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CLOTH CLAMPING MOP WITH EASY-TO-REPLACE MOP CLOTH

(57) Disclosed is a cloth clamping mop with easy-to-replace mop cloth. The cloth clamping mop includes a mop rod and a mop bottom plate, where the mop bottom plate is provided with a clamping assembly configured to clamp the mop cloth; the clamping assembly includes a first clamping member fixed at the end of the mop bottom plate far away from the mop rod, and second clamping members movably connected to the mop bottom plate and capable of moving close to or away from the first clamping member; the mop bottom plate is further provided with a driving assembly configured to drive the second clamping members to move close to or away from the first clamping member; and the mop rod

is connected to the driving assembly, and the driving assembly are controlled to drive the second clamping members to move close to or away from the first clamping member by lifting or pressing the mop rod. Due to arrangement of the driving assembly configured to connect the second clamping members to the mop rod, the second clamping members can be controlled to move close to or away from the first clamping member by lifting or pressing the mop rod; and therefore, the mop cloth is clamped or released after the second clamping members move close to or away from the first clamping member. The cloth clamping mop is simple in structure and more convenient in operation of mop replacement.

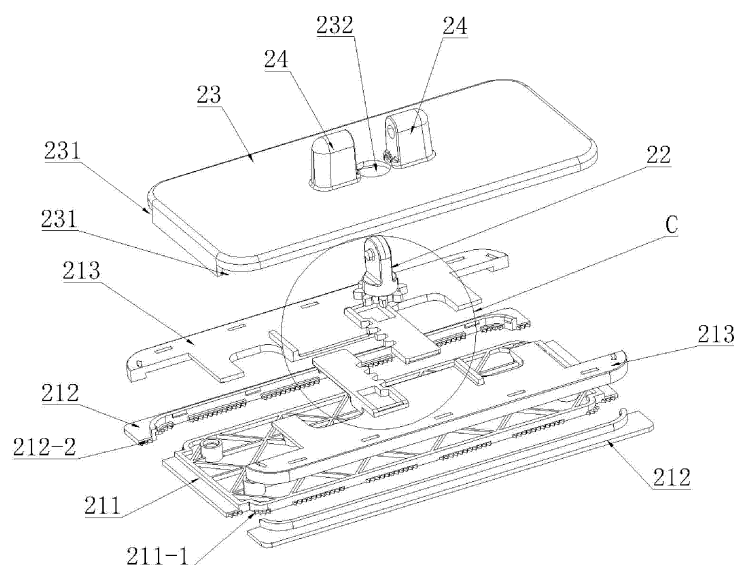


FIG. 4

Description

Technical Field

[0001] The present disclosure relates to the technical field of cleaning tools, and in particular, to a cloth clamping mop with easy-to-replace mop cloth.

Background

[0002] Mops are often configured to clean the floor. Mop cloth is mounted on a mop head, and a mop handle is held to clean the floor. Most mops on the market employ fixed mop cloth, which is more troublesome to replace. The mops are often used for a long time and thus will become places for dirt and grime to accumulate. If the mops are discarded directly, it will cause unreasonable resource utilization, resulting in waste.

[0003] In the prior art, for example, CN205729270U provides a novel mop cloth clamping structure and a mop, including a mop plate and mop cloth; the mop plate includes an aluminum profile support plate, a bottom plate clamped with a bottom surface of the aluminum profile support plate, two cloth clamping plates pivotally connected to both sides of the aluminum profile support plate respectively, and two seal heads disposed at front and rear ends of the aluminum profile support plate respectively; chutes and ribs are disposed on both sides of the aluminum profile support plate; the cloth clamping plates are provided with at least two rotating shaft-shaped clamping components clamped with the chutes, and at least two clamping teeth matched with the ribs correspondingly to clamp and fix the mop cloth. Although the above structure achieves the purpose of replacing the mop cloth, it requires a user to manually rotate the cloth clamping plates, which is inconvenient in mop cloth replacement.

Summary

(1) Technical problem to be solved

[0004] The technical problem to be solved by the present disclosure is to provide a cloth clamping mop with easy-to-replace mop cloth, which is provided with a driving assembly configured to connect second clamping members to a mop rod, so that the second clamping members can be controlled to move close to or away from a first clamping member by lifting or pressing the mop rod; and therefore, the mop cloth is clamped or released after the second clamping members move close to or away from the first clamping member. The cloth clamping mop is simple in structure and more convenient in operation of mop cloth replacement.

(2) Technical solutions

[0005] The solution adopted by the present disclosure

to solve the above technical problem is to provide a cloth clamping mop with easy-to-replace mop cloth. The cloth clamping mop includes a mop rod, and a mop bottom plate connected to one end of the mop rod; the mop bottom plate is provided with a clamping assembly configured to clamp the mop cloth; the clamping assembly includes a first clamping member at the end of the mop bottom plate far away from the mop rod, and second clamping members movably connected to the mop bottom plate and capable of moving close to or away from the first clamping member; the mop bottom plate is further provided with a driving assembly configured to drive the second clamping members to move close to or away from the first clamping member; and the mop rod is connected to the driving assembly, and the driving assembly is controlled to drive the second clamping members to move close to or away from the first clamping member by lifting or pressing the mop rod.

[0006] Specifically, the mop cloth is made of thin non-woven fabric.

[0007] Optionally, the mop rod is lifted up to control the second clamping members to move away from the first clamping member, the mop bottom plate is placed on the mop cloth, and the mop rod is pressed down to control the second clamping members to move close to the first clamping member, the mop cloth is clamped between the first clamping member and the second clamping members, thus achieving the cloth clamping function; when the mop cloth is released, the mop rod is lifted up to move the second clamping members away from the first clamping member, and thus the mop cloth is enabled to fall off; and in the clamping process, part of the mop cloth is squeezed between the first clamping member and the second clamping members, so that the purpose of clamping the cloth is achieved.

[0008] Alternatively, the mop rod is pressed down to control the second clamping members to move away from the first clamping member, and the mop rod is lifted up to control the second clamping members to move close to the first clamping member.

[0009] By adopting the above solution, the driving assembly are provided to be configured to connect the second clamping members to the mop rod, so that the second clamping members can be controlled to move close to or away from the first clamping member by lifting or pressing the mop rod; and therefore, the mop cloth is clamped or released after the second clamping members move close to or away from the first clamping member. The cloth clamping mop is simple in structure and more convenient in operation of mop cloth replacement.

[0010] Further, the driving assembly includes a driving gear; and each of the second clamping members includes rack portions meshing with the driving gear for transmission.

[0011] Further, the second clamping members are respectively disposed at two opposite ends of the first clamping member located on the same plane as the first clamping member;

the driving gear is disposed inside an inner cavity of the mop bottom plate and rotate circumferentially about a central axis of the mop rod; and clamping driving members are disposed on two opposite sides of the driving gear inside the inner cavity of the mop bottom plate, the rack portions are disposed at one ends of the clamping driving members, and the other ends of the clamping driving members extend out of the inner cavity of the mop bottom plate and are connected to the second clamping members.

[0012] Preferably, the second clamping members are connected below the clamping driving members in a snap connection manner.

[0013] Specifically, the two clamping driving members are disposed on two opposite sides of the driving gear, making the two clamping driving members be driven to move synchronously by the rotation of the driving gear, so that the two second clamping members are driven to move close to or away from the first clamping member synchronously; and therefore, the mop cloth is more convenient to replace.

[0014] Further, each of the rack portions is provided with a first restricting portion and a second restricting portion at two ends of a tooth portion of each of the rack portions configured to restrict the corresponding driving gear; when where the driving gear rotates until the driving gear is abutted against the first restricting portions, the second clamping members are farthest away from the first clamping member, and the first clamping member and the second clamping members are in a maximum open state, making the mop cloth fall off more easily; and when the driving gear rotates until the driving gear is abutted against the second restricting portions, the second clamping members are closest to the first clamping member, and the first clamping member and the second clamping members are in a state of mutual clamping and locking, making the cloth clamping function more reliable.

[0015] Preferably, the rack portions are provided above the clamping driving members, and the rack portion of any clamping driving member is partially placed above the other clamping driving member; the extending directions of the tooth portions of the rack portions are parallel to the movement directions of the clamping driving members and the second clamping members; and meanwhile, when the driving gear rotates until the driving gear is abutted against the second restricting portions, end faces of the two clamping driving members close to each other are just abutted against each other, which further restricts the mutual movement of the two clamping driving members, making the cloth clamping function more reliable.

[0016] By adopting the above solution, due to arrangement of the first restricting portions and the second restricting portions, the first clamping member can be prevented from detaching from the mop bottom plate, making it more reliable to use.

[0017] Further, the mop bottom plate includes a mop cover plate connected to the mop rod, and the first clamping member detachably connected on the side of the mop bottom plate far away from the mop rod; extension outlets are reserved in side faces of the mop cover plate for the clamping driving members to extend out of the extension outlets; and an opening portion are reserved at the end of the mop cover plate far away from the first clamping member for the driving gear to partially extend out of the opening portion to be connected to the mop rod.

[0018] Preferably, a plurality of snap fasteners are formed by extending downwards from a bottom of the mop cover plate, and correspondingly, the first clamping member include snap holes matched with the snap fasteners, so as to achieve a detachable connection between each of the snap fasteners and the corresponding snap hole and facilitate subsequent maintenance.

[0019] In another optional solution, the driving assembly includes a cam rotating circumferentially about the central axis of the mop rod, and a reset member configured to reset the corresponding second clamping member. In this structure, when the most protruding parts of the cams abut against the second clamping members, the second clamping members and the first clamping member is in an open state. When the cams rotate to make the most protruding part slowly detach from the second clamping members, the reset members drive the second clamping members to move close to the first clamping member until the first clamping member and the second clamping members are clamped and locked.

[0020] Further, first toothed areas are disposed at the ends of the first clamping member facing the second clamping members, second toothed areas are disposed at the ends of the second clamping members facing the first clamping member, and the first toothed areas and the second toothed areas are formed in a staggered manner, which can improve the reliability of cloth clamping.

[0021] Further, the mop rod includes an outer rod connected to the mop bottom plate, and an inner rod slidably connected inside the outer rod; the inner rod is internally provided with a screw rod, and at least a part of an inner wall of the inner rod is matched with the screw rod; and the screw rod is connected to the driving assembly by ways of a connecting member.

[0022] Specifically, the screw rod is rotatably connected to the parts of the driving gear extending out of the mop bottom plate by ways of the connecting member; external connecting member is connected to the bottom of the outer rod, the external connecting member is sleeved outside the connecting member, and the external connecting member is rotatably connected to the mop bottom plate; a rotating base rotatably connected to the external connecting member is disposed on a top end of the mop bottom plate; and moreover, since the rotation directions of the connecting member and the driving gear is the same as those of the external connecting member and the mop bottom plate, the whole mop rod can rotate relative to the mop bottom plate, making it possible to

adjust an angle between the mop rod and the mop bottom plate.

[0023] Further, a plurality of elastic buckles arranged at equal intervals in an annular shape are formed by extending downwards from a lower end of the inner rod, and an outer wall of the screw rod protrudes to form a protruding portion matched with the elastic buckles.

[0024] When in use, the inner rod is lifted up, and the protruding portion of the screw rod is detached from the elastic buckles; since an inner wall of the inner rod is matched with the screw rod, the screw rod can be driven to rotate, and the driving gear is thus driven to rotate by ways of the connecting member, driving the second clamping members to move away from the first clamping member so as to enable the second clamping members and the first clamping member to loose; when clamping, the inner rod is pressed down; since the inner wall of the inner rod is matched with the screw rod, the screw rod can be driven to rotate relatively in the opposite direction, and the driving gear is thus driven to rotate relatively in the opposite direction by ways of the connecting member, driving the second clamping members to move close the first clamping member so as to enable the second clamping members and the first clamping member to clamp the mop cloth tightly; and meanwhile, the protruding portion of the screw rod is locked on the elastic buckles, making the screw rod be locked with the inner rod, thereby improving the reliability during the subsequent mopping process.

[0025] Further, at least a part of an inner wall of the outer rod is provided with axially arranged guide sliding platforms, and correspondingly, the inner rod is provided with guide chutes matched with the guide sliding platforms, so as to prevent the inner rod and the outer rod from being offset.

[0026] Further, the second clamping members are respectively disposed at the two opposite ends of the first clamping member located on the same plane as the first clamping member, and the driving assembly are capable of driving the two second clamping members to move close to or away from each other along the plane where the first clamping member is located, so that the mop cloth is more convenient to replace.

[0027] Further, the driving assembly includes linkage mechanisms connected between the second clamping members and the end of the mop bottom plate close to the mop rod, elastic members acting between the two second clamping members and capable of giving the two second clamping members a tendency to move in a direction away from each other, and pressing members connected at the end of the mop rod close to the mop bottom plate and capable of acting on the linkage mechanisms to drive the two second clamping members to move in a direction close to each other.

[0028] Preferably, the first toothed areas are disposed at the ends of the first clamping member facing the second clamping members, the second toothed areas are disposed at the ends of the second clamping members

facing the first clamping member, and the first toothed areas and the second toothed areas are formed in a staggered manner, which can improve the reliability of cloth clamping.

