washing machines are also required to be low noise and good quietness in the operation process.

SUMMARY

[0003] The present disclosure provides a washing machine. The washing machine is capable of reducing the occupation of space inside the washing machine by optimizing the mounting structure of the roller assembly, which is conducive to the miniaturization development of the washing machine.

[0004] The technical solutions are as follows.

[0005] According to a first aspect of the present disclosure, a washing machine is provided. The washing machine includes a frame assembly, a roller assembly and a fixing assembly. The frame assembly includes a supporting beam, and the supporting beam is provided with a first mounting hole. The roller assembly includes a mounting bracket, the mounting bracket is provided with a second mounting hole, and the second mounting hole is in one-to-one correspondence with the first mounting hole. The fixing assembly includes a connecting member, a first anti-vibration pad, a second anti-vibration pad, and a fastener. The connecting member includes a connecting portion and a connecting rod protruding from the connecting portion, the connecting portion is disposed on the supporting beam, and the connecting rod is inserted into the first mounting hole and the second mounting hole. The first anti-vibration pad is assembled on the connecting rod and fits with the connecting portion to clamp the supporting beam; and the second anti-vibration pad is assembled on the connecting rod and fits with the first anti-vibration pad to clamp the mounting bracket. The fastener is in fastening fit with the connecting rod to fix the first anti-vibration pad, the mounting bracket, and the second anti-vibration pad to the supporting beam.

[0006] The present disclosure provides technical solutions that may include the following beneficial effects.

[0007] When the roller of the washing machine is installed, the first anti-vibration pad is assembled on the connecting rod and fits with the connecting portion to clamp the supporting beam. The second anti-vibration pad is assembled on the connecting rod and fits with the first anti-vibration pad to clamp the mounting bracket.

Finally, the first anti-vibration pad, the mounting bracket, and the second anti-vibration pad are fixed to the supporting beam through the fastening fit of the fastener with the connecting rod, achieving the fixation of the roller assembly on the frame assembly. The first anti-vibration pad and the second anti-vibration pad can be used for anti-vibration to reduce the noise generated during the operation of the roller assembly. In this way, the washing machine integrates the anti-vibration structure and the fixed structure by optimizing the mounting structure of the roller assembly, achieving the fixation of the roller assembly on the frame assembly, which can reduce the occupation of space inside the washing machine and is conducive to the miniaturization development of the washing machine.

[0008] The following further explains the technical solutions of the present disclosure.

[0009] Optionally, the second anti-vibration pad includes a main body and an inserting body. The main body is spaced apart from the first anti-vibration pad and clamps the mounting bracket. The inserting body protrudes from the main body and is disposed in the second mounting hole in a protruding manner.

[0010] Optionally, the first anti-vibration pad is provided with an insertion groove, and at least part of the inserting body is inserted into the insertion groove.

[0011] Optionally, the mounting bracket includes a protruding body disposed on an outer edge of the second mounting hole, the protruding body is at least partially annular-shaped, and at least part of the protruding body is inserted into the insertion groove.

[0012] Optionally, one end of the inserting body is provided with a limiting portion, the limiting portion is spaced apart from the main body to form a limiting groove, and the limiting portion passes through the second mounting hole to make the limiting groove in limiting fit with the protruding body.

[0013] Optionally, a guiding portion is provided on an inner side of the second mounting hole and/or an outer side of the limiting portion.

[0014] Optionally, the limiting portion is in squeezing fit with the insertion groove.

[0015] Optionally, the first anti-vibration pad is provided with a first fitting hole and a plurality of first squeezing protrusions disposed in the first fitting hole, the first fitting hole is in sleeving fit with the connecting rod, and the plurality of the first squeezing protrusions are spaced along a depth direction of the first fitting hole and are in squeezing fit with the connecting rod; and/or,

[0016] the second anti-vibration pad is provided with a second fitting hole and a plurality of second squeezing protrusions disposed in the second fitting hole, the second fitting hole is in sleeving fit with the connecting rod, and the plurality of the second squeezing protrusions are spaced along a depth direction of the second fitting hole and are in squeezing fit with the connecting rod.

[0017] Optionally, the first anti-vibration pad is provided with at least two first anti-vibration grooves spaced

along an outer periphery direction of the first anti-vibration pad, and a length direction of the first anti-vibration groove is arranged along a length direction of the connecting rod.

[0018] Optionally, the second anti-vibration pad is provided with at least two second anti-vibration grooves spaced along a length direction of the second anti-vibration pad, and the second anti-vibration grooves are disposed on an outer side of the second anti-vibration pad and are at least partially arcuate-shaped.

[0019] Optionally, the connecting portion is fixedly connected to the supporting beam; and/or,

[0020] the connecting member is a bolt, the connecting portion is a nut, and the connecting rod is a screw.

[0021] Optionally, the frame assembly includes a frame body, the frame body is provided with a carrying surface, the supporting beam is fixedly connected to the frame body, and the supporting beam and the carrying surface are spaced and oppositely arranged.

[0022] Optionally, the connecting rod is a screw, and the fastener is provided with an internally threaded hole in threaded connection fit with the screw.

[0023] Optionally, the fixing assembly further includes a lock washer, and the fastener squeezes the second anti-vibration pad through the lock washer.

[0024] It should be understood that the general description above and the detailed description in the following text are only illustrative and explanatory, and do not limit the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] The brief description of the drawings is used for assisting in understanding the appended drawings provided by the present disclosure. The illustrative drawing embodiments and their descriptions of the present disclosure are used for explaining the technical solutions of the present disclosure and do not constitute an improper limitation of the protection scope of the present disclosure.

[0026] In order to more clearly illustrate the technical solutions in the embodiments of the present disclosure, the appended drawings to be used in the description of the embodiments will be briefly described below. Obviously, the appended drawings in the following description are only some of the embodiments of the present disclosure. For those ordinary skilled in the art, other drawings may be obtained based on these drawings without any creative labor.

FIG. 1 is a schematic diagram of a structure of a washing machine illustrated according to one embodiment.

FIG. 2 is a schematic diagram of a partial structure of the washing machine shown in FIG. 1.

FIG. 3 is a schematic diagram of an enlarged view of region A shown in FIG. 2.

FIG. 4 is a schematic diagram of a top view of the

partial structure of the washing machine shown in FIG. 2.

FIG. 5 is a schematic diagram of a cross-sectional view along A-A shown in FIG. 4.

FIG. 6 is a schematic diagram of an enlarged view of region B shown in FIG. 5.

FIG. 7 is a schematic diagram of a structure of the first anti-vibration pad shown in FIG. 6.

