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(54) **Modular shower partition**

(57) A modular shower partition comprises at least one rotary door modularization containing a first post (21), an axial rotating tube (23), a plate (24) including a fixing margin (243) and a free margin (244); two limiting stoppers (25) retained in two second holes (232) on an upper and a lower ends of the axial rotating tube (23) individually; two first retaining devices (250) to position the two limiting stoppers (25) on the upper and the lower ends of the axial rotating tube (23) individually; two lids (26), each including an engaging portion (260) retained in two first holes (212) of an upper end and a lower end of the first post (21) respectively to close the two first holes (212) and an axial seat portion (270); two second retaining devices (28) to connect the engaging portions (260) with the upper end and the lower end of the first post (21) respectively.

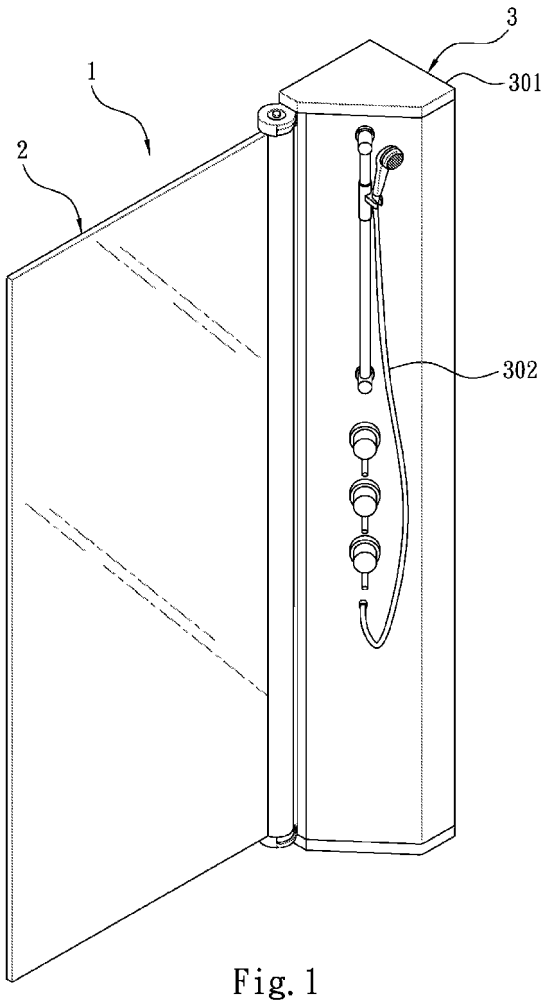

Fig. 1

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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a modular shower partition that is capable of being connected with different types and functions of shower partition.

Description of the Prior Art

[0002] Conventional shower partition includes a door pulling type, a door folding type, and a rotating door type of shower partitions, wherein the door-pulling and the door-folding shower partitions have to be provided with an upper rail and a lower rail and rollers to slide on the upper and the lower rails, thus opening and closing the door. However, such a rail and roller stricture is complicated to jam an object therein, and a user is easy to injure as crashing the rail accidentally.

[0003] Furthermore, the door-rotating shower partition is not designed in a modularization manner to accelerate assembly time, and the type and the function of the door-rotating shower partition are limited that can not satisfy different requirements.

[0004] Even though some modular shower partitions have been developed, but only simple rotary door and shield panel are provided, accordingly different requirements can not be solved. Besides, such a modular shower partition is produced at a high mold and material cost.

[0005] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages.

SUMMARY OF THE INVENTION

[0006] The primary object of the present invention is to provide a modular shower partition that is capable of overcoming the shortcomings of the conventional modular shower partition.

[0007] Further object of the present invention is to provide a modular shower partition that is capable of being connected with different types and functions of shower partition.

[0008] Another object of the present invention is to provide a modular shower partition that includes different modularizations capable of being provided with the common components and uncommon components to lower a mould cost and a material cost, to simplify structure, to acceleration production speed, and to vary the shape of the shower partition.

[0009] A modular shower partition in accordance with the present invention contains:

- a first post including a first peripheral fence having a first inner face, two first holes arranged on an upper end and a lower end of the first inner face respectively, a first outer face having a first rim and a second rim opposite to the first rim, a first recessed slot formed on the second rim;
- an axial rotating tube fixed on the first rim of the first post and including a second peripheral fence having a second inner face, two second holes arranged on an upper end and a lower end of the second inner face respectively, a second outer face, a second recessed slot formed on the second outer face;
- a plate including a fixing margin and a free margin; the fixing margin is retained in the second recessed slot of the axial rotating tube;
- two limiting stoppers to be retained in the two second holes on an upper and a lower ends of the axial rotating tube individually so as to limit a vertically axial movement and a horizontal movement of the plate; the limiting stopper further includes an axial column extending outward from a top end thereof;
- two first retaining devices to position the two limiting stoppers on the upper and the lower ends of the axial rotating tube individually;
- two lids, each including an engaging portion and an axial seat portion;
- the engaging portions being retained in the two first holes of an upper end and a lower end of the first post respectively to close the two first holes;
- the axial seat portion including a fourth hole to axially connect with the axial column of the limiting stopper so as to generate a rotating fulcrum so that the axial rotating tube, the plate, the two limiting stoppers, and the two first retaining devices are rotated between a close position and at least one open position;
- two second retaining devices to connect the engaging portions of the lids with the upper end and the lower end of the first post respectively.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

Fig. 1 is a perspective view showing the assembly of a modular shower partition according to a first embodiment of the present invention;

Fig. 2 is a perspective view showing the assembly of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 3 is a perspective view showing the exploded components of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 4 is a plan view showing a first post and a first soft pad of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 5 is a plan view showing an axial rotating tube, second soft pads, and a plate of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 6 is a perspective view showing the assembly of a limiting stopper of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 7 another perspective view showing the assembly of the limiting stopper of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 8 another perspective view showing the assembly of the limiting stopper of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 9 a perspective view showing the assembly of a lid of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 10 another perspective view showing the assembly of the lid of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 11 another perspective view showing the assembly of the lid of the rotary door modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 12 is a plan view showing the rotary door modularization without connecting with the limiting stopper and the lid;

Fig. 13 is a perspective view showing the exploded components of a supporting modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 14 is a partial plan view of the supporting modularization of the modular shower partition according to the first embodiment of the present invention;

Fig. 15 is a perspective view showing the exploded components of a modular shower partition according to a second embodiment of the present invention;

Fig. 16 is a plan view showing the assembly of the modular shower partition according to the second embodiment of the present invention;

Fig. 17 is a perspective view showing the assembly of a modular shower partition according to a third embodiment of the present invention;

Fig. 18 is a perspective view showing the assembly of a modular shower partition according to a fourth embodiment of the present invention;

Fig. 19 is a plan view showing the assembly of the modular shower partition according to the fourth embodiment of the present invention;

Fig. 20 is a perspective view showing the assembly of a modular shower partition according to a fifth embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] The present invention will be clearer from the following description when viewed together with the accompanying drawings, which show, for purpose of illustrations only, the preferred embodiment in accordance with the present invention.

[0012] Referring to Fig. 1, a modular shower partition 1 according to a first embodiment of the present invention at least comprises a rotary door modularization 2 and a supporting modularization 3.

[0013] As shown in Figs. 2 and 3, the rotary door modularization 2 includes a first post 21, three first soft pads 22, an axial rotating tube 23, a plate 24, a second soft pad 240, two limiting stoppers 25, two first retaining devices 250, two lids 26, and two second retaining devices 28.