[0029] Specifically, the mop rod includes the outer rod connected to the mop bottom plate, and the inner rod slidably connected inside the outer rod, where the outer rod is fixed to the mop bottom plate; the pressing members are connected to a bottom end of the inner rod, and thus the pressing members can be synchronously moved up or down by lifting or pressing the inner rod; after the inner rod is lifted up to drive the pressing members to move upwards, the pressing members are detached from the linkage mechanisms, so that the two second clamping members are pushed to move in a direction away from each other due to resilience of the elastic members, making the second clamping members move away from the first clamping member so as to release the mop cloth for easy replacement; and after the inner rod is pressed down to drive the pressing members to move downwards, the pressing members will exert a force on the linkage mechanisms, making the linkage mechanisms drive the two second clamping members to move in a direction close to each other, so that the second clamping members are enabled to move close to the first clamping member until the first clamping member and the second clamping members are in a mutually clamped and locked state, making the cloth clamping function more reliable.

[0030] Further, each of the linkage mechanisms includes first connecting rods hinged to the two second clamping members respectively, and second connecting rods hinged to the other ends of the two first connecting rods respectively, and the other ends of the two second connecting rods are hinged to the end of the mop bottom plate close to the mop rod; after the mop rod is lifted up, the pressing members are detached from the linkage mechanisms, and the two second clamping members are driven to move in a direction away from each other due to resilience of the elastic members; and meanwhile, the hinged joints between the first connecting rods and the second connecting rods are unfolded with relative upward and outward motions until the first connecting rods and the second connecting rods are in the same straight line; and at this time, the second clamping members are enabled to be farthest away from the first clamping member; after the mop rod is pressed down, the pressing members act on the linkage mechanisms to drive the hinged joints between the first connecting rods and the second connecting rods to make relative downward and inward motions, driving the two second clamping members to move in a direction close to each other; and at this time, the second clamping members are enabled to be closest to the first clamping member, and meanwhile the first connecting rods and the second connecting rods are in a nearly vertical state.

[0031] Preferably, there are two sets of linkage mechanisms symmetrically disposed relative to the mop rod; there are two elastic members symmetrically disposed

relative to the mop rod; each of the second clamping members includes a long strip-shaped clamping rod provided with the second toothed areas, and extension rods extending from the clamping rod towards the other second clamping member; each clamping rod is provided with the two extension rods respectively located on both sides of the mop rod; abutting portions configured to abut against the elastic members are disposed at the connecting joints between the extension rods and the clamping rods; accommodating grooves configured to accommodate the elastic members and connected to the abutting portions are also formed in the extension rods, and thus the elastic members are placed in the accommodating grooves of the two extension rods with their two ends being respectively abutted against the two abutting portions; and moreover, when the first clamping member and the second clamping members are in a mutually clamped and locked state, the elastic members are in a compressed energy storage state; and then after the pressing members are detached from the linkage mechanisms, the resilience generated by the compressed energy of the elastic members will drive the two second clamping members to move in a direction away from each other, making the second clamping members move away from the first clamping member so as to release the mop cloth for easy replacement.

[0032] Further, the mop bottom plate is provided with a moving groove along the moving direction of the mop rod for the pressing members to move; each of the moving grooves is provided with a first limiting portion and a second limiting portion respectively formed at two ends of the movement direction of the mop rod; the first limiting portions are formed at the side close to the mop rod, and the second limiting portions are formed at the side close to the mop bottom plate; when the mop rod is lifted up until the pressing members are abutted against the first limiting portions, the second clamping members are farthest away from the first clamping member; and when the mop rod is moved down until the pressing members are abutted against the second limiting portions, the second clamping members are closest to the first clamping member.

[0033] Preferably, a locking structure is further provided between the outer wall of the inner rod and the inner wall of the outer rod; when the inner rod is moved down until the pressing members are abutted against the second limiting portions, the locking structure locks the inner rod and the outer rod together to limit the sliding movement of the inner rod relative to the outer rod; and at this time, the second clamping members are closest to the first clamping member, that is, the first clamping member and the second clamping members are in a mutually clamped and locked state.

[0034] Specifically, the moving groove is communicated with the inner cavity of the mop bottom plate, and the pressing members include pressing portions that can extend into the moving groove and abut against the linkage mechanisms; the pressing members further include slid-

ing portions located directly below the inner rod, the mop bottom plate is provided with sliding grooves for the sliding portions to slide, and the sliding portions are always placed in the sliding grooves so as to make the movement of the pressing members more stable; the two pressing portions are disposed on each of the sliding portions at two ends of the inner rod, exerting a force on the corresponding linkage mechanism; and meanwhile, during the unfolding and contraction processes of the linkage mechanisms, the pressing portions move along outer side walls of the second connecting rods.

(3) Beneficial effects

[0035] Compared with the prior art, the cloth clamping mop with easy-to-replace mop cloth is designed by the present disclosure, which has the driving assembly configured to connect the second clamping members to the mop rod, so that the second clamping members can be controlled to move close to or away from the first clamping member by lifting or pressing the mop rod; and therefore, the mop cloth is clamped or released after the second clamping members move close to or away from the first clamping member. The cloth clamping mop is simple in structure and more convenient in operation of mop cloth replacement.

Brief Description of Figures

[0036]

FIG. 1 is a schematic diagram of the structure of a cloth clamping mop with easy-to-replace mop cloth provided in Embodiment I;

FIG. 2 is an enlarged schematic diagram at Part A in FIG. 1;

FIG. 3 is an enlarged schematic diagram at Part B in FIG. 1;

FIG. 4 is an exploded view of a mop base provided in Embodiment I;

FIG. 5 is an enlarged schematic diagram at Part C in FIG. 4;

FIG. 6 is a schematic cross-sectional view of the mop base provided in Embodiment I;

FIG. 7 is an exploded view from another perspective of the mop base provided in Embodiment I;

FIG. 8 is an enlarged schematic diagram at Part D in FIG. 7;

FIG. 9 is an enlarged schematic diagram at Part E in FIG. 7;

FIG. 10 is a partial exploded view of the cloth clamping mop with easy-to-replace mop cloth provided in Embodiment I;

FIG. 11 is an enlarged schematic diagram at Part F in FIG. 10;

FIG. 12 is an enlarged schematic diagram at Part G in FIG. 10;

FIG. 13 is an enlarged schematic diagram at Part H

in FIG. 10;

FIG. 14 is a schematic diagram of the structure of a cloth clamping mop with easy-to-replace mop cloth provided in Embodiment II (which does not include a mop cover plate with first clamping member and second clamping members being in a clamped and locked state);

FIG. 15 is an enlarged schematic diagram at Part I in FIG. 14;

FIG. 16 is an enlarged schematic diagram at Part J in FIG. 14;

FIG. 17 is a schematic diagram from another perspective of the structure of the cloth clamping mop with easy-to-replace mop cloth provided in Embodiment II (with the first clamping member and second clamping members being in a clamped and locked state);

FIG. 18 is an enlarged schematic diagram at Part K in FIG. 17;

FIG. 19 is a schematic diagram of the structure of the cloth clamping mop with easy-to-replace mop cloth provided in Embodiment II (which does not include the mop cover plate with the first clamping member and second clamping members being in a maximum open state);

FIG. 20 is an enlarged schematic diagram at Part L in FIG. 19;

FIG. 21 is an enlarged schematic diagram at Part M in FIG. 19;

FIG. 22 is a schematic diagram from another perspective of the structure of the cloth clamping mop with easy-to-replace mop cloth provided in Embodiment II (with the first clamping member and second clamping members being in a maximum open state);

FIG. 23 is an enlarged schematic diagram at Part N in FIG. 22;

FIG. 24 is a schematic diagram of the structure of the cloth clamping mop with easy-to-replace mop cloth provided in Embodiment II; and

FIG. 25 is an enlarged schematic diagram at Part O in FIG. 24.

[0037] The following reference numerals on the drawings are described as follows: 1. denotes a mop rod; 11 denotes an outer rod; 111. denotes guide sliding platforms; 12 denotes an inner rod; 121 denotes elastic buckles; 122 denotes guide chutes; 13 denotes a screw rod; 131 denotes a protruding portion; 14 denotes connecting member; 15 denotes external connecting member; 2 denotes a mop bottom plate; 21 denotes a clamping assembly; 211 denotes first clamping member; 211-1 denotes first toothed areas; 211-2 denotes snap holes; 212 denotes second clamping members; 212-1 denotes rack portions; 212-1a denotes first restricting portions; 212-1b denotes second restricting portions; 212-2 denotes second toothed areas; 213 denotes clamping driving members; 22 denotes driving assembly; 221 denotes driving gear; 23 denotes a mop cover plate; 231 denotes exten-

sion outlets; 232 denotes opening portion; 233 denotes snap fasteners; and 24 denotes rotating base.

Detailed Description

[0038] Specific implementations of the present disclosure will further be described below in combination with the drawings and embodiments in detail. The following embodiments are provided to illustrate the present disclosure, but are not intended to limit the scope of the present disclosure.

[0039] In the description of this application, it should be noted that unless otherwise explicitly specified or defined, the terms such as "mount", "install", "connect", and "connection" should be understood in a broad sense. For example, the connection may be a fixed connection, a detachable connection, or an integral connection; or the connection may be a mechanical connection or an electrical connection; or the connection may be a direct connection, an indirect connection through an intermediary, or internal communication between two components. Those of ordinary skill in the art could understand the specific meanings of the above terms in the present disclosure according to specific situations.

Embodiment I:

[0040] As shown in FIG. 1 to FIG. 9, this embodiment provides a cloth clamping mop with easy-to-replace mop cloth. The cloth clamping mop includes a mop rod 1, and a mop bottom plate 2 connected to one end of the mop rod 1; the mop bottom plate 2 is provided with a clamping assembly 21 configured to clamp the mop cloth; the clamping assembly 21 includes a first clamping member 211 fixed at the end of the mop bottom plate 2 far away from the mop rod 1, and second clamping members 212 movably connected to the mop bottom plate 2 and capable of moving close to or away from the first clamping member 211; the mop bottom plate 2 is further provided with a driving assembly 22 configured to drive the second clamping members 212 to move close to or away from the first clamping member 211; and the mop rod 1 is connected to the driving assembly 22, and the driving assembly 22 is controlled to drive the second clamping members 212 to move close to or away from the first clamping member 211 by lifting or pressing the mop rod 1. Specifically, the mop cloth is made of thin non-woven fabric. In this embodiment, the mop rod 1 is lifted up to control the second clamping members 212 to move away from the first clamping member 211, making the mop bottom plate 2 be placed on the mop cloth, and the mop rod 1 is pressed down to control the second clamping members 212 to move close to the first clamping member 211, making the mop cloth be clamped between the first clamping member 211 and the second clamping members 212, thus achieving the cloth clamping function; when the mop cloth is released, the mop rod 1 is lifted up to move the second clamping members 212 away

from the first clamping member 211, and thus the mop cloth is enabled to fall off; and in the clamping process, part of the mop cloth is squeezed between the first clamping member 211 and the second clamping members 212, so that the purpose of clamping the cloth is achieved. By adopting the above solution, the driving assembly 22 is provided to be configured to connect the second clamping members 212 to the mop rod 1, so that the second clamping members 212 can be controlled to move close to or away from the first clamping member 211 by lifting or pressing the mop rod 1; and therefore, the mop cloth is clamped or released after the second clamping members move close to or away from the first clamping member. The cloth clamping mop is simple in structure and more convenient in operation of mop cloth replacement.

[0041] As shown in FIG. 4 to FIG. 9, further, the driving assembly 22 includes a driving gear 221; and each of the second clamping members 212 includes rack portions 212-1 meshing with the driving gear 221 for transmission. Further, the second clamping members 212 are respectively disposed at two opposite ends of the first clamping member 211 located on the same plane as the first clamping member; the driving gear 221 is disposed inside an inner cavity of the mop bottom plate 2 and rotate circumferentially about a central axis of the mop rod 1; and clamping driving members 213 are disposed on two opposite sides of the driving gear 221 inside the inner cavity of the mop bottom plate 2, the rack portions 212-1 are disposed at one ends of the clamping driving members 213, and the other ends of the clamping driving members extend out of the inner cavity of the mop bottom plate 2 and are connected to the second clamping members 212. Preferably, the second clamping members 212 are connected below the clamping driving members 213 in a snap connection manner. Specifically, the two clamping driving members 213 are disposed on two opposite sides of the driving gear 221, making the two clamping driving members 213 be driven to move synchronously by the rotation of the driving gear 221, so that the two second clamping members 212 are driven to move close to or away from the first clamping member 211 synchronously; and therefore, the mop cloth is more convenient to replace. Further, each of the rack portions 212-1 is provided with a first restricting portion 212-1a and a second restricting portion 212-1b at two ends of a tooth portion each of the rack portions configured to restrict the corresponding driving gear 221; when the driving gear 221 rotates until the driving gear is abutted against the first restricting portions 212-1a, the second clamping members 212 are farthest away from the first clamping member 211, and the first clamping member 211 and the second clamping members 212 are in a maximum open state, making the mop cloth fall off more easily; and when the driving gear 221 rotates until the driving gear is abutted against the second restricting portions 212-1b, the second clamping members 212 are closest to the first clamping member 211, and the first clamping member 211 and the second clamping members 212 are in a state

of mutual clamping and locking, making the cloth clamping function more reliable. Preferably, the rack portions 212-1 are provided above the clamping driving members 213, and the rack portion 212-1 of any clamping driving member 213 is partially placed above the other clamping driving member 213; the extending directions of the tooth portions of the rack portions 212-1 are parallel to the movement directions of the clamping driving members 213 and the second clamping members 212; and meanwhile, when the driving gear 221 rotates until the driving gear is abutted against the second restricting portions 212-1b, end faces of the two clamping driving members 213 close to each other are just abutted against each other, which further restricts the mutual movement of the two clamping driving members, making the cloth clamping function more reliable. By adopting the above solution, due to arrangement of the first restricting portions 212-1a and the second restricting portions 212-1b, the first clamping member 211 can be prevented from detaching from the mop bottom plate 2, making it more reliable to use. Further, the mop bottom plate 2 includes a mop cover plate 23 connected to the mop rod 1, and the first clamping member 211 detachably connected on the side of the mop bottom plate 2 far away from the mop rod 1; extension outlets 231 are reserved in side faces of the mop cover plate 23 for the clamping driving members 213 to extend out of the extension outlets; and an opening portion 232 are reserved at the end of the mop cover plate 23 far away from the first clamping member 211 for the driving gear 221 to partially extend out of the opening portion to be connected to the mop rod 1. Preferably, a plurality of snap fasteners 233 are formed by extending downwards from a bottom of the mop cover plate 23, and correspondingly, the first clamping member 211 include snap holes 211-2 matched with the snap fasteners 233, so as to achieve a detachable connection between each of the snap fasteners and the corresponding snap hole and facilitate subsequent maintenance. Further, first toothed areas 211-1 are disposed at the ends of the first clamping member 211 facing the second clamping members 212, second toothed areas 212-2 are disposed at the ends of the second clamping members 212 facing the first clamping member 211, and the first toothed areas 211-1 and the second toothed areas 212-2 are formed in a staggered manner, which can improve the reliability of cloth clamping.