FIG. 8 is a schematic diagram of a structure of the second anti-vibration pad shown in FIG. 6.

[0027] Description of the drawing reference signs:

10. washing machine; 100. frame assembly; 110. supporting beam; 111. first mounting hole; 120. frame body; 121. carrying surface; 200. roller assembly; 210. mounting bracket; 211. second mounting hole; 212. protruding body; 300. fixing assembly; 310. connecting member; 311. connecting portion; 312. connecting rod; 320. first anti-vibration pad; 321. insertion groove; 322. first fitting hole; 323. first squeezing protrusion; 324. first anti-vibration groove; 330. second anti-vibration pad; 331. main body; 332. inserting body; 301. limiting groove; 302. limiting portion; 303. guiding portion; 333. second fitting hole; 334. second squeezing protrusion; 335. second anti-vibration groove; 340. fastener; 341. internally threaded hole; 350. lock washer.

DETAILED DESCRIPTION

[0028] In order to make the purpose, technical solutions, and advantages of the present disclosure clearer and more understandable, the present disclosure is described in further detail hereinafter in conjunction with the appended drawings and specific embodiments. It should be understood that the specific embodiments described herein are only for the purpose of explaining the present disclosure and do not limit the scope of protection of the present disclosure.

[0029] Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by those skilled in the technical field of the present disclosure. Terms used herein in the specification of the present disclosure are used only for the purpose of describing the specific embodiments and are not intended to limit the present disclosure.

[0030] Cleaning devices, such as washing machines and dishwashers, occupy an increasingly important position in people's lives, and also provide many conveniences for people's lives. Currently, there are many types and many brands of cleaning devices, which makes a lot of cleaning devices available for consumers to choose. How to obtain the favor of the consumers and enhance the competitiveness of the product have become a problem that manufacturers of the cleaning devices are paying more and more attention to.

[0031] In the related arts, operation noise of the roller assembly in the washing machine is generally reduced by the utilization of an anti-vibration device disposed at

the bottom of the frame assembly. However, the setting of the traditional anti-vibration device requires additional occupation of space in the washing machine, which is not conducive to the miniaturization development of the washing machine.

[0032] Based on this, there is a need to provide a washing machine that is capable of reducing the occupation of space inside the washing machine by optimizing the mounting structure of the roller assembly, which is conducive to the miniaturization development of the washing machine.

[0033] In order to better understand the washing machine of the present disclosure, the following is described in conjunction with the appended drawings.

[0034] As shown in FIGS. 1 to 6, in some embodiments of the present disclosure, a washing machine 10 is provided. The washing machine 10 includes a frame assembly 100, a roller assembly 200, and a fixing assembly 300. The frame assembly 100 includes a supporting beam 110, and the supporting beam 110 is provided with a first mounting hole 111. The roller assembly 200 includes a mounting bracket 210, the mounting bracket 210 is provided with a second mounting hole 211, and the second mounting hole 211 is in one-to-one correspondence with the first mounting hole 111. The fixing assembly 300 includes a connecting member 310, a first anti-vibration pad 320, a second anti-vibration pad 330, and a fastener 340. The connecting member 310 includes a connecting portion 311 and a connecting rod 312 protruding from the connecting portion 311, the connecting portion 311 is disposed on the supporting beam 110, and the connecting rod 312 is inserted into the first mounting hole 111 and the second mounting hole 211. The first anti-vibration pad 320 is assembled on the connecting rod 312 and fits with the connecting portion 311 to clamp the supporting beam 110. The second anti-vibration pad 330 is assembled on the connecting rod 312 and fits with the first anti-vibration pad 320 to clamp the mounting bracket 210. The fastener 340 is in fastening fit with the connecting rod 312 to fix the first anti-vibration pad 320, the mounting bracket 210, and the second anti-vibration pad 330 to the supporting beam 110. Preferably, the fastening fit refers to a fit in which the components are tightly or securely connected with no movement between them.

[0035] When the roller of the washing machine 10 is installed, the first anti-vibration pad 320 is assembled on the connecting rod 312 in a sleeving manner and fits with the connecting portion 311 to clamp the supporting beam 110. The second anti-vibration pad 330 is assembled on the connecting rod 312 in a sleeving manner and fits with the first anti-vibration pad 320 to clamp the mounting bracket 210. Finally, the first anti-vibration pad 320, the mounting bracket 210, and the second anti-vibration pad 330 are fixed to the supporting beam 110 through the fastening fit of the fastener 340 with the connecting rod 312, achieving the fixation of the roller assembly 200 on the frame assembly 100. The first anti-vibration pad 320

and the second anti-vibration pad 330 can be used for anti-vibration to reduce the noise generated during the operation of the roller assembly 200. In this way, the washing machine 10 integrates the anti-vibration structure and the fixed structure by optimizing the mounting structure of the roller assembly 200, achieving the fixation of the roller assembly 200 on the frame assembly 100, which can reduce the occupation of space inside the washing machine 10 and is conducive to the miniaturization development of the washing machine 10.

[0036] Understandably, the first anti-vibration pad 320 is clamped between the supporting beam 110 and the mounting bracket 210, avoiding the mounting bracket 210 from rigidly colliding with the supporting beam 110, which can also cushion the vibration generated by the mounting bracket 210. The second anti-vibration pad 330 is clamped between the fastener 340 and the mounting bracket 210, avoiding the mounting bracket 210 from rigidly colliding with the fastener 340, which can also cushion the vibration generated by the mounting bracket 210.

[0037] It is to be noted that there are various specific implementations for the roller assembly 200, which may be implemented in traditional technologies and will not be elaborated here.

[0038] It is to be noted that there are various specific implementations for the frame assembly 100.

[0039] On the basis of any of the above embodiments, as shown in FIG. 6, in some embodiments, the second anti-vibration pad 330 includes a main body 331 and an inserting body 332. The main body 331 is spaced apart from the first anti-vibration pad 320 and clamps the mounting bracket 210. The inserting body 332 protrudes from the main body 331 and is disposed in the second mounting hole 211 in a protruding manner. In this way, the mounting bracket 210 is clamped by the main body 331 and the first anti-vibration pad 320, and the inserting body 332 is disposed in the second mounting hole 211 in the protruding manner, causing that the connecting rod 312 and the mounting bracket 210 are spaced apart by the inserting body 332, which may further reduce the rigid collision, and reduce the operation noise during the operation of the roller assembly 200.