[0014] The first post 21, as illustrated in Fig. 4, includes a first peripheral fence 210 having a first inner face 211, two first holes 212 arranged on an upper end and a lower end of the first inner face 211 respectively, a first outer face 215 having a first rim 213 and a second rim 214 opposite to the first rim 213, a first recessed slot 216 formed on the second rim 214, three Tee recesses 217 are fixed on the first rim 213, two first connecting portions 218 disposed on the first inner face 211 relative to the first recessed slot 216, two first apertures 219 secured on the two first connecting portions 218 respectively.

[0015] Each first soft pad 22 includes a sliding block 221 having a Tee cross section and a closing portion 222 having an arcuate cross section so that the first soft pad 22 is retained in the Tee recess 217 by using the sliding block 221; two first soft pads 22 on two sides of one end of the first post 21 include two stopping peripheries 223 extending outward individually.

[0016] The axial rotating tube 23, as shown in Fig. 5, includes a second peripheral fence 230 having a second inner face 231, two second holes 232 arranged on an upper end and a lower end of the second inner face 231 respectively, a second outer face 233, a second recessed slot 234 formed on the second outer face 233, at least one second connecting portions 235 disposed on the two second holes 232 of the upper end and the lower end of the second inner face 231 individually, two second apertures 236 secured on the two second connecting portions 235 respectively; the second connecting portions 235 are symmetrically disposed on two sides of the second recessed slot 234 of the second inner face 231 of the second peripheral fence 230; the axial rotating tube 23 is located at the first rim 213 of the first post 21, and the second outer face 233 outsides the second recessed slot 234 contacts with the closing portion 222 of the first soft pad 22 tightly.

[0017] The plate 24 includes a first margin 241, a second margin 242, a fixing margin 243, and a free margin 244; the fixing margin 243 is retained in the second recessed slot 234, the first and the second margins 241, 242 include two first notches 245 arranged thereon adjacent to the fixing margin 243 respectively; the plate 24 is made of a glass material.

[0018] The second soft pad 240 is formed in a U shape to wrap the fixing margin 243 of the plate 24 and is re-

tained in the second recessed slot 234 so that the fixing margin 243 of the plate 24 is fixed on the axial rotating tube 23 securely.

[0019] Each limiting stopper 25, as shown in Figs. 6-8, includes an inserting portion 251 and a covering portion 252 connecting with the inserting portion 251; the two inserting portions 251 of the two limiting stoppers 25 are engaged with the two second holes 232 of an upper end and a lower end of the axial rotating tube 23 individually, and the limiting stopper 25 also includes two chambers 253 formed thereon to receive the second connecting portions 235 on the two second holes 232 of the axial rotating tube 23; the covering portion 252 is used to abut against the second peripheral fence 230 of the axial rotating tube 23 and to close the second hole 232, the limiting stopper 25 further includes an axial column 254 extending outward from a top end thereof, two orifices 255 fixed on the top end thereof to communicate with the two chambers 253 respectively, and a first positioning projection 256 extending outward from a bottom end thereof to retain with the first notch 245 of the plate 24 so as to limit a vertically axial movement and a horizontal movement of the plate 24.

[0020] Each first retaining device 250, as illustrated in Fig. 3, is a bolt to be inserted through the orifice 255 of the limiting stopper 25 so as to further screw with the second aperture 236 of the second connecting portion 235, such that the two limiting stoppers 25 are positioned on the upper and the lower ends of the axial rotating tube 23 individually.

[0021] Each lid 26, as shown in Figs. 9-11, includes an engaging portion 260 and an axial seat portion 270.

[0022] The engaging portion 260 includes a locking segment 261 and a closing segment 262 coupling with the locking segment 261; the two locking segments 261 of the two lids 26 are retained in the two first holes 212 of an upper end and a lower end of the first post 21 respectively, and the two engaging portions 260 of the two lids 26 include two receiving rooms 263 formed thereon to receive the two first connecting portions 218 of the first post 21 individually; the two closing segments 262 of the two lids 26 contact with the first peripheral fence 210 of the first post 21 and close the two first holes 212 respectively, and the two lids 26 include two first openings 264 communicating with the two receiving rooms 263 individually; the closing segment 262 includes a second notch 265 disposed on a bottom end of the receiving room 263 in which a second positioning projection 266 is fixed.

[0023] The axial seat portion 270 includes a fourth hole 271 to axially connect with the axial column 254 of the limiting stopper 25 so as to generate a rotating fulcrum so that the axial rotating tube 23, the plate 24, the two limiting stoppers 25, and the two first retaining devices 250 are rotated among a close position P1, a first open position P2, and a second open position P3 by using the rotating fulcrum as an axial center as illustrated in Fig. 12; wherein when the plate 24 is opened outward from the close position P1 to be over the first open position P2 or is opened inward to be over the second open position P3, the two stopping peripheries 223 of the closing portion 222 on the two sides of the first post 21 are biased against the plate 24 so that the plate 24 is limited to outward or inward rotate 90-130 degrees from the close position P1.

[0024] The lid 26 also includes a first component 26a and a second component 26b as shown in Fig. 11.

[0025] The first component 26a is made of a metal material to form the engaging portion 260 and most part of the axial seat portion 270, wherein the first component 26a to form most part of the axial seat portion 270 includes a third peripheral fence 272 and a fourth peripheral fence 273 extending from one side of the third peripheral fence 272; the third peripheral fence 272 includes a third hole 274 to define a first groove 275 with the fourth peripheral fence 273 so as to receive the limiting stopper 25; the fourth peripheral fence 273 includes a cutout 276 to flow water outward so that the water in the first component 26a of the lid 26 flows outward.

[0026] The second component 26b is made of a plastic material and is retained with the third hole 274 of the first component 26a and includes a fourth hole 271 disposed thereon, wherein the third hole 274 includes a plurality of teeth fixed on an inner surface thereof so that after the second component 26b is retained with the third hole 274 securely.

[0027] Each second retaining device 28, as illustrated in Fig. 3, is a bolt to be inserted through the first opening 264 of the lid 26 so as to further screw with the first aperture 219 of the first connecting portion 218, such that the lids 26 are connected with the upper end and the lower end of the first post 21 respectively.

[0028] The fourth hole 271 of the lid 26 on the lower end of the first post 21 includes four recesses 277 arranged in a cross arrangement as shown in Fig. 11, the axial column 254 of the limiting stopper 25 includes two ribs 257 extending outward from a peripheral surface, the recesses 277 includes two symmetrical third notches 278 and two symmetrical fourth notches 279, the ribs 257 are rotated with the limiting stopper 25 to be retained in the two third notches 278 individually so that the plate 24 is located at the close position P1 or to be retained in the two fourth notches 279 so that the plate 24 is located at the first open position P2 or the second open position P3.

[0029] Between the fourth hole 271 of lid 26 on the upper end of the first post 21 and the axial column 254 of the limiting stopper 25 includes a spaced height when the ribs 257 are retained in the two third notches 278 or retained in the two fourth notches 279, and the spaced height is at least more than a largest depth d of the third notch 278 or the fourth notch 279 so that when the ribs 257 are moved between the third notches 278 and the fourth notches 279, the axial rotating tube 23, the plate 24, the two limiting stoppers 25, and the two first retaining devices 250 are pushed upward by using the spaced height.

[0030] Therefore, a positioning direction of the recess-

es 277 of the second component 26b will influence a positioning direction and position of the limiting stopper 25 directly as the limiting stopper 25 is rotated, such that the first groove 275 of the first component 26a is provided with a second opening 27a to be used as an installing basis as illustrated in Fig. 10 so that when the second component 26b is fixed, the third notches 278 are aligned with the second opening 27a to further retain with the first component 26a, hence the limiting stopper 25 is positioned and the plate 24 is fixed at the close position P1, the first open position P1 or the second open position P3.