[0042] As shown in FIG. 10 to FIG. 13, further, the mop rod 1 includes an outer rod 11 connected to the mop bottom plate 2, and an inner rod 12 slidably connected inside the outer rod 11; the inner rod 12 is internally provided with a screw rod 13, and at least a part of an inner wall of the inner rod 12 is matched with the screw rod 13; and the screw rod 13 is connected to the driving assembly 22 by ways of connecting member 14. Specifically, the screw rod 13 is rotatably connected to the parts of the driving gear 221 extending out of the mop bottom plate 2 by ways of the connecting member 14; external connecting member 15 is connected to the bottom of the

outer rod 11, the external connecting member 15 is sleeved outside the connecting member 14, and the external connecting member 15 is rotatably connected to the mop bottom plate 2; a rotating base 24 rotatably connected to the external connecting member 15 is disposed on a top end of the mop bottom plate 2; and moreover, since the rotation directions of the connecting member 14 and the driving gear 221 is the same as those of the external connecting member 15 and the mop bottom plate 2, the whole mop rod 1 can rotate relative to the mop bottom plate 2, making it possible to adjust an angle between the mop rod and the mop bottom plate. Further, a plurality of elastic buckles 121 arranged at equal intervals in an annular shape are formed by extending downwards from a lower end of the inner rod 12, and an outer wall of the screw rod 13 protrudes to form a protruding portion 131 matched with the elastic buckles 121. When in use, the inner rod 12 is lifted up, and the protruding portion 131 of the screw rod 13 is detached from the elastic buckles 121; since an inner wall of the inner rod 12 is matched with the screw rod 13, the screw rod 13 can be driven to rotate, and the driving gear 221 is thus driven to rotate by ways of the connecting member 14, driving the second clamping members 212 to move away from the first clamping member 211 so as to enable the second clamping members and the first clamping member to loose; when clamping, the inner rod 12 is pressed down; since the inner wall of the inner rod 12 is matched with the screw rod 13, the screw rod 13 can be driven to rotate relatively in the opposite direction, and the driving gear 221 is thus driven to rotate relatively in the opposite direction by ways of the connecting member 14, driving the second clamping members 212 to move close the first clamping member 211 so as to enable the second clamping members and the first clamping member to clamp the mop cloth tightly; and meanwhile, the protruding portion 131 of the screw rod 13 is locked on the elastic buckles 121, making the screw rod 13 be locked with the inner rod 12, thereby improving the reliability during the subsequent mopping process. Further, an inner wall of the outer rod 11 is provided with a plurality of axially arranged guide sliding platforms 111 distributed at equal intervals for reversing directions, and correspondingly, the inner rod 12 is provided with guide chutes 122 matched with the guide sliding platforms 111, so as to prevent the inner rod 12 and the outer rod 11 from being offset.

Embodiment II:

[0043] As shown in FIG. 14 to FIG. 25, this embodiment provides a cloth clamping mop with easy-to-replace mop cloth. The cloth clamping mop includes a mop rod 1, and a mop bottom plate 2 connected to one end of the mop rod 1; the mop bottom plate 2 is provided with a clamping assembly 21 configured to clamp the mop cloth; the clamping assembly 21 includes a first clamping member 211 fixed at the end of the mop bottom plate 2 far away

from the mop rod 1, and second clamping members 212 movably connected to the mop bottom plate 2 and capable of moving close to or away from the first clamping member 211; the mop bottom plate 2 is further provided with a driving assembly 22 configured to drive the second clamping members 212 to move close to or away from the first clamping member 211; and the mop rod 1 is connected to the driving assembly 22, and the driving assembly 22 is controlled to drive the second clamping members 212 to move close to or away from the first clamping member 211 by lifting or pressing the mop rod 1. Specifically, the mop cloth is made of thin non-woven fabric. In this embodiment, the mop rod 1 is lifted up to control the second clamping members 212 to move away from the first clamping member 211, making the mop bottom plate 2 be placed on the mop cloth, and the mop rod 1 is pressed down to control the second clamping members 212 to move close to the first clamping member 211, making the mop cloth be clamped between the first clamping member 211 and the second clamping members 212, thus achieving the cloth clamping function; when the mop cloth is released, the mop rod 1 is lifted up to move the second clamping members 212 away from the first clamping member 211, and thus the mop cloth is enabled to fall off; and in the clamping process, part of the mop cloth is squeezed between the first clamping member 211 and the second clamping members 212, so that the purpose of clamping the cloth is achieved. By adopting the above solution, the driving assembly 22 is provided to be configured to connect the second clamping members 212 to the mop rod 1, so that the second clamping members 212 can be controlled to move close to or away from the first clamping member 211 by lifting or pressing the mop rod 1; and therefore, the mop cloth is clamped or released after the second clamping members move close to or away from the first clamping member. The cloth clamping mop is simple in structure and more convenient in operation of mop cloth replacement. Further, the mop bottom plate 2 includes a mop cover plate 23 connected to the mop rod 1, and the first clamping member 211 detachably connected on the side of the mop bottom plate 2 far away from the mop rod 1; and extension outlets 231 are reserved in side faces of the mop cover plate 23 for the second clamping members 212 to extend out of the extension outlets.

[0044] Further, the second clamping members 212 are respectively disposed at two opposite ends of the first clamping member 211 located on the same plane as the first clamping member; and the driving assembly 22 is capable of driving the two second clamping members 212 to move close to or away from each other along the plane where the first clamping member 211 is located, so that the mop cloth is more convenient to replace. Further, the driving assembly 22 includes linkage mechanisms 222 connected between the second clamping members 212 and the end of the mop bottom plate 2 close to the mop rod 1, elastic members 223 acting between the two second clamping members 212 and ca-

pable of giving the two second clamping members 212 a tendency to move in a direction away from each other, and pressing members 224 connected at the end of the mop rod 1 close to the mop bottom plate 2 and capable of acting on the linkage mechanisms 222 to drive the two second clamping members 212 to move in a direction close to each other. Preferably, first toothed areas 211-1 are disposed at the ends of the first clamping member 211 facing the second clamping members 212, second toothed areas 212-2 are disposed at the ends of the second clamping members 212 facing the first clamping member 211, and the first toothed areas 211-1 and the second toothed areas 212-2 are formed in a staggered manner, which can improve the reliability of cloth clamping. Specifically, the mop rod 1 includes an outer rod 11 connected to the mop bottom plate 2, and an inner rod 12 slidably connected inside the outer rod 11, where the outer rod 11 is fixed to the mop bottom plate 2; the pressing members 224 are connected to a bottom end of the inner rod, and thus the pressing members 224 can be synchronously moved up or down by lifting or pressing the inner rod 12; after the inner rod 12 is lifted up to drive the pressing members 224 to move upwards, the pressing members 224 are detached from the linkage mechanisms 222, so that the two second clamping members 212 are pushed to move in a direction away from each other due to resilience of the elastic members 223, making the second clamping members 212 move away from the first clamping member 211 so as to release the mop cloth for easy replacement; and after the inner rod 12 is pressed down to drive the pressing members 224 to move downwards, the pressing members 224 will exert a force on the linkage mechanisms 222, making the linkage mechanisms drive the two second clamping members 212 to move in a direction close to each other, so that the second clamping members 212 are enabled to move close to the first clamping member 211 until the first clamping member 211 and the second clamping members 212 are in a mutually clamped and locked state, making the cloth clamping function more reliable.

[0045] Further, each of the linkage mechanisms 222 includes first connecting rods 222-1 hinged to the two second clamping members 212 respectively, and second connecting rods 222-2 hinged to the other ends of the two first connecting rods 222-1 respectively, and the other ends of the two second connecting rods 222-2 are hinged to the end of the mop bottom plate 2 close to the mop rod 1; after the mop rod 1 is lifted up, the pressing members 224 are detached from the linkage mechanisms 222, and the two second clamping members 212 are driven to move in a direction away from each other due to resilience of the elastic members 223; and meanwhile, the hinged joints between the first connecting rods 222-1 and the second connecting rods 222-2 are unfolded with relative upward and outward motions until the first connecting rods 222-1 and the second connecting rods 222-2 are in the same straight line; and at this time, the second clamping members 212 are enabled to be

farthest away from the first clamping member 211; after the mop rod 1 is pressed down, the pressing members 224 act on the linkage mechanisms 222 to drive the hinged joints between the first connecting rods 222-1 and the second connecting rods 222-2 to make relative downward and inward motions, driving the two second clamping members 212 to move in a direction close to each other; and at this time, the second clamping members 212 are enabled to be closest to the first clamping member 211, and meanwhile the first connecting rods 222-1 and the second connecting rods 222-2 are in a nearly vertical state. Preferably, there are two sets of linkage mechanisms 222 symmetrically disposed relative to the mop rod 1; there are two elastic members 223 symmetrically disposed relative to the mop rod 1; each of the second clamping members 212 includes a long strip-shaped clamping rod 212-3 with the second toothed areas 212-2, and extension rods 212-4 extending from the clamping rod 212-3 towards the other second clamping member 212; each clamping rod 212-3 is provided with the two extension rods 212-4 respectively located on both sides of the mop rod 1; abutting portions 212-5 configured to abut the elastic members 223 are disposed at the connecting joints between the extension rods 212-4 and the clamping rods 212-3; accommodating grooves 212-4a configured to accommodate the elastic members 223 and connected to the abutting portions 212-5 are also formed in the extension rods 212-4, and thus the elastic members 223 are placed in the accommodating grooves 212-4a of the two extension rods 212-4 with their two ends being respectively abutted against the two abutting portions 212-5; and moreover, when the first clamping member 211 and the second clamping members 212 are in a mutually clamped and locked state, the elastic members 223 are in a compressed energy storage state; and then after the pressing members 224 are detached from the linkage mechanisms 222, the resilience generated by the compressed energy of the elastic members 223 will drive the two second clamping members 212 to move in a direction away from each other, making the second clamping members 212 move away from the first clamping member 211 so as to release the mop cloth for easy replacement.

[0046] Further, the mop bottom plate 2 is provided with a moving groove 25 along the moving direction of the mop rod 1 for the pressing members 224 to move; each of the moving grooves 25 is provided with a first limiting portion 251 and a second limiting portion 252 respectively formed at two ends of the movement direction of the mop rod 1; the first limiting portions 251 are formed at the side close to the mop rod 1, and the second limiting portions 252 are formed at the side close to the mop bottom plate 2; when the mop rod 1 is lifted up until the pressing members 224 are abutted against the first limiting portions 251, the second clamping members 212 are farthest away from the first clamping member 211; and when the mop rod 1 is moved down until the pressing members 224 are abutted against the second limiting portions 252,

the second clamping members 212 are closest to the first clamping member 211. Preferably, a locking structure (not shown in the figure) is further provided between the outer wall of the inner rod 12 and the inner wall of the outer rod 11; when the inner rod 12 is moved downwards until the pressing members 224 are abutted against the second limiting portions 252, the locking structure locks the inner rod 12 and the outer rod 11 together to limit the sliding movement of the inner rod 12 relative to the outer rod 11; and at this time, the second clamping members 212 are closest to the first clamping member 211, that is, the first clamping member 211 and the second clamping members 212 are in a mutually clamped and locked state. However, after the inner rod 12 is lifted up, the inner rod can release the locking of the locking structure, so that the inner rod 12 can move upwards along the outer rod 11. Specifically, the moving groove 25 is communicated with the inner cavity of the mop bottom plate 2, and the pressing members 224 include pressing portions 224-1 that can extend into the moving groove 25 and abut against the linkage mechanisms 222; the pressing members 224 further include sliding portions 224-2 located directly below the inner rod 12, the mop bottom plate 2 is provided with sliding grooves 26 for the sliding portions 224-2 to slide, and the sliding portions 224-2 are always placed in the sliding grooves 26 so as to make the movement of the pressing members 224 more stable; the two pressing portions 224-1 are disposed on each of the sliding portions 224-2 at two ends of the inner rod 12, exerting a force on the corresponding linkage mechanism 222; and meanwhile, during the unfolding and contraction processes of the linkage mechanisms 222, the pressing portions 224-1 move along outer side walls of the second connecting rods 222-2.