[0040] Further, as shown in FIG. 6, in some embodiments, the first anti-vibration 320 is provided with an insertion groove 321, and at least part of the inserting body 332 is inserted into the insertion groove 321. When the roller assembly 200 is assembled with the frame assembly 100, the inserting body 332 is inserted over the mounting bracket 210 through the second mounting hole 211, the first anti-vibration pad 320 is placed on the mounting bracket 210, and the inserting body 332 is in inserting fit with the first anti-vibration pad 320 through the insertion groove 321, achieving initial positioning of the first anti-vibration pad 320. The connecting rod 312 is then inserted into the first mounting hole 111, the first anti-vibration pad 320, the second anti-vibration pad 330, and the second mounting hole 211 in sequence. Finally, the first anti-vibration pad 320, the mounting bracket 210, and the

second anti-vibration pad 330 are fixed to the supporting beam 110 through the fastening fit of the fastener 340 with the connecting rod 312. In this way, the fit of the inserting body 332 with the insertion groove 321 can realize the initial positioning of the first anti-vibration pad 320, and is conducive to enhancing the ease of assembly.

[0041] Furthermore, as shown in FIG. 6, in some embodiments, the mounting bracket 210 includes a protruding body 212 disposed at an outer edge of the second mounting hole 211. The protruding body 212 is at least partially annular-shaped, and at least part of the protruding body 212 is inserted into the insertion groove 321. In this way, the first anti-vibration pad 320 is placed on the mounting bracket 210 and is positioned through the fit of the protruding body 212 with the insertion groove 321, and is further positioned through the inserting fit of the insertion groove 321 with the inserting body 332. When the first anti-vibration pad 320 is fixed with the mounting bracket 210 and the second anti-vibration pad 330, the protruding body 212 is in limiting fit with the insertion groove 321, causing that the first anti-vibration pad 320 and the second anti-vibration pad 330 will not be easily shifted.

[0042] It is to be noted that there may be various specific shapes for the inserting body 332, including but not limited to, cylindrical, convexly prismatic, and the like, which are capable of realizing the above functions.

[0043] In some examples, the protruding body 212 is arcuate-shaped or annular-shaped.

[0044] In combination with the above embodiments of the protruding body 212, as shown in FIG. 6, in some embodiments, one end of the inserting body 332 is provided with a limiting portion 302. The limiting portion 302 is spaced apart from the main body 331 to form a limiting groove 301, and the limiting portion 302 passes through the second mounting hole 211 to make the limiting groove 301 in limiting fit with the protruding body 212. Preferably, the limiting fit refers to a fit that restricts or controls the movement or position of one component relative to another. In this way, when the roller assembly 200 is assembled with the frame assembly 100, the inserting body 332 is inserted over the mounting bracket 210 through the second mounting hole 211 and is in limiting fit with the protruding body 212 through the limiting groove 301, causing that the protruding body 212 is clamped between the main body 331 and the limiting portion 302, and that the second anti-vibration pad 330 is initially fixed to the mounting bracket 210, which is conducive to enhancing the ease of assembly.

[0045] In some examples, the limiting portion 302 is arcuate-shaped or annular-shaped.

[0046] Further, as shown in FIG. 6, in some embodiments, a guiding portion 303 is provided on an inner side of the second mounting hole 211 and/or an outer side of the limiting portion 302. In this way, by the utilization of the guiding portion 303, it is convenient to guide the limiting portion 302 into the second mounting hole 211, causing that the inserting body 332 can be smoothly inserted

into the second mounting hole 211, which enhances the ease of assembly.

[0047] It is to be noted that there are various specific implementations for the guiding portion 303, which may include but be not limited to a reverse round angle structure or a reverse taper angle structure.

[0048] In some examples, the guiding portion 303 is in the shape of a reverse taper angle and is provided at a free end of the limiting portion 302, which is easy to machine and implement.

[0049] On the basis of any of the above embodiments of the limiting portion 302, as shown in FIG. 6, in some embodiments, the limiting portion 302 is in squeezing fit with the insertion groove 321. Preferably, the squeezing fit refers to a fit where one component is compressed or pressed into position against another component. In this way, through the squeezing fit of the limiting portion 302 with the insertion groove 321, the first anti-vibration pad 320, the mounting bracket 210 and the second anti-vibration pad 330 can be initially fixed together, which facilitates the alignment and insertion of the connecting rod 312, and is conducive to the improvement of the assembly efficiency.

[0050] It is to be noted that the "inserting body 332" may be "a part of the second anti-vibration pad 330", i.e., the "inserting body 332" is manufactured integrally with the "other parts of the second anti-vibration pad 330, e.g., the main body 331"; or the "inserting body 332" may be a separable and independent component from the "other parts of the second anti-vibration pad 330, e.g., the main body 331", i.e., the "inserting body 332" may be manufactured independently, and then be assembled with the "other parts of the second anti-vibration pad 330, e.g., the main body 331", to form an integral whole.

[0051] Equivalently, "a certain body" or "a certain portion" may be a part of a corresponding "component", i.e., "a certain body" or "a certain portion" is manufactured integrally with the "other parts of the component"; or "a certain body" or "a certain portion" may be a separable and independent component from the "other parts of the component", i.e., "a certain body" or "a certain portion" may be manufactured independently, and then be assembled with the "other parts of the component" to form an integral whole.

[0052] On the basis of any of the above embodiments, as shown in FIGS. 6 and 7, in some embodiments, the first anti-vibration pad 320 is provided with a first fitting hole 322 and a plurality of first squeezing protrusions 323 disposed in the first fitting hole 322. The first fitting hole 322 is in sleeving fit with the connecting rod 312. The plurality of the first squeezing protrusions 323 are spaced along a depth direction of the first fitting hole 322 and are in squeezing fit with the connecting rod 312. Preferably, the sleeving fit refers to a fit where one component (the sleeve) encompasses or surrounds another. In this way, through the squeezing fit of the plurality of the first squeezing protrusions 323 with the connecting rod 312, the first anti-vibration pad 320 is tightly connected to the

connecting rod 312, and will not be easily shifted, resulting in a good anti-vibration effect.

[0053] On the basis of any of the above embodiments, as shown in FIGS. 6 and 8, in some embodiments, the second anti-vibration pad 330 is provided with a second fitting hole 333 and a plurality of second squeezing protrusions 334 disposed in the second fitting hole 333. The second fitting hole 333 is in sleeving fit with the connecting rod 312. The plurality of the second squeezing protrusions 334 are spaced along a depth direction of the second fitting hole 333 and are in squeezing fit with the connecting rod 312. In this way, through the squeezing fit of the plurality of the second squeezing protrusions 334 with the connecting rod 312, the second anti-vibration pad 330 is tightly connected to the connecting rod 312, and will not be easily shifted, resulting in a good anti-vibration effect.