[0031] Referring to Figs. 13 and 14, the supporting modularization 3 includes a pillar 31 connecting with the first post 21 of the rotary door modularization 2 and a showing equipment 302 fixed on the pillar 301; the pillar 301 includes a first casing 31, a fringe 32, a second casing 33, a third casing 34, a fourth casing 35, a plurality of reinforcement pieces 36, and a number of first lock elements 37; the showing equipment 302 includes a shower assembly 381, an upright support 382, a water flowing set (not shown), and two control switches 383.

[0032] The pillar 31 includes a first side segment 311, a second side segment 312 extending from the first side segment 311, a third side segment 313 extending from the second side segment 312; the first side segment 311 is fixed on a wall a; between the second side segment 312 and the third side segment 313 is defined a second groove 314 so that the first post 21 is retained in the second groove 314 by means of the second rim 214; the third side segment 313 includes a third groove 315 defined thereon.

[0033] The fringe 32 includes a fourth side segment 321 and a twisted coupling section 322 formed on the fourth side segment 321; the fourth side segment 321 is fixed on the wall a; the twisted coupling section 322 includes an abutting face 323 arranged thereon.

[0034] The second casing 33 includes a fourth side segment 331 and a fifth side segment 332; the fourth side segment 331 includes a hook edge 333 to retain with the third groove 315 of the pillar 31; the fifth side segment 332 includes a contacting section 334 twisted thereon to contact with the abutting face 323 of the fringe 32 so that among the pillar 31, the fringe 32, and the wall a is defined a cavity 301 with an upper pore and a lower pore.

[0035] The third casing 34 retains with the pillar 31, the fringe 32, and the second casing 33 to close the upper pore of the cavity 301.

[0036] The fourth casing 35 retains with the pillar 31, the fringe 32, and the second casing 33 to close the lower pore of the cavity 301.

[0037] Each reinforcement piece 36 includes a middle section to be fixed on the wall a and two end portions to connect with the first side segment 311 of the pillar 31 and the four side segment 321 of the fringe 32.

[0038] The lock first elements 37 are applied to lock the first side segment 311 of the pillar 31 and the four side segments 321 of the fringe 32 on the wall, to lock the contacting section 334 of the second casing 33 on the abutting face 323 of the fringe 32, to lock the first post 21 in the second groove 314 through the third side segment 313 of the pillar 31, and to position the reinforcement pieces 36 on the wall a, the first side segment 311 of the pillar 31, and the four side segment 321 of the fringe 32.

[0039] The shower assembly 381 is positioned on an outer surface of the second casing 33 to supply the water.

[0040] The upright support 382 is fixed on the outer surface of the second casing 33 to position and adjust a spraying height of the upright support 382.

[0041] The water flowing set (not shown) is fixed on an inner surface of the second casing 33 and is received in the pillar 301 to communicate with a cold-water feeding set (not shown), a hot-water feeding set (not shown) and the shower assembly 381.

[0042] Each control switch 383 is secured on the outer surface of the second casing 33 to be operated by a user so as to control a cold water and a hot water to flow toward the shower assembly 381, thus mixing the hot and the cold waters at a certain ratio and a certain temperature.

[0043] With reference to Figs. 15 and 16, a modular shower partition 1 according to a second embodiment of the present invention comprises a rotary door modularization 2 and a shield modularization 4; the shield modularization 4 includes a first periphery 41, a second post 42, a shielding panel 43, two third soft pads 44, and a plurality of second lock elements 45.

[0044] The first periphery 41 is fixed on a wall a and includes a fourth groove 411 formed thereon.

[0045] A structure of the second post 42 is identical to that of the first post 21 of the rotary door modularization 2 of the first embodiment and includes a fifth peripheral fence 421, a third inner face 422, two fifth holes 423 formed on an upper end and a lower end of the third inner face 422, the fifth peripheral fence 421 includes a third rim 424 and a fourth rim 425, and the second post 42 includes a third outer face 426 on which a third recessed slot 427 is disposed so that the second post 42 is retained in the fourth groove 411 of the first periphery 41 by using the third rim 424.

[0046] The shielding panel 43 includes a fifth rim 431 to be retained in the third recessed slot 427 of the second post 42 and a sixth rim 432 to be retained in the first recessed slot 216 of the first post 21; the shielding panel 43 is made of a glass material. It is to be noted that the shielding panel 43 at least includes two fourth notches 433 formed on an upper and a lower ends of the sixth rim 432 respectively to retain the second positioning projection 266 opposite to the engaging portion 260 of the lid 26 to limit an axially vertical movement and a horizontal movement of the shielding panel 43.

[0047] The two third soft pads 44 are formed in a U shape to wrap the fifth and the sixth rims 431 of the shielding panel 43 and to be retained in first recessed slot 216 of the first post 21 and the third recessed slot 427 of the second post 42 individually so that the shielding panel

43 is fixed between the first post 21 and the second post 42 securely.

[0048] The second lock elements 45 are severed to lock the first periphery 41 on the wall a and to lock the second post 42 in the fourth groove 411 of the first periphery 41.

[0049] Referring to Fig. 17, a modular shower partition 1 according to a third embodiment of the present invention comprises an auxiliary rotary door modularization 5, and the auxiliary rotary door modularization 5 includes two hinges 51 and an auxiliary deck 52; the two hinges 51 are connected between the free margin 244 of a plate 24 and the auxiliary deck 52 so that the auxiliary deck 52 is rotated within a certain angular range relative to the plate 24. The plate 24 and the auxiliary deck 52 are made of a glass material, and the hinge 51 is made of a glass material.

[0050] Referring to Figs. 18 and 19, a modular shower partition 1 according to a fourth embodiment of the present invention comprises two rotary door modularizations 2, a connection modularization 6, and a fix modularization 7.

[0051] The connection modularization 6 includes a peg 61 and a plurality of third lock elements 62; the peg 61 includes a first side 611 and a second side 612, both of which include two fifth grooves 613 arranged thereon respectively so that a first post 21 of the rotary door modularization 2 is retained in the fifth groove 613 by using a second rim 214, and between the fifth grooves 613 are defined two third connecting portions 614; the third lock elements 62 are provided to lock the first post 21 on two sides of the peg 61.

[0052] The fix modularization 7 includes a second periphery 71, a third post 72, a defining strap 73, a first cap 74, a second cap 75, and a number of fourth lock elements 76.

[0053] The second periphery 71 is fixed on a wall a and includes fifth groove 711 formed thereon.

[0054] A structure of the third post 72 is identical to that of the first post 21 of the rotary door modularization 2 and includes a sixth peripheral fence 721, a fourth inner face 722, two sixth holes 723 formed on an upper end and a lower end of the fourth inner face 722 respectively, the sixth peripheral fence 721 includes a seventh rim 724 and an eighth rim 725, and the third post 72 includes a fourth outer face 726 on which a fourth recessed slot 727 is disposed so that the third post 72 is retained in the fifth groove 711 of the second periphery 71 by using the seventh rim 724; the fourth inner face 722 includes two fourth connecting portions 728 arranged in the sixth holes 723 formed on the upper end and the lower end thereof individually.

[0055] The defining strap 73 is fixed in the fourth recessed slot 727 of the third post 72 and includes a definition border 731 to limit two plates 24 of the rotary door modularization 2 at a close position P1; the definition border 731 includes a washer 732 to generate a buffer effect.

[0056] The first cap 74 includes two ends to be covered on a top end of the second periphery 71 and a top end of the peg 61 of the connection modularization 6 respectively.

[0057] The second cap 75 includes two ends to be covered on a bottom end of the second periphery 71 and a bottom end of the peg 61 of the connection modularization 6 respectively.