[0047] The foregoing descriptions are merely exemplary implementations of the present disclosure. It should be pointed out that for those of ordinary skill in the art, some improvements and embellishments can also be made without departing from the technical principle of the present disclosure, and these improvements and embellishments should also be regarded as the protection scope of the present disclosure.

Claims

1. A cloth clamping mop with easy-to-replace mop cloth, wherein the cloth clamping mop comprises a mop rod (1), and a mop bottom plate (2) connected to one end of the mop rod (1); the mop bottom plate (2) is provided with a clamping assembly (21) configured to clamp the mop cloth; the clamping assembly (21) comprises a first clamping member (211) fixed at the end of the mop bottom plate (2) far away from the mop rod (1), and a second clamping member (212) movably connected to the mop bottom plate (2) and capable of moving close to or away from the first clamping member (211); the mop bot-

tom plate (2) is further provided with a driving assembly (22) configured to drive the second clamping member (212) to move close to or away from the first clamping member (211); and the mop rod (1) is connected to the driving assembly (22), and the driving assembly (22) is controlled to drive the second clamping member (212) to move close to or away from the first clamping member (211) by lifting or pressing the mop rod (1).

2. The cloth clamping mop with easy-to-replace mop cloth according to claim 1, wherein the driving assembly (22) comprises a driving gear (221); and the second clamping member (212) comprises a rack portion (212-1) meshing with the driving gear (221) for transmission.
3. The cloth clamping mop with easy-to-replace mop cloth according to claim 2, wherein

the cloth clamping mop comprises two second clamping members (212), wherein the two second clamping members (212) are respectively disposed at two opposite ends of the first clamping member (211) and are located on the same plane as the first clamping member;

the driving gear (221) is disposed inside an inner cavity of the mop bottom plate (2) and is configured to rotate about a central axis of the mop rod (1); and

clamping driving members (213) are disposed on two opposite sides of the driving gear (221) inside the inner cavity of the mop bottom plate (2), a rack portion (212-1) is provided at one end of each clamping driving member (213), and the other end of each clamping driving member extends out of the inner cavity of the mop bottom plate (2) and is connected to respective second clamping member (212).

4. The cloth clamping mop with easy-to-replace mop cloth according to claim 2, wherein the rack portion (212-1) is provided with a first restricting portion (212-1a) and a second restricting portion (212-1b) at two ends of a tooth portion of the rack portion configured to restrict the driving gear (221); when the driving gear (221) rotates to a position that the driving gear is abutted against the first restricting portion (212-1a), the second clamping member (212) is farthest away from the first clamping member (211); and when the driving gear (221) rotates to a position that the driving gear is abutted against the second restricting portion (212-1b), the second clamping member (212) is closest to the first clamping member (211).
5. The cloth clamping mop with easy-to-replace mop cloth according to claim 3, wherein the mop bot-

- plate (2) comprises a mop cover plate (23) connected to the mop rod (1), and the first clamping member (211) detachably connected on the side of the mop bottom plate (2) far away from the mop rod (1); extension outlets (231) are reserved in side faces of the mop cover plate (23) so that the clamping driving members (213) are able to extend out of the extension outlets; and an opening portion (232) is reserved at the end of the mop cover plate (23) far away from the first clamping member (211) so that the driving gear (221) is able to partially extend out of the opening portion to be connected to the mop rod (1).
6. The cloth clamping mop with easy-to-replace mop cloth according to any preceding claim, wherein the driving assembly (22) comprises a cam configured to rotate about the central axis of the mop rod (1), and a reset member configured to reset the second clamping member (212).
 7. The cloth clamping mop with easy-to-replace mop cloth according to any preceding claim, wherein a first toothed area (211-1) is disposed at the end of the first clamping member (211) facing the second clamping member (212), and a second toothed area (212-2) is disposed at the end of the second clamping member (212) facing the first clamping member (211); and the first toothed area (211-1) and the second toothed area (212-2) are formed in a staggered manner.
 8. The cloth clamping mop with easy-to-replace mop cloth according to any preceding claim, wherein the mop rod (1) comprises an outer rod (11) connected to the mop bottom plate (2), and an inner rod (12) slidable inside the outer rod (11); the inner rod (12) is provided with a screw rod (13), and at least a part of an inner wall of the inner rod (12) is matched with the screw rod (13); and the screw rod (13) is connected to the driving assembly (22) by a connecting member (14).
 9. The cloth clamping mop with easy-to-replace mop cloth according to claim 8, wherein a plurality of elastic buckles (121) arranged at equal intervals in an annular shape are formed by extending downwards from a lower end of the inner rod (12), and an outer wall of the screw rod (13) protrudes to form a protruding portion (131) matched with the elastic buckles (121).
 10. The cloth clamping mop with easy-to-replace mop cloth according to claim 8, wherein at least a part of an inner wall of the outer rod (11) is provided with axially arranged guide sliding platforms (111), and correspondingly, the inner rod (12) is provided with guide chutes (122) matched with the guide sliding platforms (111).
 11. The cloth clamping mop with easy-to-replace mop cloth according to any preceding claim, wherein two second clamping members (212) are respectively disposed at the two opposite ends of the first clamping member (211) located on the same plane as the first clamping member; and the driving assembly (22) is capable of driving the two second clamping members (212) to move close to or away from each other along the plane where the first clamping member (211) is located.
 12. The cloth clamping mop with easy-to-replace mop cloth according to claim 11, wherein the driving assembly (22) comprises linkage mechanisms (222) connected between the second clamping members (212) and the end of the mop bottom plate (2) close to the mop rod (1), elastic members (223) acting between the two second clamping members (212) and capable of giving the two second clamping members (212) a tendency to move in a direction away from each other, and pressing members (224) connected to the end of the mop rod (1) close to the mop bottom plate (2) and capable of acting on the linkage mechanisms to drive the two second clamping members (212) to move in a direction close to each other.
 13. The cloth clamping mop with easy-to-replace mop cloth according to claim 12, wherein each of the linkage mechanisms (222) comprises first connecting rods (222-1) hinged to the two second clamping members (212) respectively, and second connecting rods (222-2) hinged to the other ends of the two first connecting rods (222-1) respectively, and the other ends of the two second connecting rods (222-2) are hinged to the end of the mop bottom plate (2) close to the mop rod (1); after the mop rod (1) is lifted up, the pressing members (224) are detached from the linkage mechanisms (222), and the two second clamping members (212) are driven to move in a direction away from each other due to resilience of the elastic members (223); and meanwhile, the hinged joints between the first connecting rods (222-1) and the second connecting rods (222-2) are unfolded with relative upward and outward motions; and at this time, the second clamping members (212) are farthest away from the first clamping member (211); after the mop rod (1) is pressed down, the pressing members (224) act on the linkage mechanisms (222) to drive the hinged joints between the first connecting rods (222-1) and the second connecting rods (222-2) to make relative downward and inward motions, driving the two second clamping members (212) to move in a direction close to each other; and at this time, the second clamping members (212) are closest to the first clamping member (211).
 14. The cloth clamping mop with easy-to-replace mop

cloth according to claim 12, wherein the mop bottom plate (2) is provided with a moving groove (25) along the moving direction of the mop rod (1) for the pressing members (224) to move; each of the moving grooves (25) is provided with a first limiting portion (251) and a second limiting portion (252) respectively formed at two ends of the movement direction of the mop rod (1); the first limiting portions (251) are formed at the side close to the mop rod (1), and the second limiting portions (252) are formed at the side close to the mop bottom plate (2); when the mop rod (1) is lifted up to a position that the pressing members (224) are abutted against the first limiting portions (251), the second clamping members (212) are farthest away from the first clamping member (211); and when the mop rod (1) is moved down to a position that the pressing members (224) are abutted against the second limiting portions (252), the second clamping members (212) are closest to the first clamping member (211).

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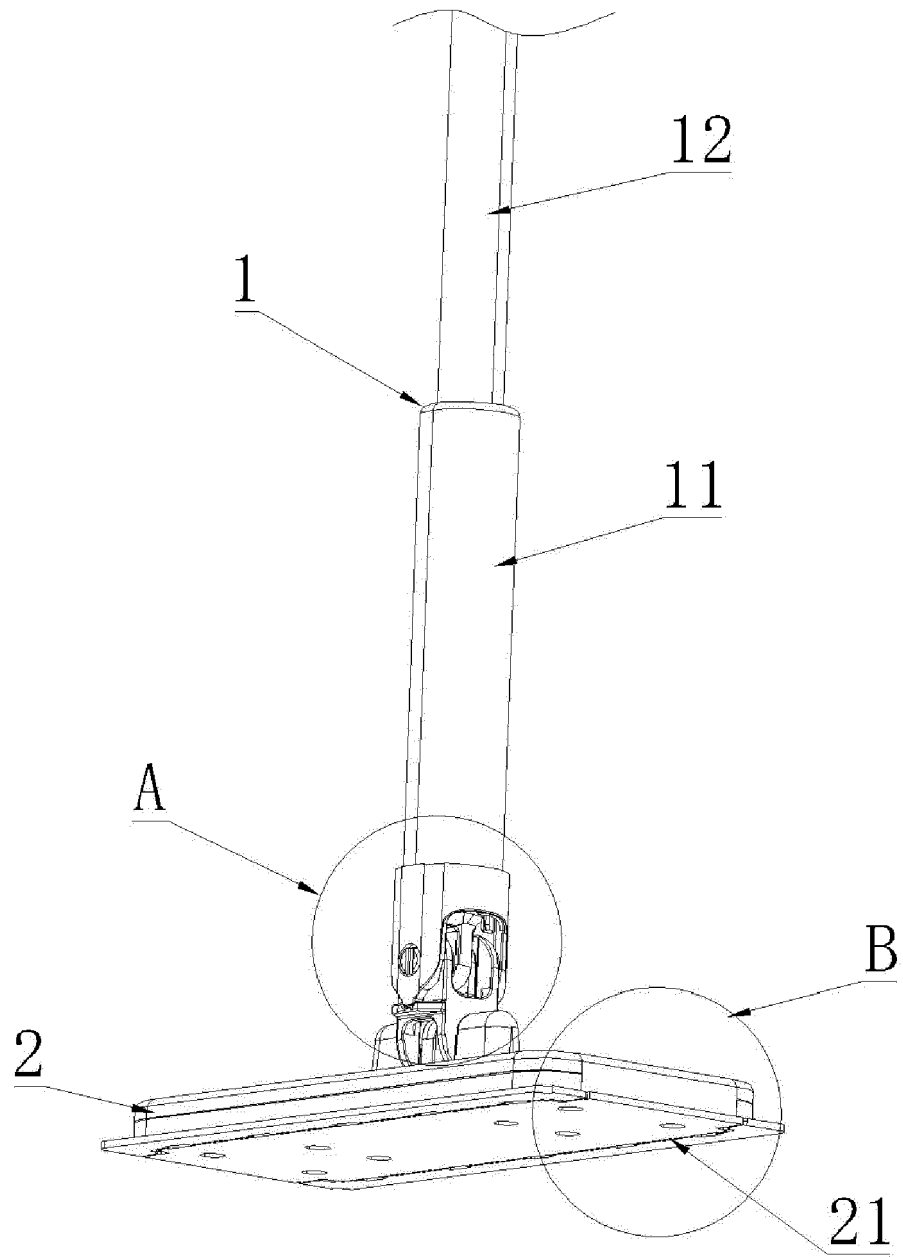