[0054] It is to be noted that there may be various specific shapes for the first squeezing protrusion 323 and the second squeezing protrusion 334, including but not limited to, convex ridges, convex points, convex arcs, convex annuluses, and so on.

[0055] In some examples, the first squeezing protrusion 323 forms a convex annulus shape; and/or the second squeezing protrusion 334 forms a convex annulus shape.

[0056] On the basis of any of the above embodiments, as shown in FIG. 7, in some embodiments, the first anti-vibration pad 320 is provided with at least two first anti-vibration grooves 324 spaced along an outer periphery direction of the first anti-vibration pad 320. A length direction of the first anti-vibration groove 324 is arranged along a length direction of the connecting rod 312. In this way, by providing the first anti-vibration grooves 324, it is favorable to improve the anti-vibration effect of the first anti-vibration pad 320 along its length direction, i.e., to improve the anti-vibration effect along the longitudinal direction of the roller.

[0057] On the basis of any of the above embodiments, as shown in FIG. 8, in some embodiments, the second anti-vibration pad 330 is provided with at least two second anti-vibration grooves 335 spaced along a length direction of the second anti-vibration pad 330. The second anti-vibration grooves 335 are disposed on an outer side of the second anti-vibration pad 330 and are at least partially arcuate-shaped. In this way, by providing the second anti-vibration grooves 335, it is favorable to improve the anti-vibration effect of the second anti-vibration pad 330 along its length direction, i.e., to improve the anti-vibration effect along the longitudinal direction of the roller.

[0058] On the basis of any of the above embodiments, in some embodiments, the connecting portion 311 is fixedly connected to the supporting beam 110. In this way, the connecting member 310 is firmly fixed to the supporting beam 110, and the rigid collision will not occur easily, which is conducive to further reducing the operation noise of the washing machine 10.

[0059] In some examples, the connecting portion 311 is fixed with the supporting beam 110 through bonding or welding.

[0060] On the basis of any of the above embodiments, in some embodiments, the connecting member 310 is a bolt, the connecting portion 311 is a nut, and the connecting rod 312 is a screw. In this way, by utilizing a bolt as the connecting member 310, it is easy to manufacture and has a low implementation cost, which is conducive to reducing the assembly cost of the washing machine 10.

[0061] It should be understood that the fastener 340 may be a nut that is in threaded connection fit with a bolt.

[0062] On the basis of any of the above embodiments, as shown back in FIG. 1 and FIG. 2, in some embodiments, the frame assembly 100 includes a frame body 120, and the frame body 120 is provided with a carrying surface 121. The supporting beam 110 is fixedly connected to the frame body 120. The supporting beam 110 and the carrying surface 121 are spaced and oppositely arranged. In this way, the roller assembly 200 is spaced apart from the carrying surface 121, reducing the occupation of space at the bottom of the washing machine 10. At the same time, it is conducive to reducing the vibration generated by the movement of the roller assembly 200 to be transmitted to the ground, further improving the quietness of the washing machine 10.

[0063] It is to be noted that the specific fit manners of the connecting member 310 and the fastener 340 include, but are not limited to, screwing fits, snapping fits, riveting fits, and the like.

[0064] On the basis of any of the above embodiments, as shown in FIG. 6, in some embodiments, the connecting rod 312 is a screw, and the fastener 340 is provided with an internally threaded hole 341. The internally threaded hole 341 is in threaded connection fit with the screw. Preferably, the threaded connection fit refers to a connection in which the threads of two components interlock to secure them together. In this way, the detachable fit of the internally threaded hole 341 with the screw facilitates the later maintenance or replacement of the first anti-vibration pad 320, the mounting bracket 210, and the second anti-vibration pad 330.

[0065] On the basis of any of the above embodiments, as shown in FIG. 3 and FIG. 6, in some embodiments, the fixing assembly 300 further includes a lock washer 350, and the fastener 340 squeezes the second anti-vibration pad 330 through the lock washer 350. In this way, the utilization of the lock washer 350 makes the fastener 340 and the screw fit firmly, and looseness will not occur easily, which is conducive to maintaining quietness during long-term operation of the roller assembly 200.

[0066] It is to be noted that the "supporting beam 110" may be one of the parts of the module "frame assembly", i.e., the "supporting beam 110" may be assembled into a module with the "other parts of the frame assembly" and then be assembled modularly; or the "supporting beam 110" may be relatively independent of the "other

parts of the frame assembly" and may be mounted separately, i.e., the "supporting beam 110" may be formed into an integral whole with the "other parts of the frame assembly" in the present device.

[0067] Equivalently, the components included in the "assembly", "portion" and "device" of the present disclosure, may be flexibly combined, i.e., the components may be modularly produced based on actual conditions and be modularly assembled as a separate module; or the components may be assembled separately to form a module in the present device.

[0068] In the description of the present disclosure, it is to be understood that the orientation or positional relationship indicated by the terms "center", "longitudinal", "lateral", "length", "width", "thickness", "up", "down", "front", "back", "left", "right", "vertical", "horizontal", "top", "bottom", "inside", "outer", "clockwise", "counterclockwise", "axial", "radial", "periphery direction", etc. is based on the orientation or positional relationship shown in the appended drawings, which is intended only to facilitate the description of the present disclosure and to simplify the description, and is not intended to indicate or imply that the device or element referred to must have a particular orientation, or must be constructed and operated in a particular orientation, and therefore cannot be construed as a limitation of the present disclosure.

[0069] Furthermore, the terms "first", "second", etc. are used for descriptive purposes only, and are not to be construed as indicating or implying relative importance or implicitly specifying the number of technical features as indicated. Thus, a feature defined with "first", "second", etc. may expressly or implicitly include at least one such feature. In the description of the present disclosure, "plurality" means at least two, e.g., two, three, etc., unless otherwise explicitly and specifically limited.

[0070] In the present disclosure, unless otherwise explicitly specified and limited, the terms "mounting", "connecting", "connecting to", "fixing" and other terms should be understood broadly. For example, it may be referred to be a fixed connection, a detachable connection, or be integrated; it may be referred to be a mechanical connection or an electrical connection; it may be referred to be a direct connection or an indirect connection through an intermediate medium; or it may be referred to be an internal connection between two components, or the interaction relationship between two components, unless otherwise explicitly limited. For those ordinary skilled in the art, the specific meanings of the above terms in the present disclosure may be understood based on specific conditions.