[0058] The fourth lock elements 76 are used to lock the second periphery 71 on the wall a, to lock the third post 72 on the second periphery 71, to lock the two ends of the first cap 74 on the fourth connecting portion 728 of a top end of the third post 72 and the third connecting portion 614 of a top end of the peg 61 individually, and to lock the second cap 75 on the fourth connecting portion 728 of a bottom end of the third post 72 and the third connecting portion 614 of a bottom end of the peg 61 individually.

[0059] As shown in Fig. 20, a modular shower partition 1 according to a fifth embodiment of the present invention comprises a supporting modularization 3 and a folding door modularization 8, the folding door 8 includes a plurality of folding doors 81, and two sides of each folding door 81 are retained in a fourth post 82, the folding door 8 also includes two gear members 83 fixed on an upper end and a lower end of the fourth post 82 respectively, and any two adjacent gear members 83 is defined a joining member 84, the folding door 8 further includes a plurality of pipes 85 to be inserted through the gear members 83 and the joining members 84 to form a rotating fulcrum, and a plurality of screw bolt 86 are provided to be inserted through the pipes 85 so as to further screw with the fourth posts 82, such that the fourth posts 82 between any two adjacent folding doors 81 are connected together by ways of the joining members 84 and are rotated engageably by means of the gear members 83, hence the folding doors 81 are expended to be in a close state or folded to be in an open state.

[0060] The modular shower partition 1 includes the rotary door modularization 2 to match with different types and functions of shower partitions 1. For example, the shower partition 1 of the first embodiment includes the single plate 24 to provide a rotable opening and closing function and a showering function; the shower partition 1 of the second embodiment includes the single plate 24 to provide a rotable opening and closing function and a shielding function; the shower partition 1 of the third embodiment is used that of the first embodiment as its basic structure and is additionally provided with the auxiliary deck 52 having a rotable opening and closing function; the shower partition 1 of the fourth embodiment includes the two plates 24 with a rotable opening and closing function. Thereby, different shower partitions 1 are capable of being provided based on different requirement.

[0061] However, the modular shower partition 1 of the present invention includes the common components, such as the first post 21 of the rotary door modularization 2, the second post 42 of the shield modularization 4, and

the third post 72 of the fix modularization 7. Also, the first periphery 41 of the shield modularization 4 and the second periphery 71 of the fix modularization 7 are a common component of the present invention.

[0062] Between the uncommon components of the present invention are also provided with the same structure, for example, the second recessed slot 234 of the axial rotating tube 23, and among the first recessed slot 216 of the first post 21, the third recessed slot 427 of the second post 42, and the fourth recessed slot 727 of the third post 72 are provided with the plate 24 and the shielding panel 43. Likewise, the second groove 314 of the pillar 31, the fourth groove 411 of the shield modularization 4, the fifth grooves 613 of the connection modularization 6, and the fifth groove 711 of the fix modularization 7 are the same stricture as well to retain the first, the second, and the third posts 21, 42, 72 individually.

[0063] Thereby, among different modularizations of the present invention are capable of being provided with the common components and uncommon components to lower a mould cost and a material cost, to simplify structure, to acceleration production speed, and to vary the shape of the shower partition.

[0064] While we have shown and described various embodiments in accordance with the present invention, it is clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

Claims

1. A modular shower partition (1) comprising at least one rotary door modularization (2), and the rotary door modularization (2) containing:

a first post (21) including a first peripheral fence (210) having a first inner face (211), two first holes (212) arranged on an upper end and a lower end of the first inner face (211) respectively, a first outer face (215) having a first rim (213) and a second rim (214) opposite to the first rim (213), a first recessed slot (216) formed on the second rim (214);

an axial rotating tube (23) fixed on the first rim (213) of the first post (21) and including a second peripheral fence (230) having a second inner face (231), two second holes (232) arranged on an upper end and a lower end of the second inner face (231) respectively, a second outer face (233), a second recessed slot (234) formed on the second outer face (233);

a plate (24) including a fixing margin (243) and a free margin (244); the fixing margin (243) is retained in the second recessed slot (234) of the axial rotating tube (23);

two limiting stoppers (25) to be retained in the two second holes (232) on an upper end and a lower end of the axial rotating tube (23) individually so as to limit a vertically axial movement and a horizontal movement of the plate (24); the limiting stopper (25) further includes an axial column (254) extending outward from a top end thereof;

two first retaining devices (250) to position the two limiting stoppers (25) on the upper and the lower ends of the axial rotating tube (23) individually;

two lids (26), each including an engaging portion (260) and an axial seat portion (270);

the engaging portions (260) being retained in the two first holes (212) of an upper end and a lower end of the first post (21) respectively to close the two first holes (212);

the axial seat portion (270) including a fourth hole (271) to axially connect with the axial column (254) of the limiting stopper (25) so as to generate a rotating fulcrum so that the axial rotating tube (23), the plate (24), the two limiting stoppers (25), and the two first retaining devices (250) are rotated among a close position (P1) and at least one open position (P2) or (P3);

two second retaining devices (28) to connect the engaging portions (260) of the lids (26) with the upper end and the lower end of the first post (21) respectively.

2. The modular shower partition (1) as claimed in claim 1, wherein the limiting stopper (25) includes an inserting portion (251) and a covering portion (252) connecting with the inserting portion (251); the two inserting portions (251) of the two limiting stoppers (25) are engaged with the two second holes (232) of the upper end and the lower end of the axial rotating tube (23) individually; the covering portion (252) is used to abut against the second peripheral fence 230 of the axial rotating tube (23) and to close the second hole (232), the covering portion (252) further includes the axial column (254) extending outward from a top end thereof.

3. The modular shower partition (1) as claimed in claim 2, wherein the plate (24) further includes a first margin (241) and a second margin (242), the first and the second margins (241), (242) include two first notches (245) arranged thereon adjacent to the fixing margin (243) respectively; the covering portion (252) further includes a first positioning projection (256) extending outward from a bottom end thereof to retain with the first notch (245) of the plate (24) so as to limit a vertically axial movement and a horizontal movement of the plate (24).

4. The modular shower partition (1) as claimed in claim 2, wherein the covering portion (252) of the limiting stopper (25) includes two orifices (255) fixed thereon

to communicate with two chambers (253) of the inserting portion (251) respectively, and the axial rotating tube (23) includes at least one second connecting portions (235) disposed on the two second holes (232) of the upper end and the lower end of the second inner face (231) individually and received in the two chambers (253) of the limiting stopper (25) and includes two second apertures (236) secured on the two second connecting portions (235) respectively; the first retaining device (250) is a bolt to be inserted through the orifice (255) of the limiting stopper (25) so as to further screw with the second connecting portion (235), such that the two limiting stoppers (25) are positioned on the upper and the lower ends of the axial rotating tube (23) individually.

5. The modular shower partition (1) as claimed in claim 1, wherein each engaging portion (260) includes a locking segment (261) and a closing segment (262) coupling with the locking segment (261); the two locking segments (261) of the two lids (26) are retained in the two first holes (212) of the upper end and the lower end of the first post (21) respectively; and the two closing segments (262) of the two lids (26) contact with the first peripheral fence (210) of the first post (21) and close the two first holes (212) respectively.

6. The modular shower partition (1) as claimed in claim 5, wherein the closing segments (262) of the engaging portions (260) include two first openings (264) communicating with the two receiving rooms (263) of the two engaging portions (260) individually; the first post (21) includes two first connecting portions (218) disposed on the first inner face (211) relative to the first recessed slot (216) and received in the two receiving rooms (263) of the two engaging portions (260) individually, and the two lids (26) include two first openings (264) communicating with the two receiving rooms (263) individually; the second retaining device (28) is a bolt to be inserted through the first opening (264) of the lid (26) so as to further screw with the first aperture (219) of the first connecting portion (218), such that the lids (26) are connected with the upper end and the lower end of the first post (21) respectively.