FIG. 1

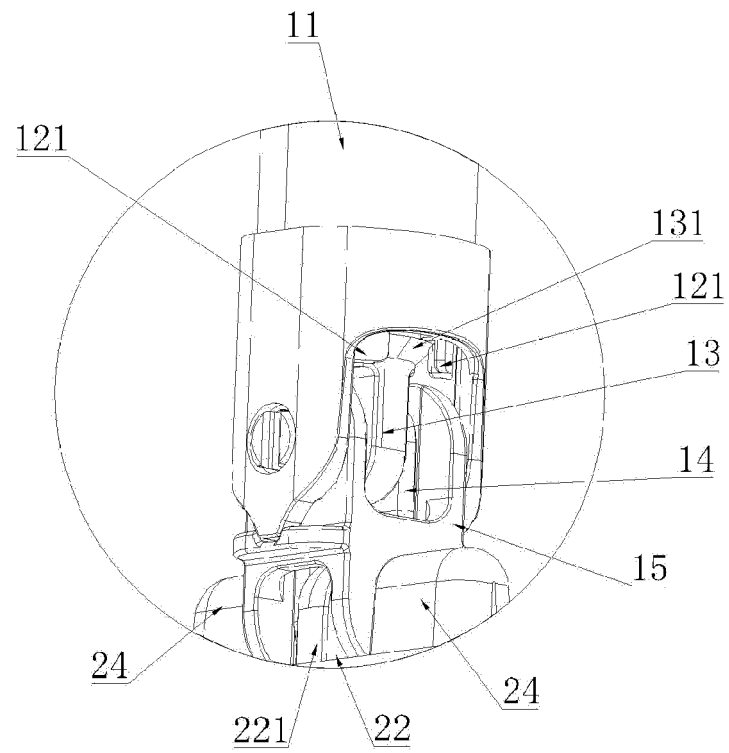


FIG. 2

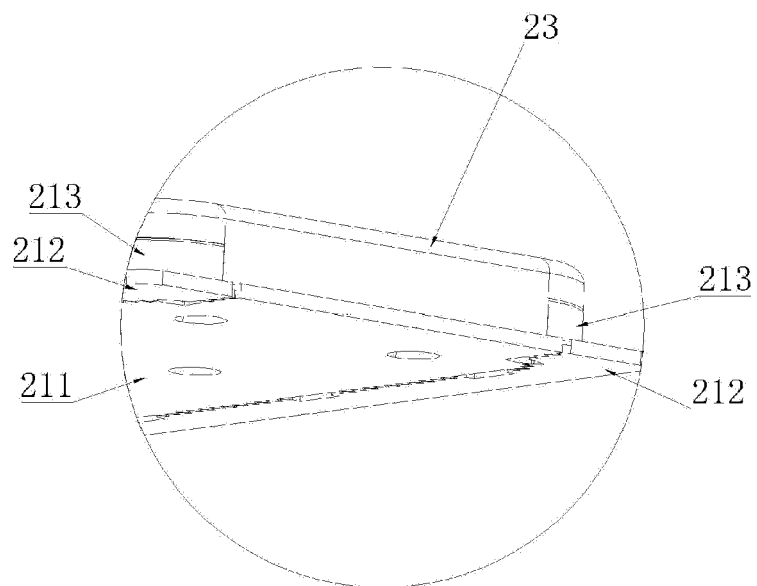


FIG. 3

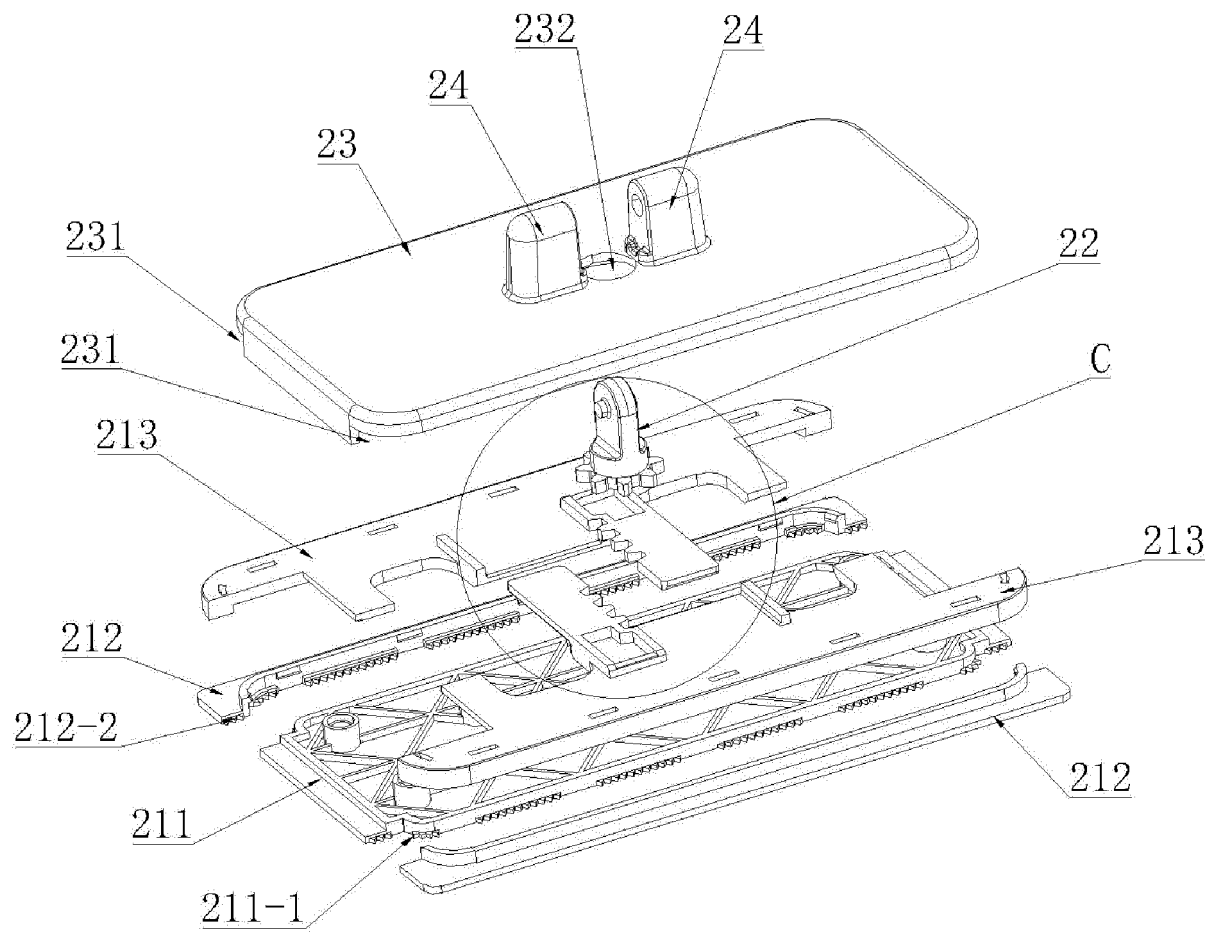


FIG. 4

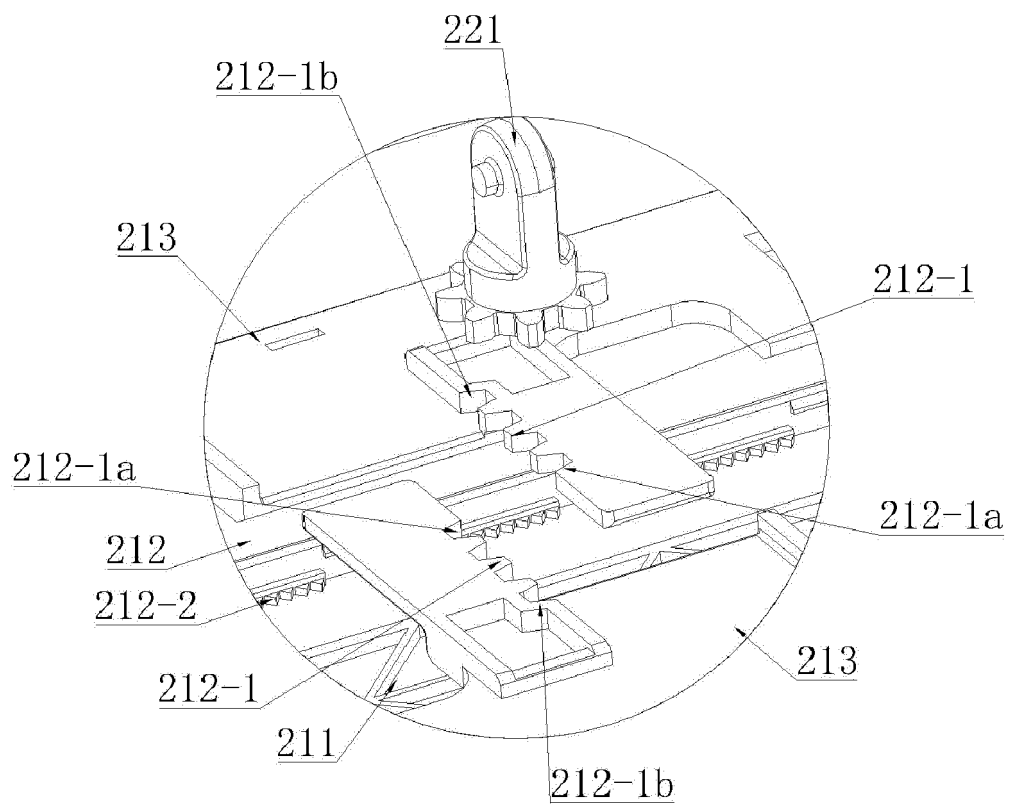


FIG. 5

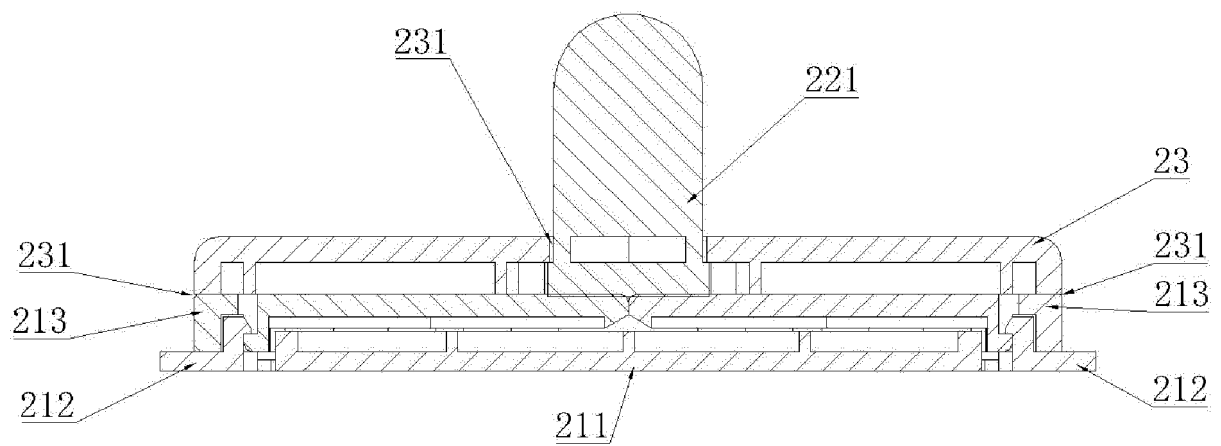


FIG. 6

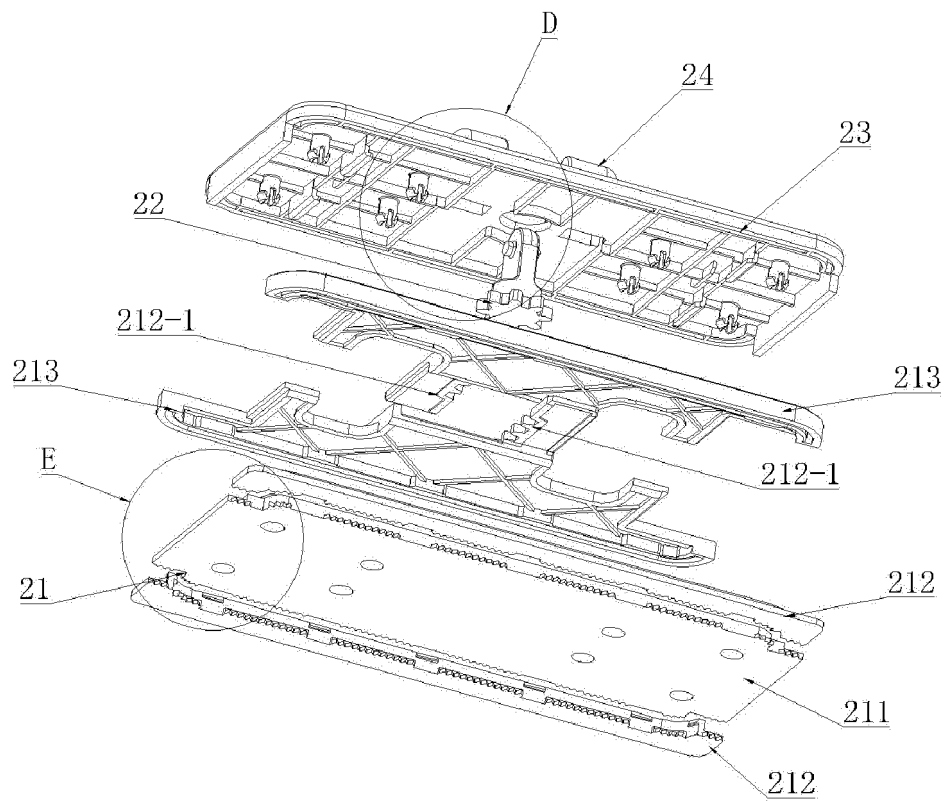


FIG. 7