[0071] In the present disclosure, unless otherwise explicitly specified and limited, the first feature being "on" or "under" the second feature may be a direct contact between the first feature and second feature, or an indirect contact between the first feature and second feature through an intermediate medium. Furthermore, the first feature being "above", "over" and "on" the second feature may be that the first feature is directly above or diagonally

above the second feature, or simply that the first feature is horizontally higher than the second feature. The first feature being "below", "under" and "underneath" the second feature may be that the first feature is directly below or diagonally below the second feature, or simply that the first feature is horizontally lower than the second feature.

[0072] It is to be noted that when an element is considered to be "fixed to", "disposed on", "fastened on" or "mounted on" another element, this element may be directly on the another element or there may be an intermediate element. When an element is considered to be "connected" to another element, this element may be directly connected to the another element or there may be an intermediate element at the same time. Further, when an element is considered to be "fixedly connected" to another element, the two elements may be fixed in a detachable connection or fixed in a non-detachable connection, such as socketing, clamping, unibody fixing, welding, etc., which may be implemented in traditional technologies and will not be elaborated here.

[0073] The various technical features of the above embodiments may be combined arbitrarily, and in order to make the description concise, all possible combinations of the various technical features of the above embodiments have not been described.

Claims

1. A washing machine (10), **characterized in** comprising:

a frame assembly (100), comprising a supporting beam (110), wherein the supporting beam (110) is provided with a first mounting hole (111); a roller assembly (200), comprising a mounting bracket (210), wherein the mounting bracket (210) is provided with a second mounting hole (211) corresponding to the first mounting hole (111); and

a fixing assembly (300), comprising a connecting member (310), a first anti-vibration pad (320), a second anti-vibration pad (330), and a fastener (340); wherein

the connecting member (310) comprises a connecting portion (311) and a connecting rod (312) protruding from the connecting portion (311), the connecting portion (311) is disposed on the supporting beam (110), and the connecting rod (312) is inserted into the first mounting hole (111) and the second mounting hole (211); the first anti-vibration pad (320) is assembled on the connecting rod (312) and fits with the connecting portion (311) to clamp the supporting beam (110); the second anti-vibration pad (330) is assembled on the connecting rod (312) and fits with the first anti-vibration pad (320) to clamp

- the mounting bracket (210); and the fastener (340) is in fastening fit with the connecting rod (312) to fix the first anti-vibration pad (320), the mounting bracket (210), and the second anti-vibration pad (330) to the supporting beam (110).
2. The washing machine (10) according to claim 1, wherein the second anti-vibration pad (330) comprises:
 - a main body (331), spaced apart from the first anti-vibration pad (320) and clamping the mounting bracket (210); and
 - an inserting body (332), protruding from the main body (331), wherein the inserting body (332) is disposed in the second mounting hole (211) in a protruding manner.
 3. The washing machine (10) according to claim 2, wherein the first anti-vibration pad (320) is provided with an insertion groove (321), and at least part of the inserting body (332) is inserted into the insertion groove (321).
 4. The washing machine (10) according to claim 3, wherein the mounting bracket (210) comprises a protruding body (212) disposed on an outer edge of the second mounting hole (211), the protruding body (212) is at least partially annular-shaped, and at least part of the protruding body (212) is inserted into the insertion groove (321).
 5. The washing machine (10) according to claim 4, wherein one end of the inserting body (332) is provided with a limiting portion (302), the limiting portion (302) is spaced apart from the main body (331) to form a limiting groove (301), and the limiting portion (302) passes through the second mounting hole (211) to make the limiting groove (301) in limiting fit with the protruding body (212).
 6. The washing machine (10) according to claim 5, wherein a guiding portion (303) is provided on at least one of an inner side of the second mounting hole (211) or an outer side of the limiting portion (302).
 7. The washing machine (10) according to claim 5, wherein the limiting portion (302) is in squeezing fit with the insertion groove (321).
 8. The washing machine (10) according to claim 1, wherein the first anti-vibration pad (320) is provided with a first fitting hole (322) and a plurality of first squeezing protrusions disposed in the first fitting hole (322), the first fitting hole (322) is in sleeving fit with the connecting rod (312), and the plurality of the first squeezing protrusions are spaced along a depth direction of the first fitting hole (322) and are in squeezing fit with the connecting rod (312).
 9. The washing machine (10) according to claim 1, wherein the second anti-vibration pad (330) is provided with a second fitting hole (333) and a plurality of second squeezing protrusions (334) disposed in the second fitting hole (333), the second fitting hole (333) is in sleeving fit with the connecting rod (312), and the plurality of the second squeezing protrusions (334) are spaced along a depth direction of the second fitting hole (333) and are in squeezing fit with the connecting rod (312).
 10. The washing machine (10) according to claim 1, wherein the first anti-vibration pad (320) is provided with at least two first anti-vibration grooves (324) spaced along an outer periphery direction of the first anti-vibration pad (320), and a length direction of the first anti-vibration groove (324) is arranged along a length direction of the connecting rod (312).
 11. The washing machine (10) according to claim 1, wherein the second anti-vibration pad (330) is provided with at least two second anti-vibration grooves (335) spaced along a length direction of the second anti-vibration pad (330), and the second anti-vibration grooves (335) are disposed on an outer side of the second anti-vibration pad (330) and are at least partially arcuate-shaped.
 12. The washing machine (10) according to claim 1, wherein the connecting portion (311) is fixedly connected to the supporting beam (110); and/or, the connecting member (310) is a bolt, the connecting portion (311) is a nut, and the connecting rod (312) is a screw.
 13. The washing machine (10) according to claim 1, wherein the frame assembly (100) comprises a frame body (120), the frame body (120) is provided with a carrying surface (121), the supporting beam (110) is fixedly connected to the frame body (120), and the supporting beam (110) and the carrying surface (121) are spaced and oppositely arranged.
 14. The washing machine (10) according to any one of claims 1 to 13, wherein the connecting rod (312) is a screw, and the fastener (340) is provided with an internally threaded hole (341) in threaded connection fit with the screw.
 15. The washing machine (10) according to claim 14, wherein the fixing assembly (300) further comprises a lock washer (350), and the fastener (340) squeezes the second anti-vibration pad (330) through the lock washer (350).