7. The modular shower partition (1) as claimed in claim 5, wherein the closing segment (262) includes a second notch (265) disposed on a bottom end of the receiving room (263) in which a second positioning projection (266) is fixed.

8. The modular shower partition (1) as claimed in claim 1, wherein the lid (26) also includes a first component (26a) and a second component (26b); the first component (26a) is made of a metal material to form the engaging portion (260) and most part of the axial seat portion (270), wherein the first component (26a) to form most part of the axial seat portion (270) includes a third hole (274); the second component (26b) is made of a plastic material and is retained with the third hole (274) of the first component (26a) and includes a fourth hole (271) disposed thereon.

9. The modular shower partition (1) as claimed in claim 8, wherein the first component (26a) to form most part of the axial seat portion (270) includes a third peripheral fence (272) and a fourth peripheral fence (273) extending from one side of the third peripheral fence (272); the third peripheral fence (272) includes the third hole (274) to define a first groove (275) with the fourth peripheral fence (273) so as to receive the limiting stopper (25); the fourth peripheral fence (273) includes a cutout (276) to flow a water outward.

10. The modular shower partition (1) as claimed in claim 8, wherein the fourth hole (271) of the lid (26) on the lower end of the first post (21) includes four recesses (277) arranged in a cross arrangement, the axial column (254) of the limiting stopper (25) includes two ribs (257) extending outward from a peripheral surface, the recesses (277) includes two symmetrical third notches (278) and two symmetrical fourth notches (279), the ribs (257) are rotated with the limiting stopper (25) to be retained in the two third notches (278) individually so that the plate (24) is located at the close position (P1) or to be retained in the two fourth notches (279) so that the plate (24) is located at the open position (P2) or (P3).

11. The modular shower partition (1) as claimed in claim 10, wherein between the fourth hole (271) of lid (26) on the upper end of the first post (21) and the axial column (254) of the limiting stopper (25) includes a spaced height when the ribs (257) are retained in the two third notches (278) or retained in the two fourth notches (279), and the spaced height is at least more than a largest depth d of the third notch (278) or the fourth notch (279) so that when the ribs (257) are moved between the third notches (278) and the fourth notches (279), the axial rotating tube (23), the plate (24), the two limiting stoppers (25), and the two first retaining devices (250) are pushed upward by using the spaced height.

12. The modular shower partition (1) as claimed in claim 1, wherein the rotary door modularization (2) further comprises a U-shaped first soft pad to wrap the fixing margin (243) of the plate (24) and is retained in the second recessed slot (234) so that the fixing margin (243) of the plate (24) is fixed on the axial rotating tube (23) securely.

13. The modular shower partition (1) as claimed in claim 1, wherein the rotary door modularization (2) further

comprises three first soft pad (22), each being formed in a Tee shape and including a sliding block (221) and a closing portion (222); and three Tee recesses (217) are fixed on the first rim (213) so that the first soft pads (22) are retained in the Tee recesses (217) by using the sliding blocks (221) respectively.

14. The modular shower partition (1) as claimed in claim 1 further comprising a supporting modularization (3), and the supporting modularization (3) includes a pillar (31) connecting with the first post (21) of the rotary door modularization (2) and a showing equipment (302) fixed on the pillar (301).

15. The modular shower partition (1) as claimed in claim 14, wherein the pillar (301) includes a first casing (31), a fringe (32), a second casing (33), a third casing (34), a fourth casing (35); wherein
the pillar (31) includes a first side segment (311), a second side segment (312) extending from the first side segment (311), a third side segment (313) extending from the second side segment (312); the first side segment (311) is fixed on a wall a; between the second side segment (312) and the third side segment (313) is defined a second groove (314) so that the first post (21) is retained in the second groove (314) by means of the second rim (214); the third side segment (313) includes a third groove (315) defined thereon;
the fringe (32) includes a fourth side segment (321) and a twisted coupling section (322) formed on the fourth side segment (321); the fourth side segment (321) is fixed on the wall (a); the twisted coupling section (322) includes an abutting face (323) arranged thereon;
the second casing (33) includes a fourth side segment (331) and a fifth side segment (332); the fourth side segment (331) includes a hook edge (333) to retain with the third groove (315) of the pillar (31); the fifth side segment (332) includes a contacting section (334) twisted thereon to contact with the abutting face (323) of the fringe (32) so that among the pillar (31), the fringe (32), and the wall (a) is defined a cavity (301) with an upper pore and a lower pore;
the third casing (34) retains with the pillar (31), the fringe (32), and the second casing (33) to close the upper pore of the cavity (301);
the fourth casing (35) retains with the pillar (31), the fringe (32), and the second casing (33) to close the lower pore of the cavity (301).

16. The modular shower partition (1) as claimed in claim 15, wherein the pillar (31) further includes a plurality of reinforcement pieces (36), each having a middle section to be fixed on the wall a and two end portions to connect with the first side segment (311) of the pillar (31) and the four side segment (321) of the fringe (32).

17. The modular shower partition (1) as claimed in claim 16, wherein the pillar (31) further includes a number of lock first elements (37) to lock the first side segment (311) of the pillar (31) and the four side segments (321) of the fringe (32) on the wall, to lock the contacting section (334) of the second casing (33) on the abutting face (323) of the fringe (32), to lock the first post (21) in the second groove (314) through the third side segment (313) of the pillar (31), and to position the reinforcement pieces (36) on the wall a, the first side segment (311) of the pillar (31), and the four side segment (321) of the fringe (32).

18. The modular shower partition (1) as claimed in claim 15, wherein the showing equipment (302) includes a shower assembly (381), an upright support (382), a water flowing set, and two control switches (383); the shower assembly (381) is positioned on an outer surface of the second casing (33) to supply the water; the upright support (382) is fixed on the outer surface of the second casing (33) to position and adjust a spraying height of the upright support (382); the water flowing set is fixed on an inner surface of the second casing (33) and is received in the pillar (301) to communicate with a cold-water feeding set, a hot-water feeding set and the shower assembly (381); each control switch (383) is secured on the outer surface of the second casing (33) to be operated by a user so as to control a cold water and a hot water to flow toward the shower assembly (381), thus mixing the hot and the cold waters at a certain ratio and a certain temperature.

19. The modular shower partition (1) as claimed in claim 15 further comprising a shield modularization (4); and the shield modularization (4) including a first periphery (41), a second post (42), and a shielding panel (43);
the first periphery (41) is fixed on a wall (a) and includes a fourth groove (411) formed thereon;
a structure of the second post (42) is identical to that of the first post (21) of the rotary door modularization (2) and includes a fifth peripheral fence (421), a third inner face (422), two fifth holes (423) formed on an upper end and a lower end of the third inner face (422), the fifth peripheral fence (421) includes a third rim (424) and a fourth rim (425), and the second post (42) includes a third outer face (426) on which a third recessed slot (427) is disposed so that the second post (42) is retained in the fourth groove (411) of the first periphery (41) by using the third rim (424);
the shielding panel (43) includes a fifth rim (431) to be retained in the third recessed slot (427) of the second post (42) and a sixth rim (432) to be retained in the first recessed slot (216) of the first post (21);

the shielding panel (43) is made of a glass material and at least includes two fourth notches (433) formed on an upper end and a lower end of the sixth rim (432) respectively to retain the second positioning projection (266) opposite to the engaging portion (260) of the lid (26) to limit an axially vertical movement and a horizontal movement of the shielding panel (43).