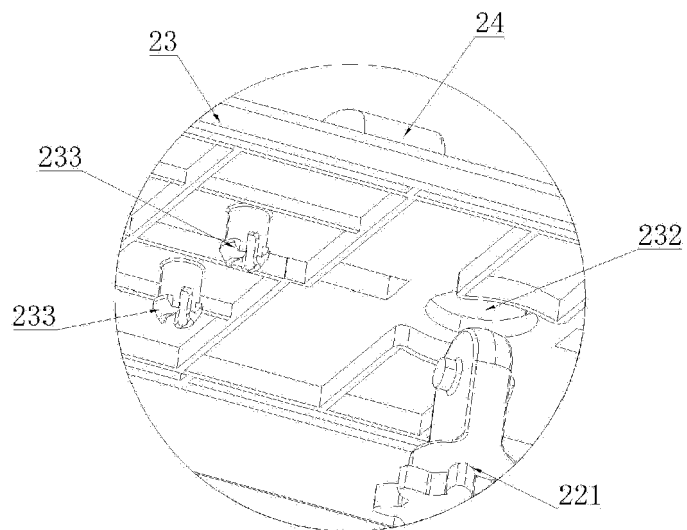


FIG. 8

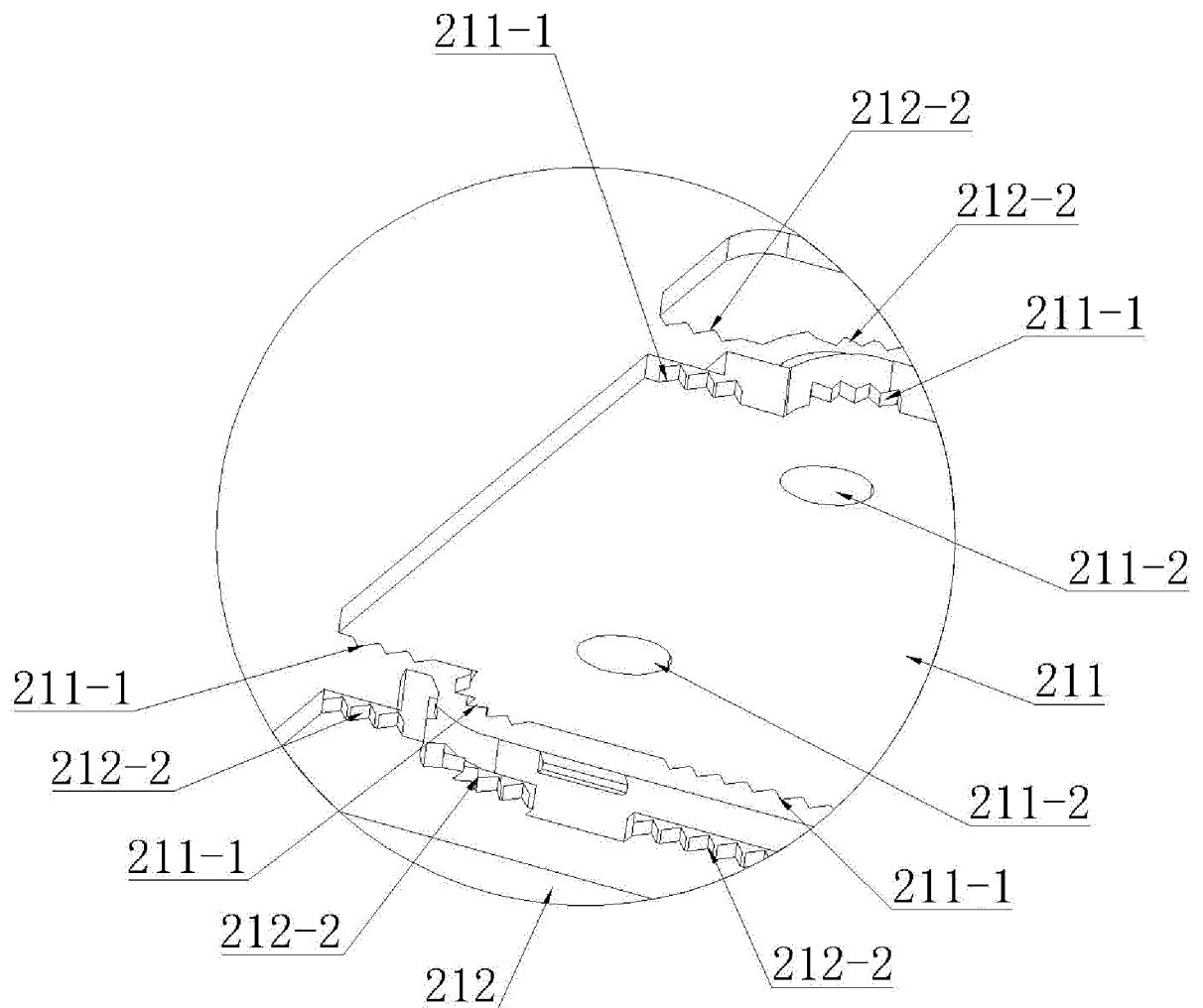


FIG. 9

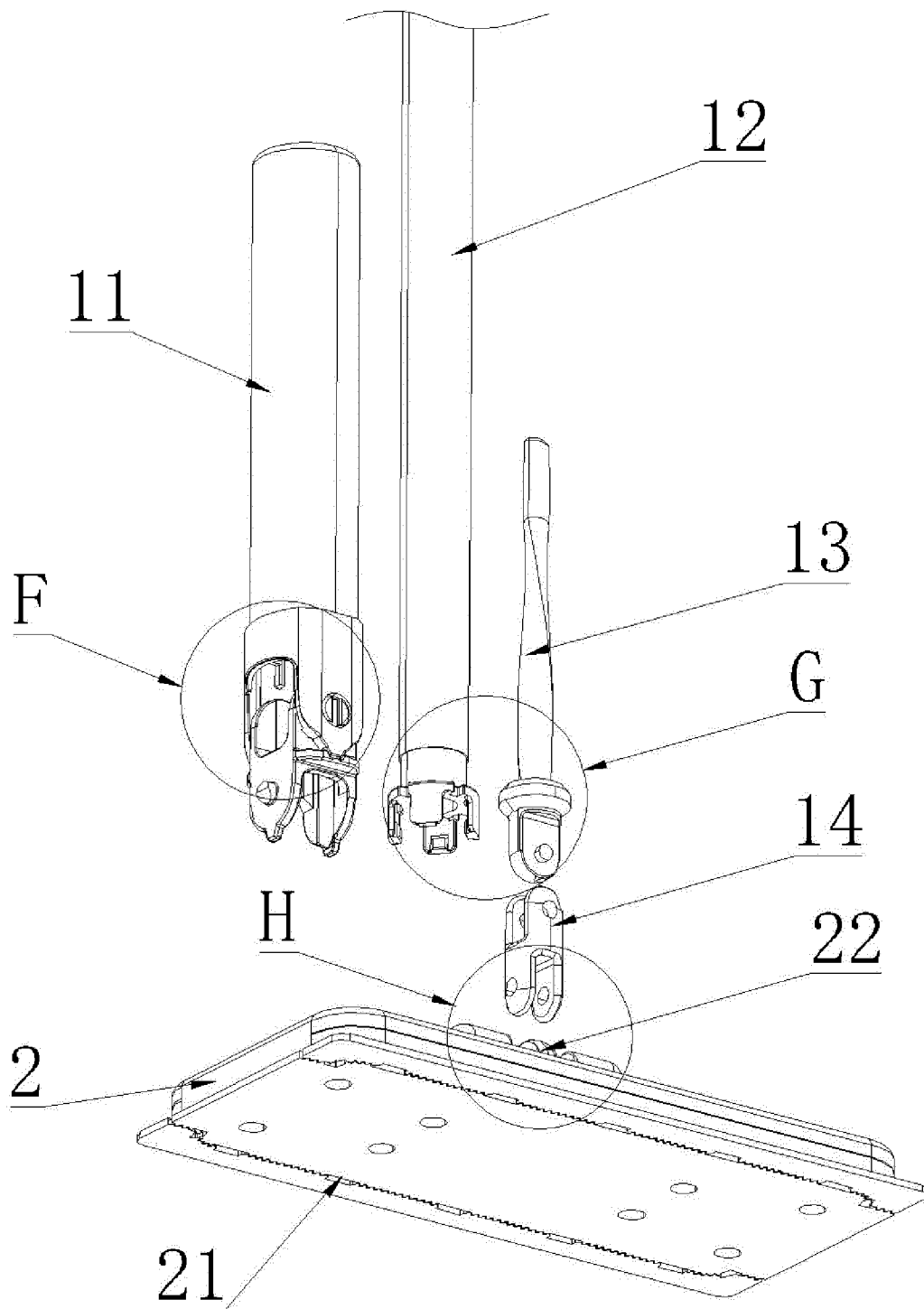


FIG. 10

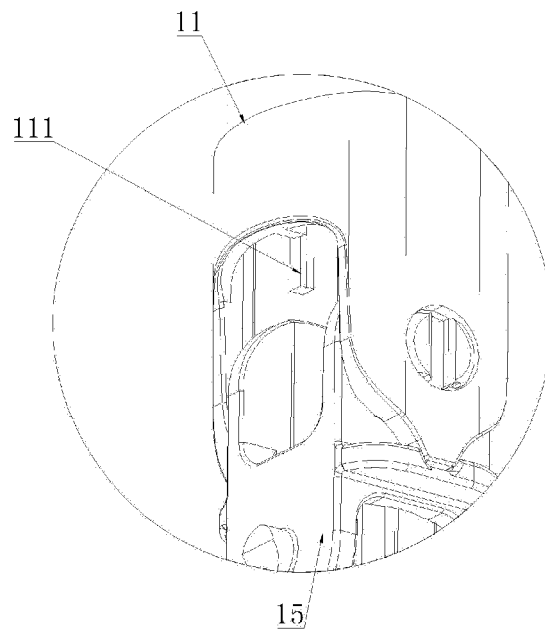


FIG. 11

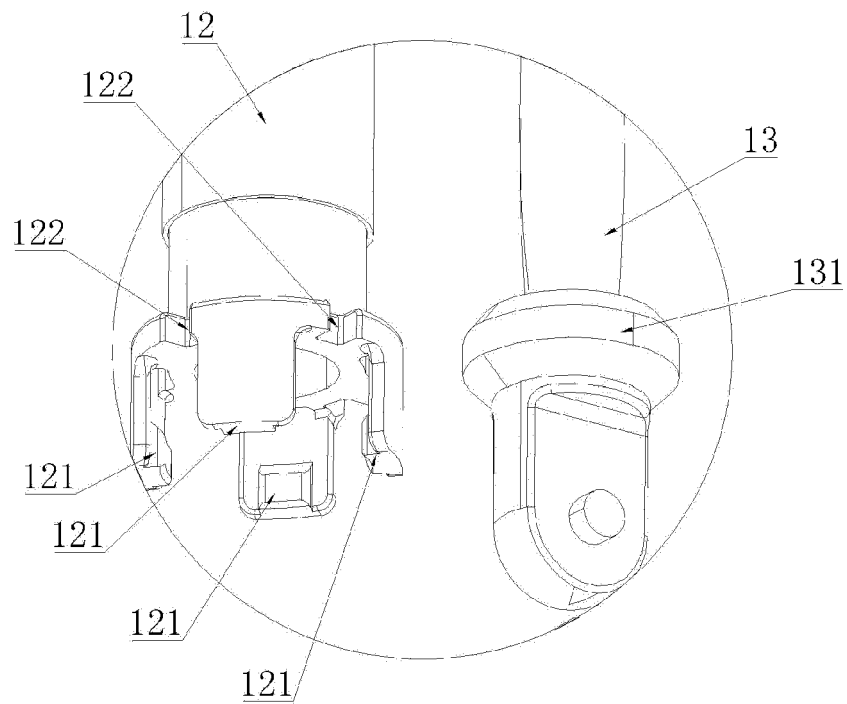


FIG. 12

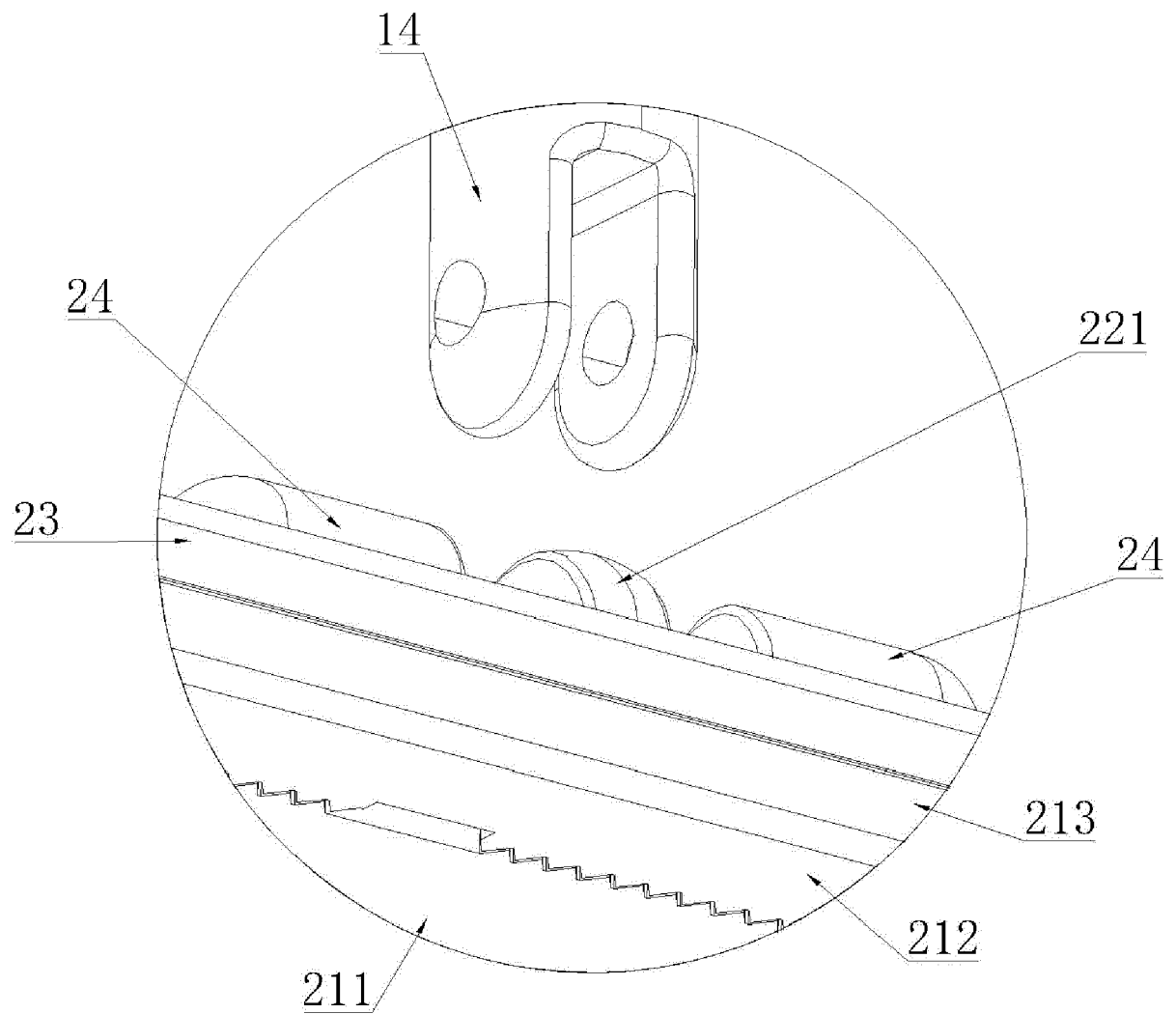


FIG. 13

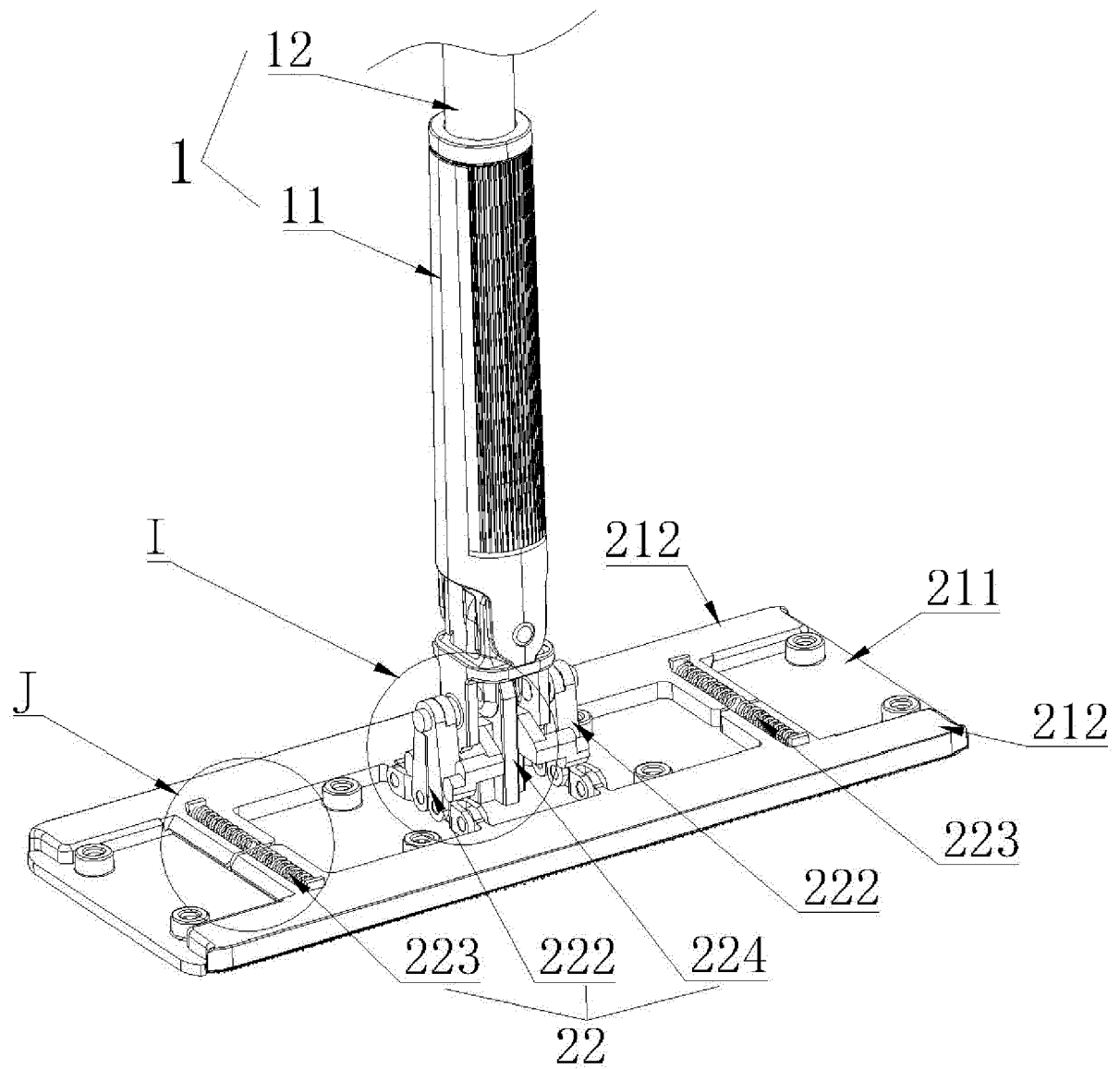