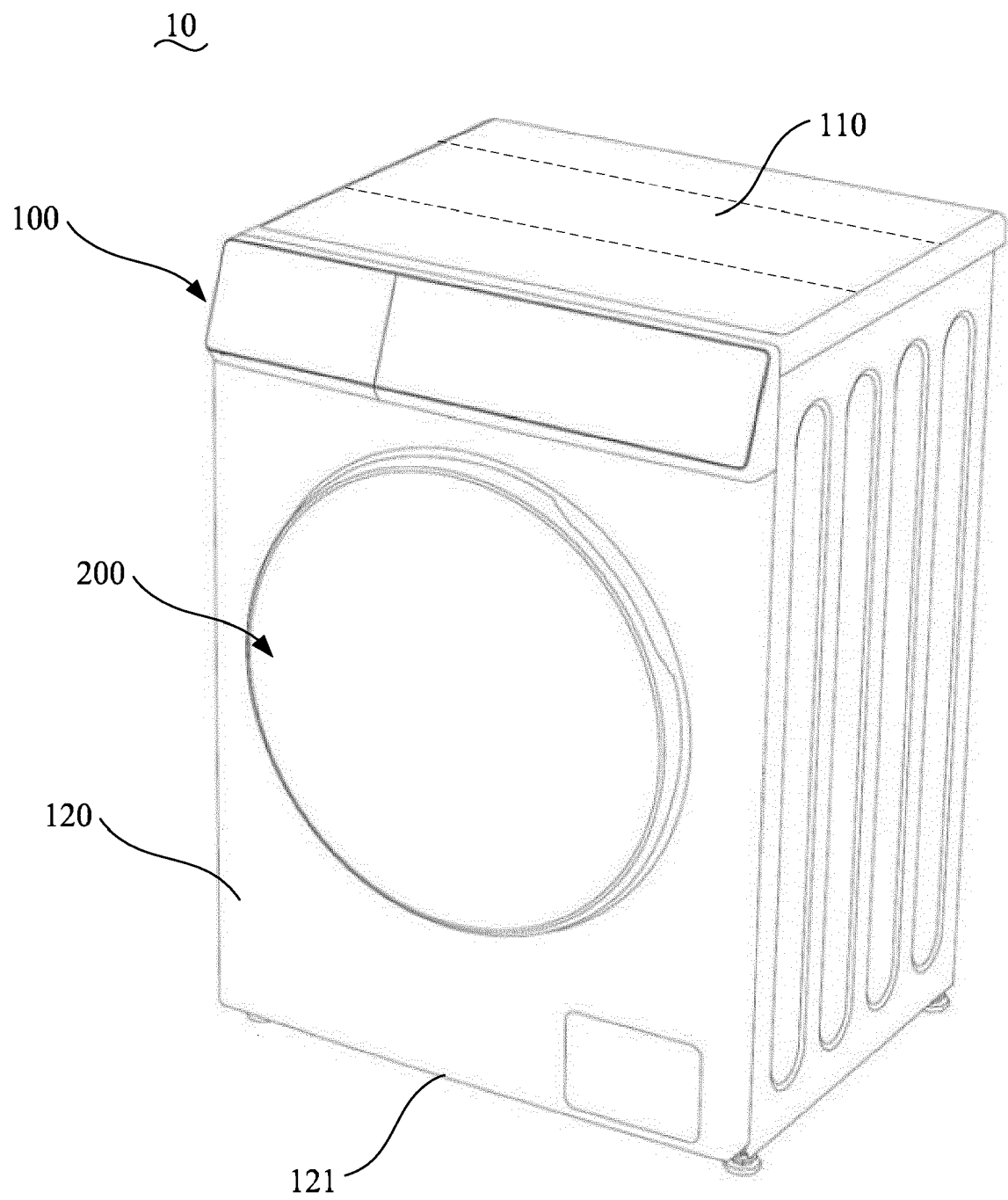


FIG. 1

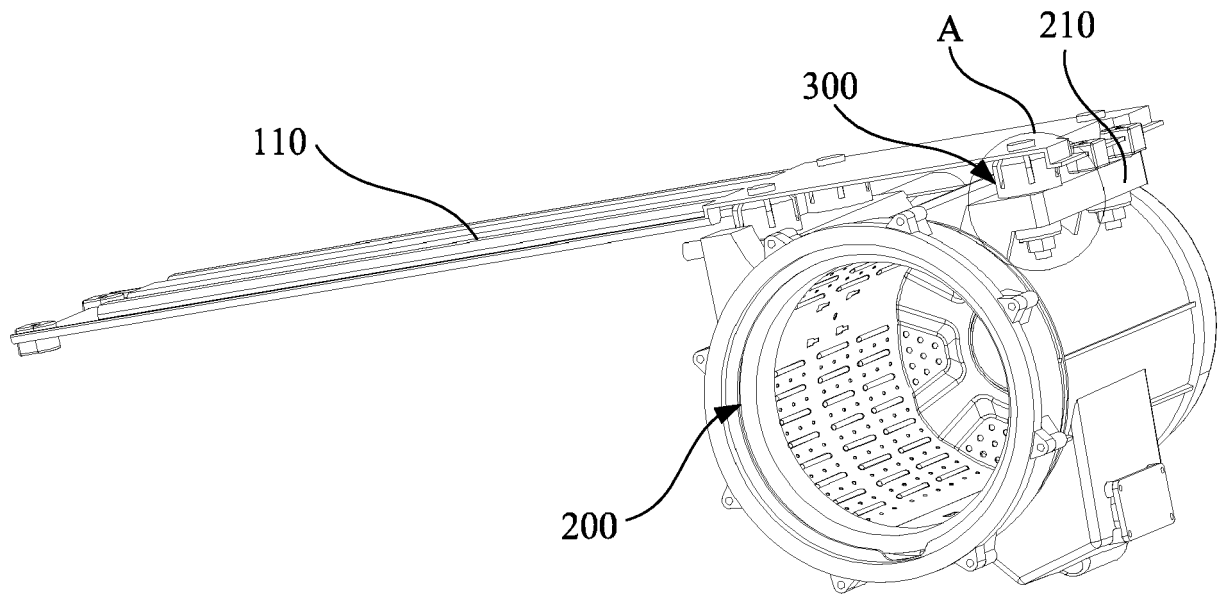


FIG. 2

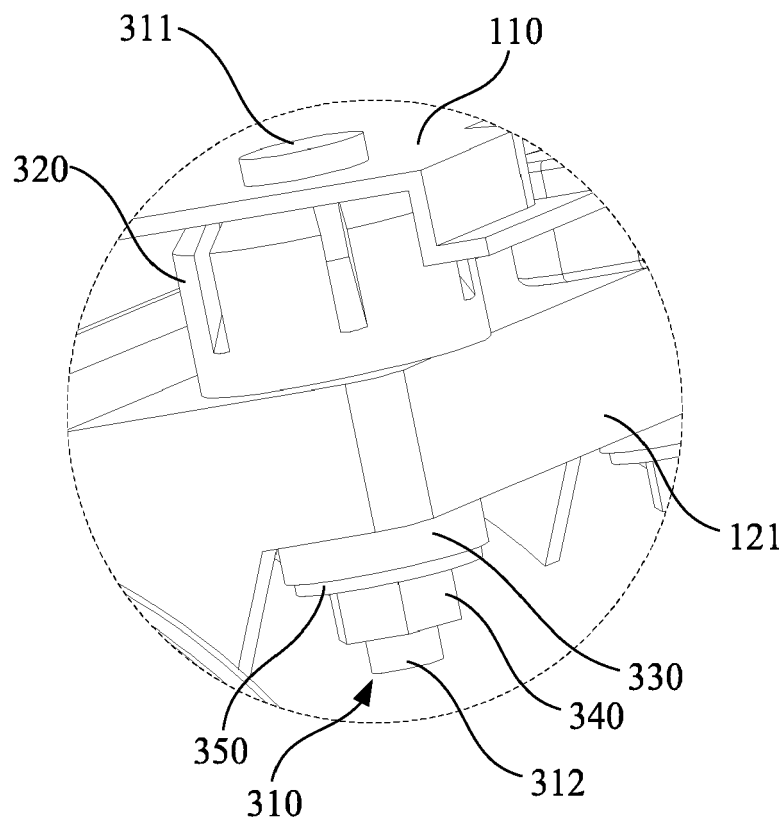


FIG. 3

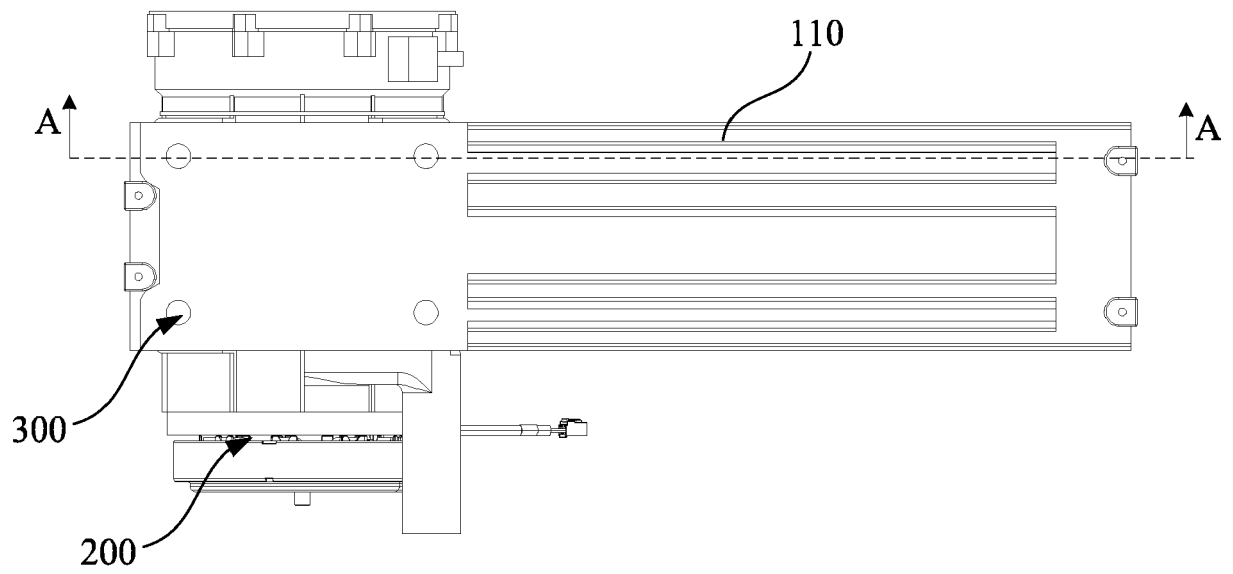


FIG. 4

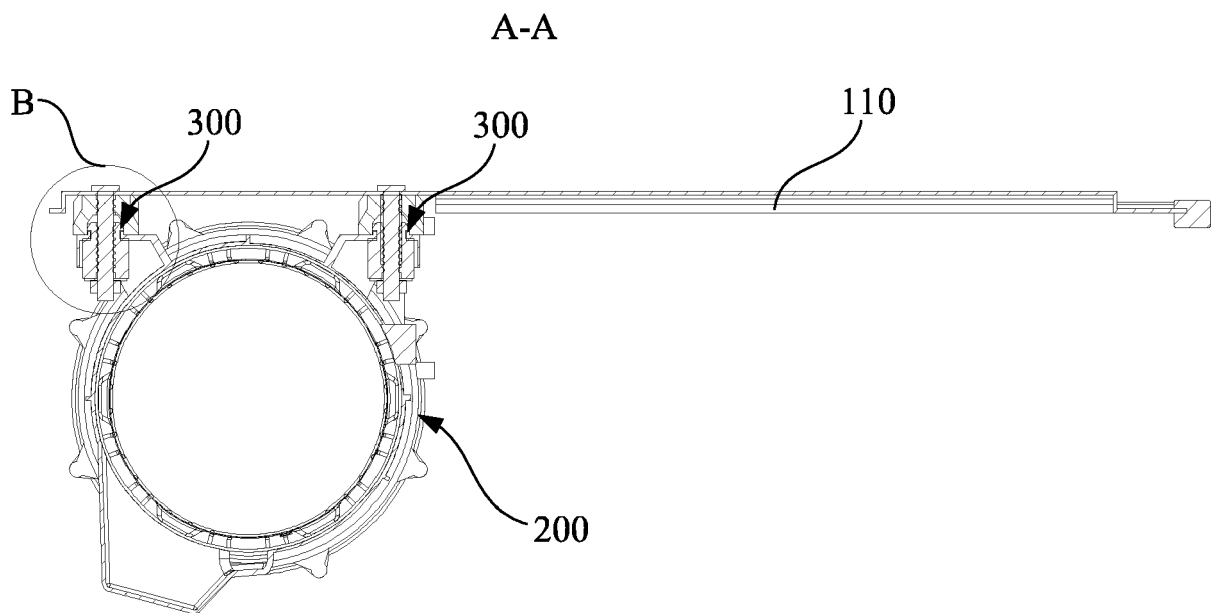


FIG. 5