20. The modular shower partition (1) as claimed in claim 19, wherein the shield modularization (4) further includes a plurality of second lock elements (45) to lock the first periphery (41) on the wall (a) and to lock the second post (42) in the fourth groove (411) of the first periphery (41).

21. The modular shower partition (1) as claimed in claim 19, wherein the shield modularization (4) further include two third soft pads (44) formed in a U shape to wrap the fifth and the sixth rims (431) of the shielding panel (43) and to be retained in first recessed slot (216) of the first post (21) and the third recessed slot (427) of the second post (42) individually so that the shielding panel (43) is fixed between the first post (21) and the second post (42) securely.

22. The modular shower partition (1) as claimed in claim 1 further comprising an auxiliary rotary door modularization (5), and the auxiliary rotary door modularization (5) including two hinges (51) and an auxiliary deck (52); the two hinges (51) are connected between the free margin (244) of a plate (24) and the auxiliary deck (52) so that the auxiliary deck (52) is rotated within a certain angular range relative to the plate (24).

23. The modular shower partition (1) as claimed in claim 1 comprising two rotary door modularizations connected with each other.

24. The modular shower partition (1) as claimed in claim 23 further comprising a connection modularization (6), wherein the connection modularization (6) includes a peg (61) and a plurality of third lock elements (62); the peg (61) includes a first side (611) and a second side (612), both of which include two fifth grooves (613) arranged thereon respectively so that a first post (21) of the rotary door modularization (2) is retained in the fifth groove (613) by using a second rim (214), and between the fifth grooves (613) are defined two third connecting portions (614); the third lock elements (62) are provided to lock the first post (21) on two sides of the peg (61).

25. The modular shower partition (1) as claimed in claim 24 further comprising a fix modularization (7), wherein the fix modularization (7) includes a second periphery (71), a third post (72), a defining strap (73), a first cap (74), a second cap (75);
the second periphery (71) is fixed on the wall a and includes fifth groove (711) formed thereon;
a structure of the third post (72) is identical to that of the first post (21) of the rotary door modularization (2) and includes a sixth peripheral fence (721), a fourth inner face (722), two sixth holes (723) formed on an upper end and a lower end of the fourth inner face (722) respectively, the sixth peripheral fence (721) includes a seventh rim (724) and an eighth rim (725), and the third post (72) includes a fourth outer face (726) on which a fourth recessed slot (727) is disposed so that the third post (72) is retained in the fifth groove (711) of the second periphery (71) by using the seventh rim (724); the fourth inner face (722) includes two fourth connecting portions (728) arranged in the sixth holes (723) formed on the upper end and the lower end thereof individually;
the defining strap (73) is fixed in the fourth recessed slot (727) of the third post (72) and includes a definition border (731) to limit two plates (24) of the rotary door modularization (2) at a close position (PI); the definition border (731) includes a washer (732) to generate a buffer effect;
the first cap (74) includes two ends to be covered on a top end of the second periphery (71) and a top end of the peg (61) of the connection modularization (6) respectively;
the second cap (75) includes two ends to be covered on a bottom end of the second periphery (71) and a bottom end of the peg (61) of the connection modularization (6) respectively.

26. The modular shower partition (1) as claimed in claim 24 further comprising a plurality of fourth lock elements to lock the second periphery (71) on the wall (a), to lock the third post (72) on the second periphery (71), to lock the two ends of the first cap (74) on the fourth connecting portion (728) of a top end of the third post (72) and the third connecting portion (614) of a top end of the peg (61) individually, and to lock the second cap (75) on the fourth connecting portion (728) of a bottom end of the third post (72) and the third connecting portion (614) of a bottom end of the peg (61) individually.