FIG. 14

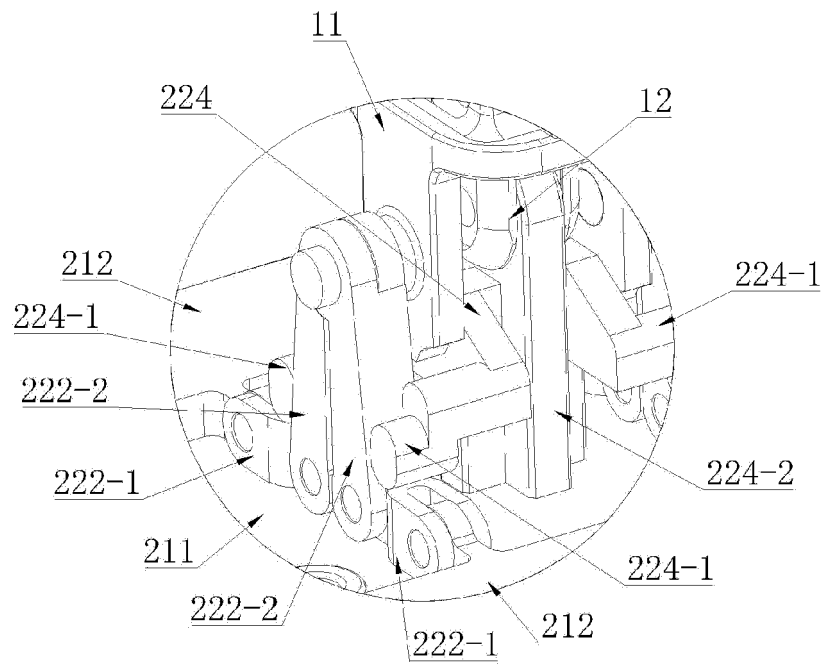


FIG. 15

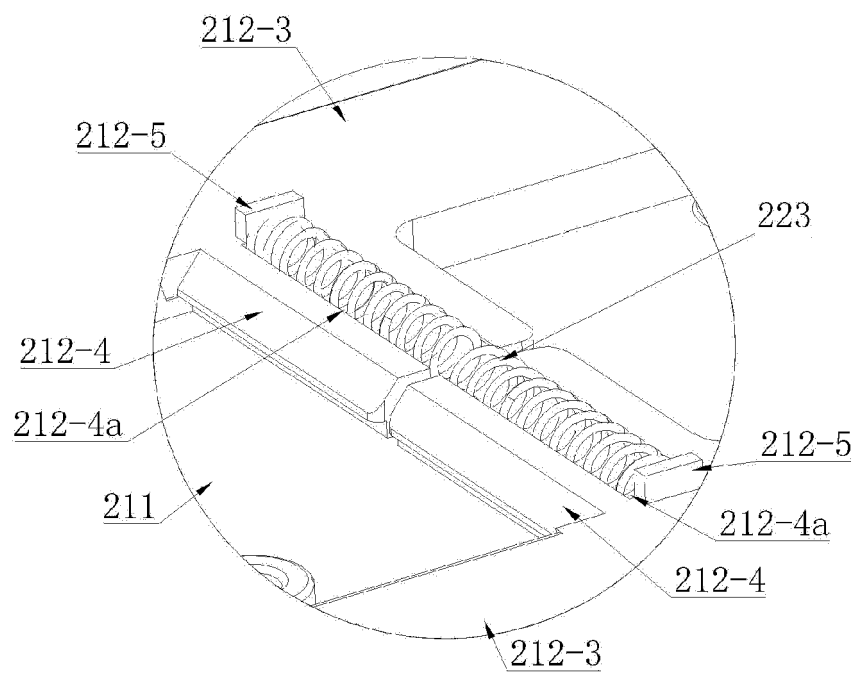


FIG. 16

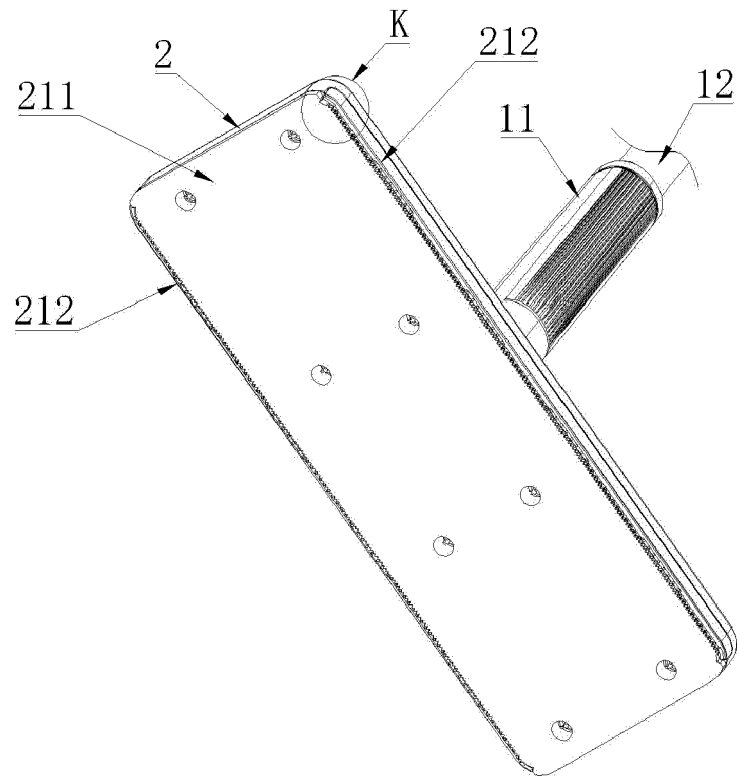


FIG. 17

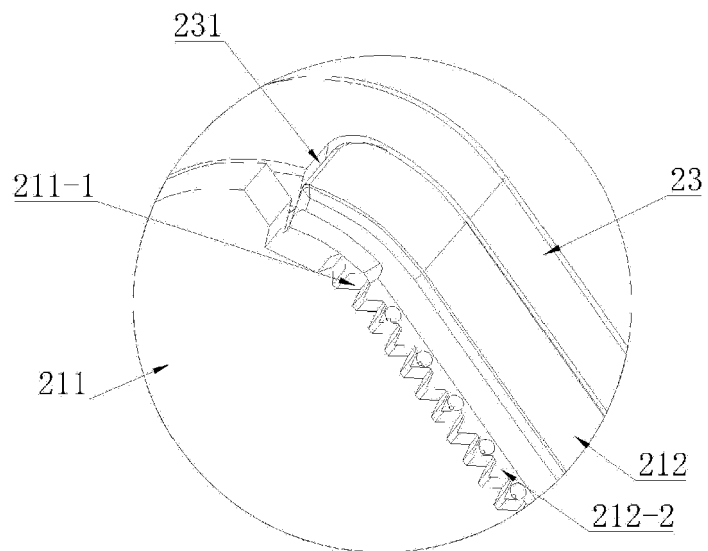


FIG. 18

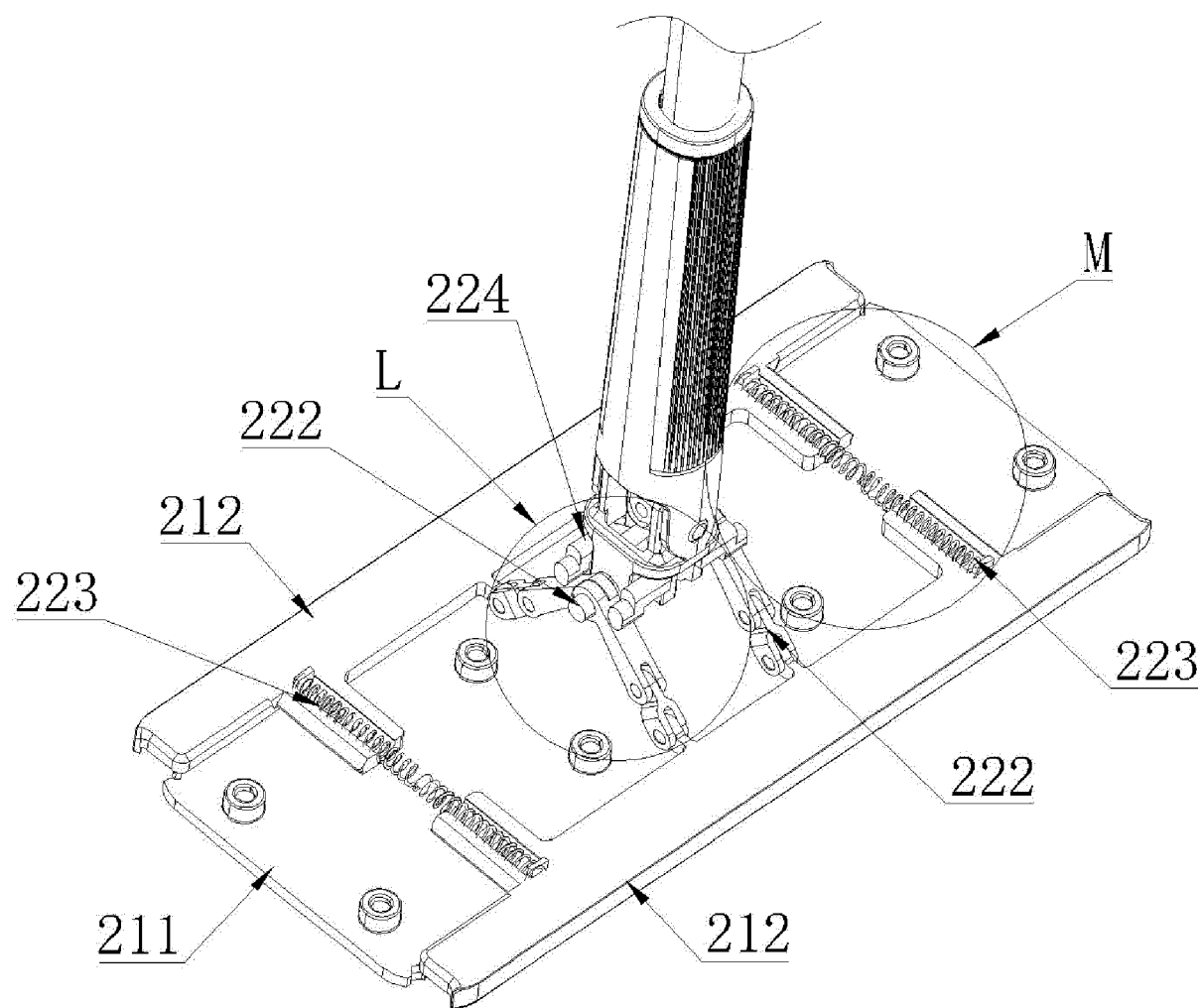


FIG. 19

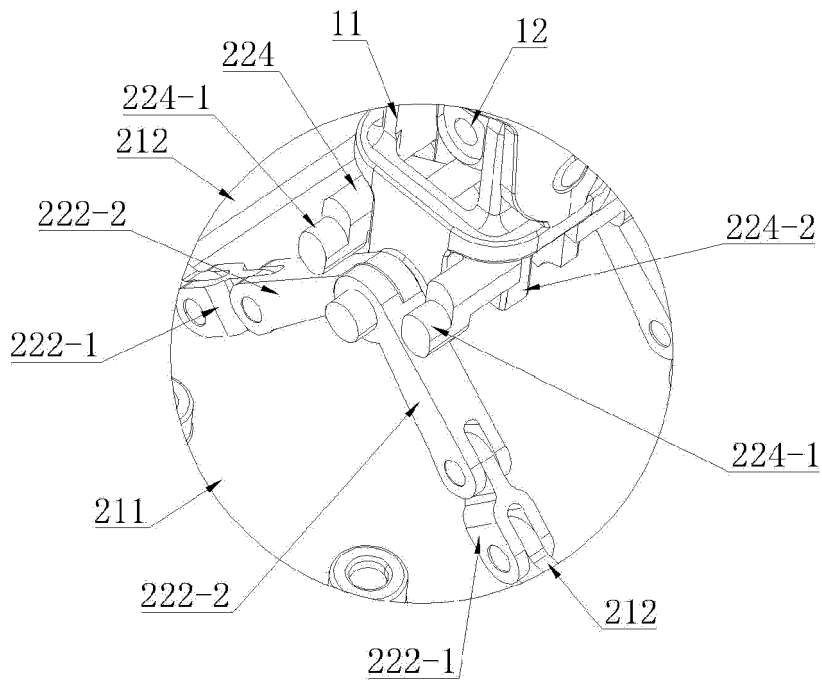


FIG. 20