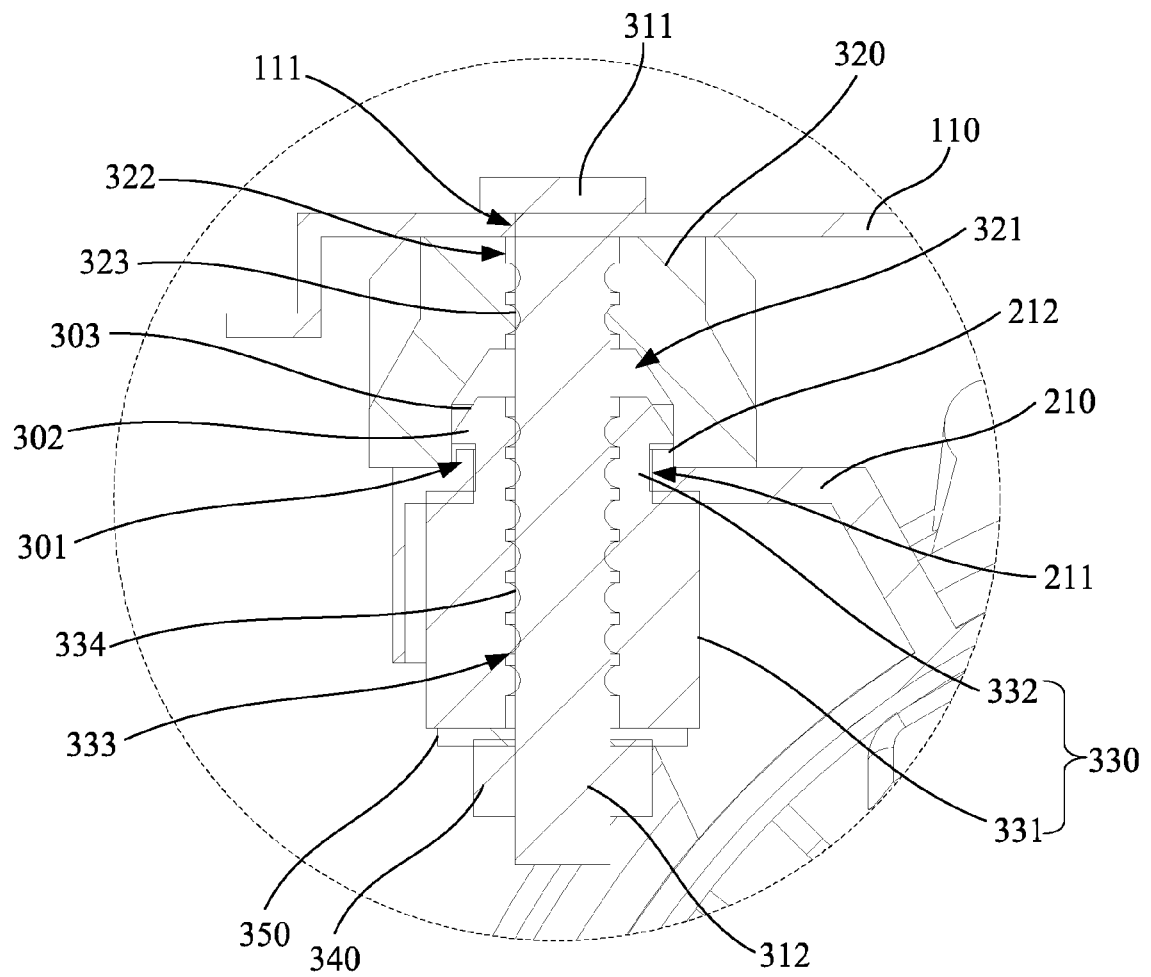


FIG. 6

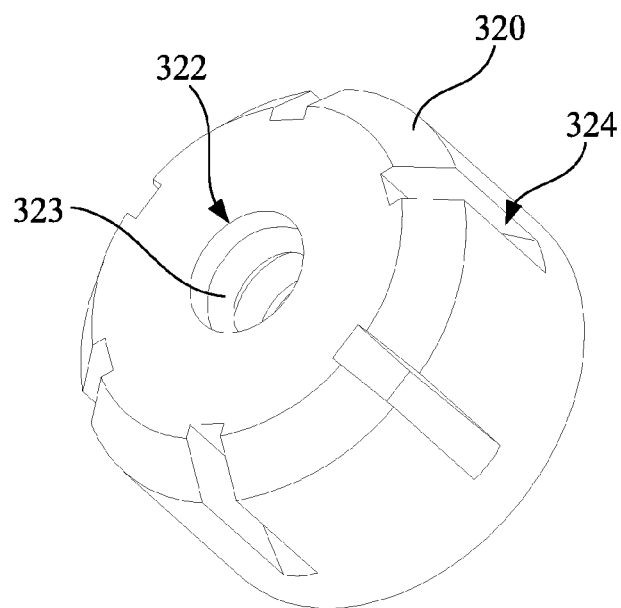


FIG. 7

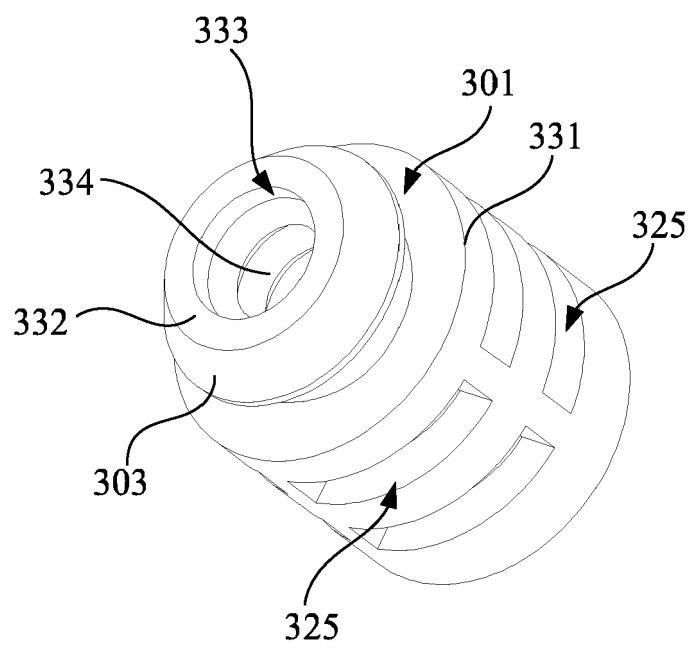


FIG. 8



EUROPEAN SEARCH REPORT

Application Number

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			D06F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 June 2024	Examiner Stroppa, Giovanni
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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10-06-2024

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