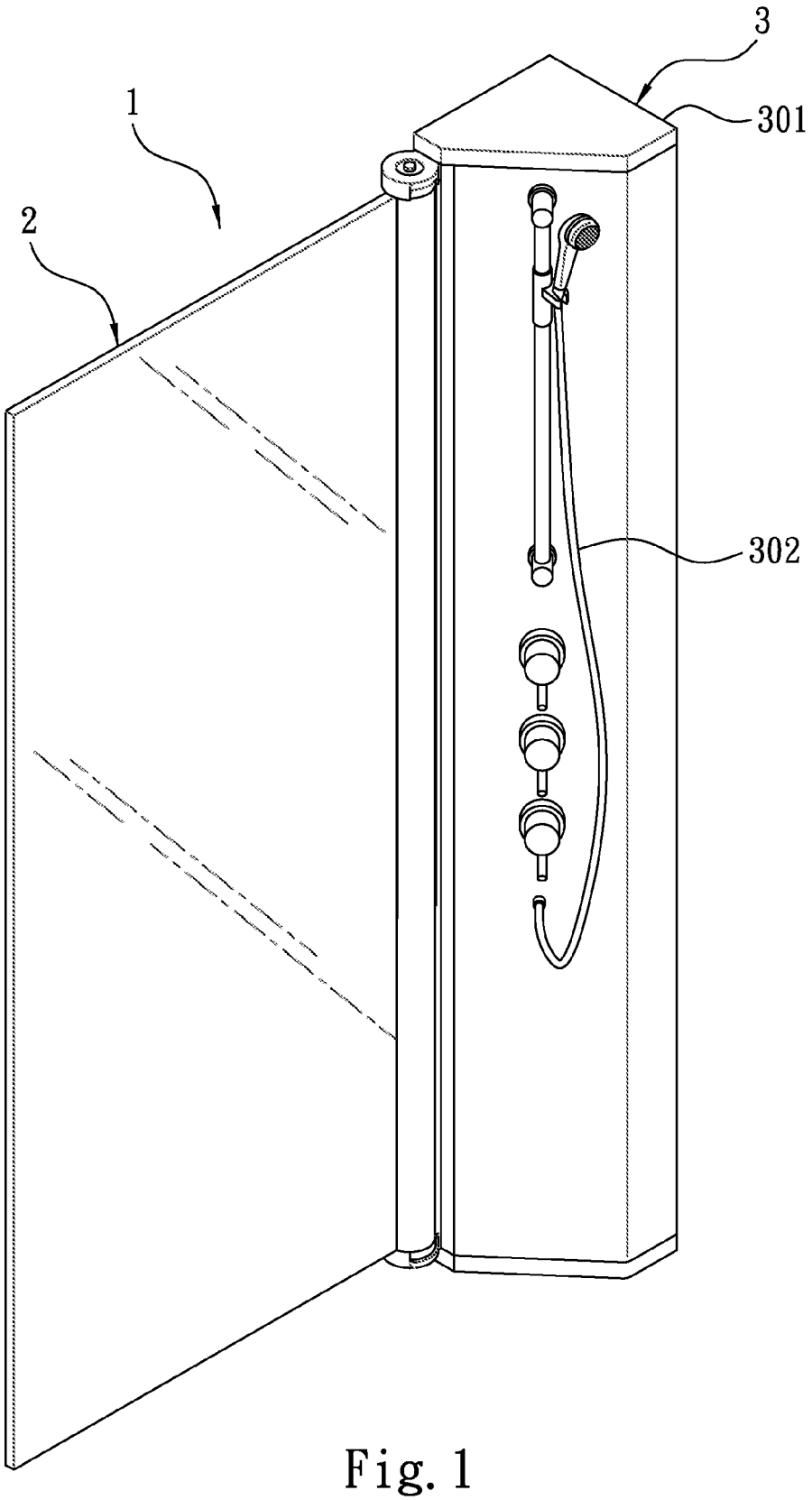

Fig. 1

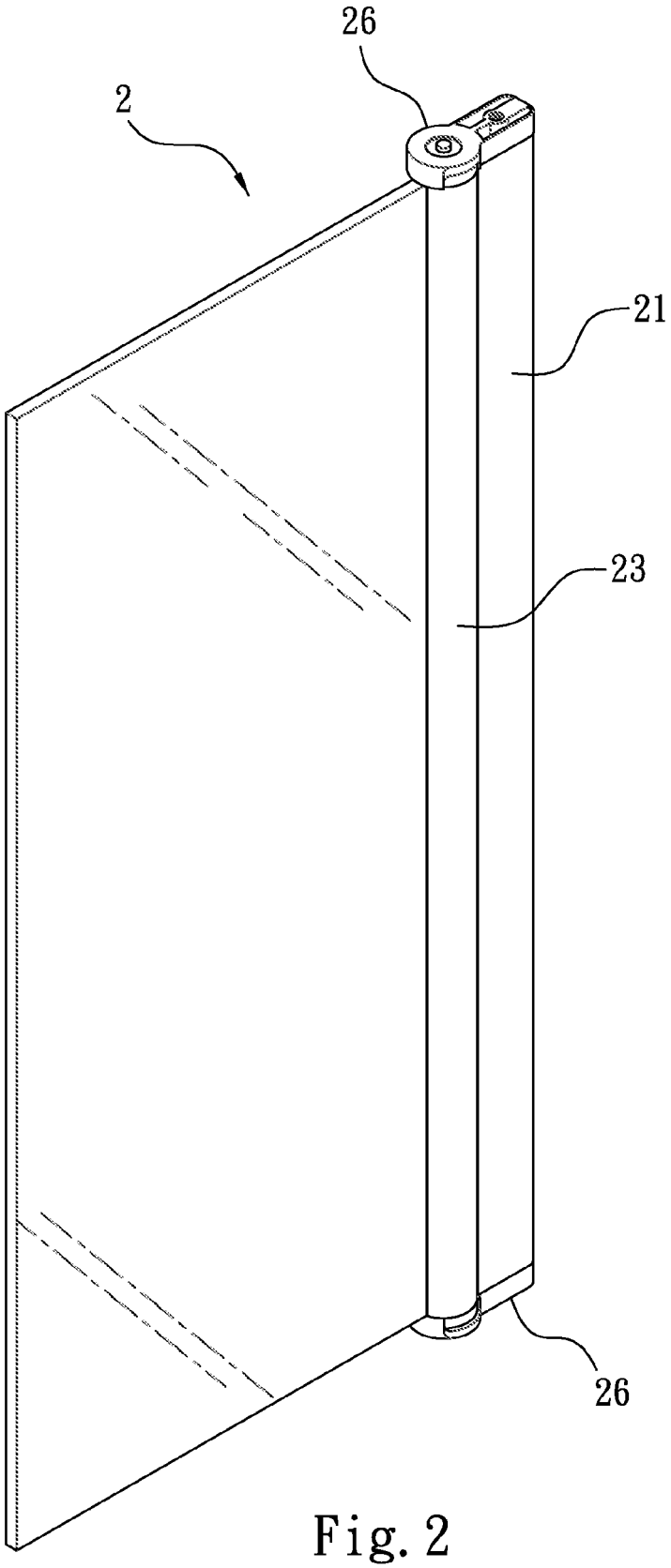

Fig. 2

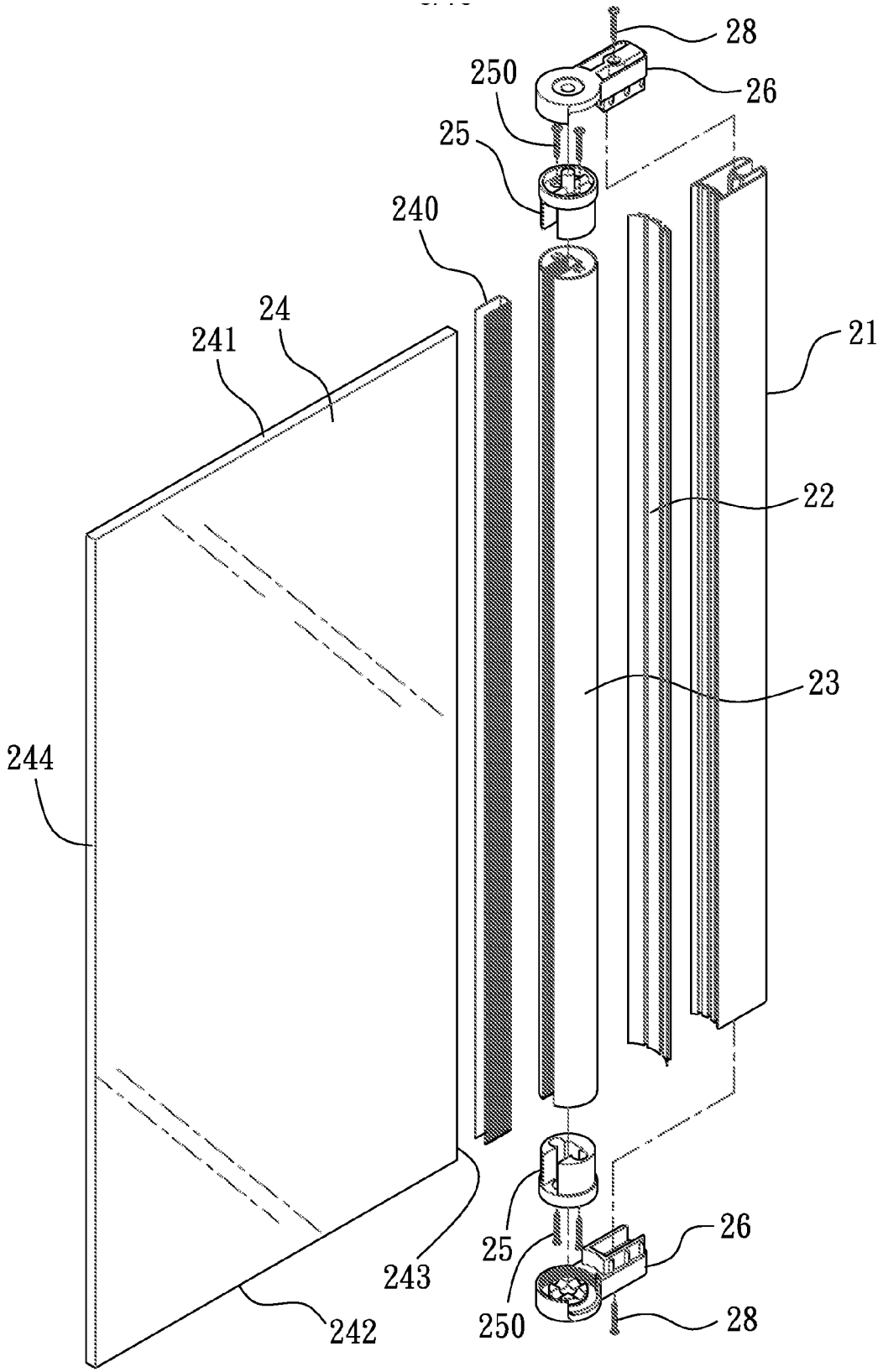

Fig. 3

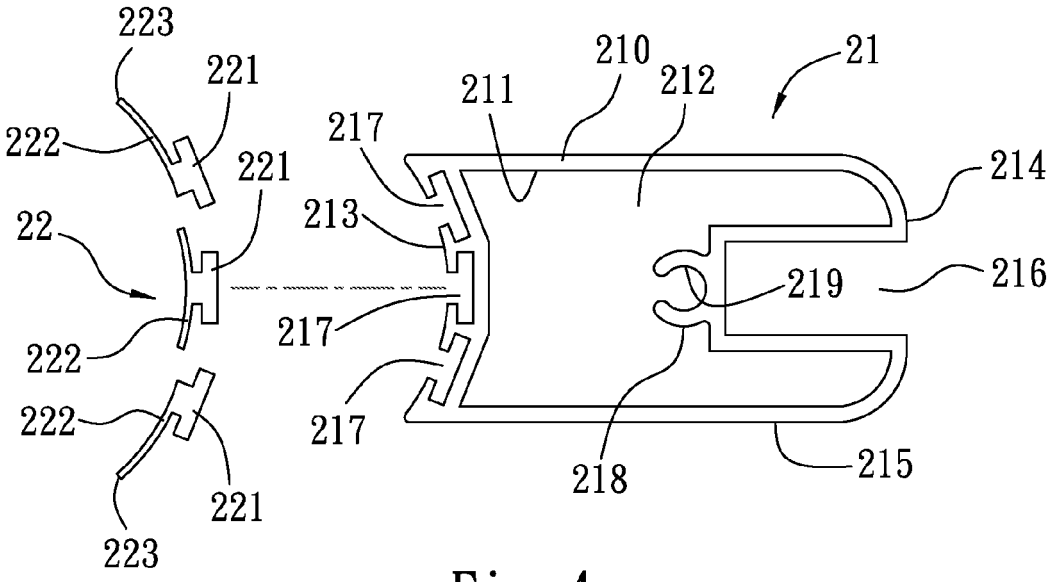
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Fig. 4