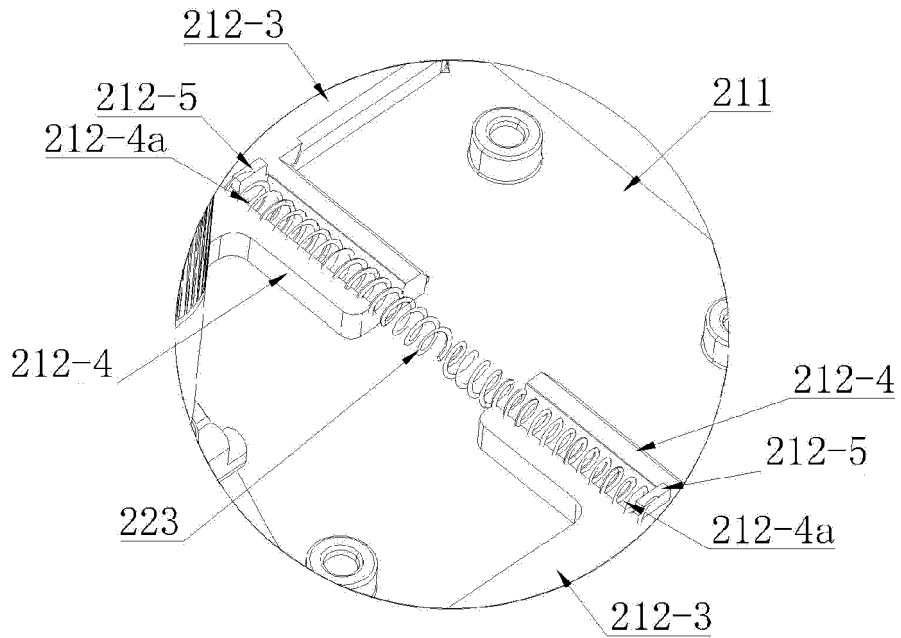


FIG. 21

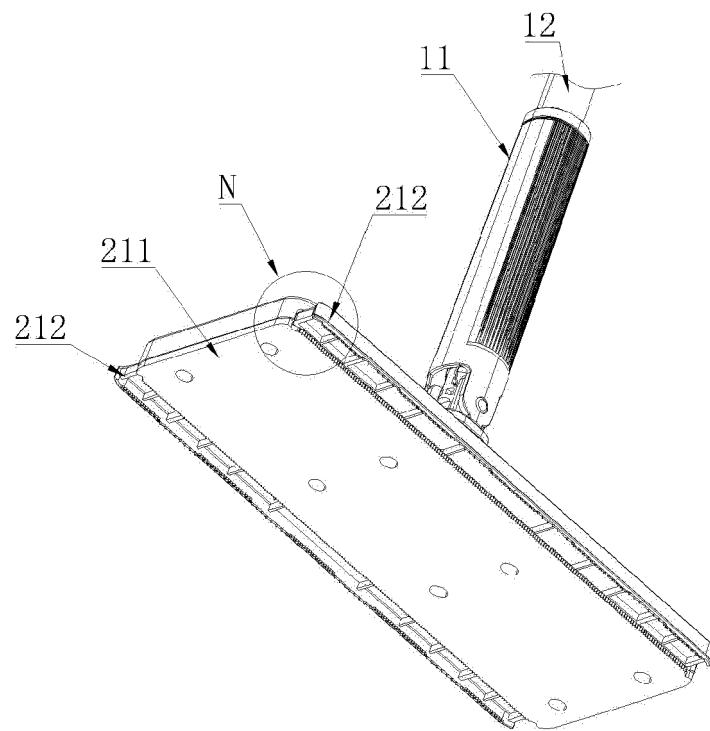


FIG. 22

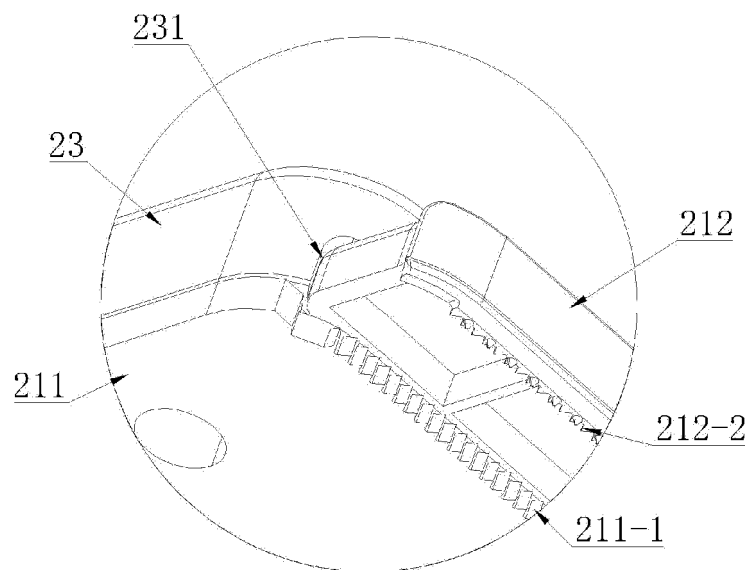


FIG. 23

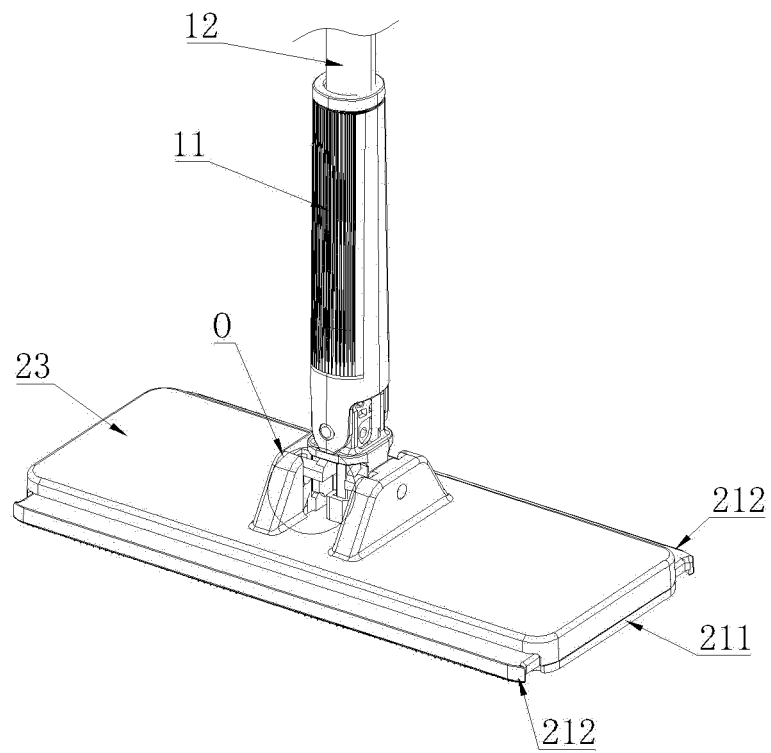


FIG. 24

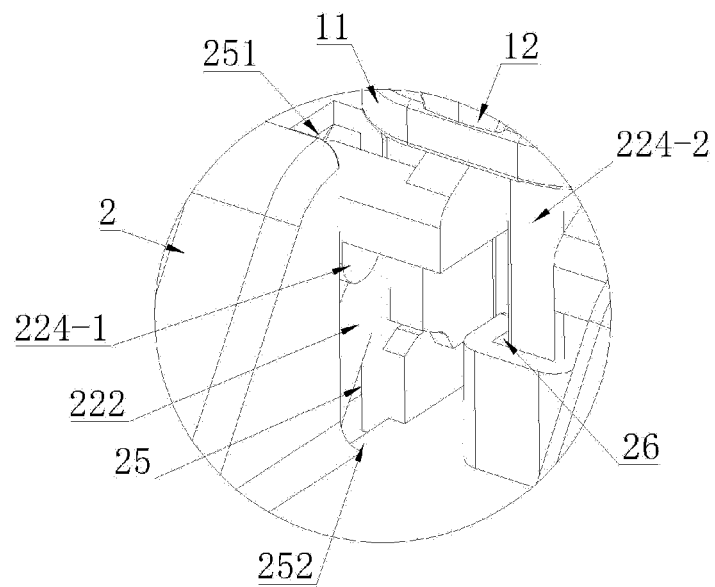


FIG. 25

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 205729270 U [0003]