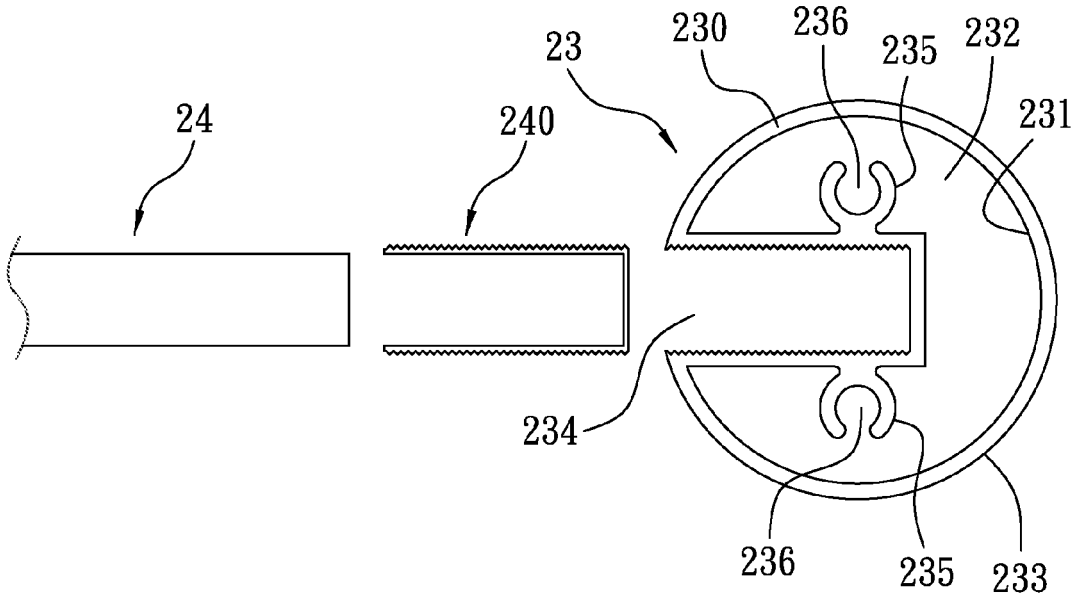
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Fig. 5

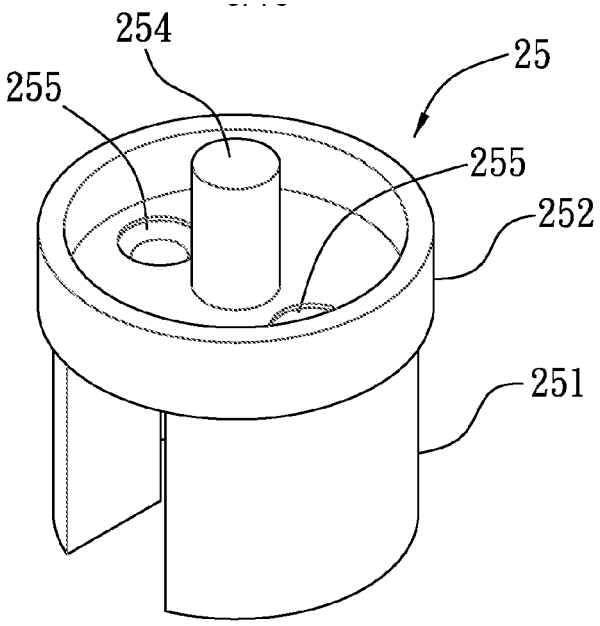

Fig. 6

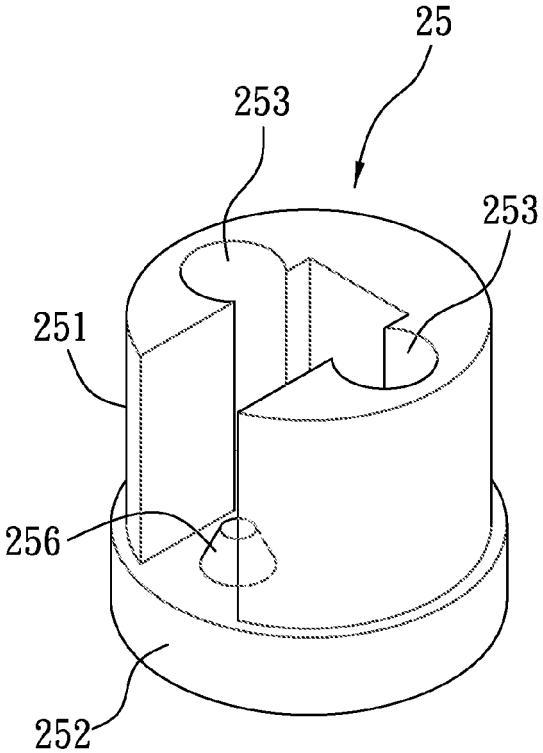

Fig. 7

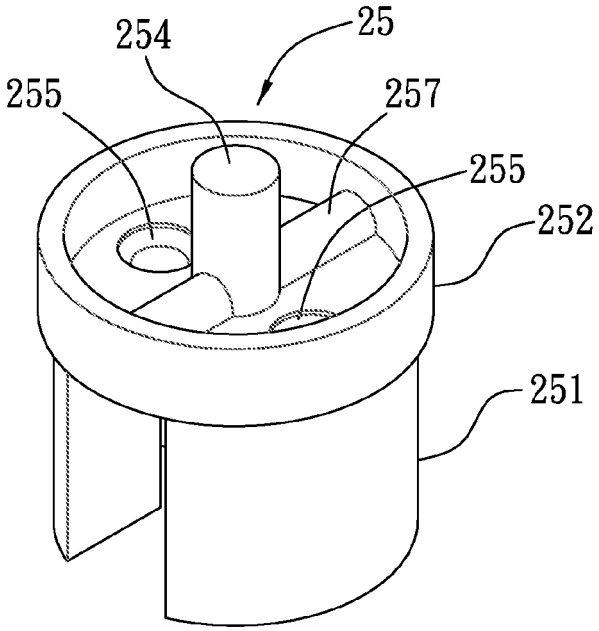

Fig. 8

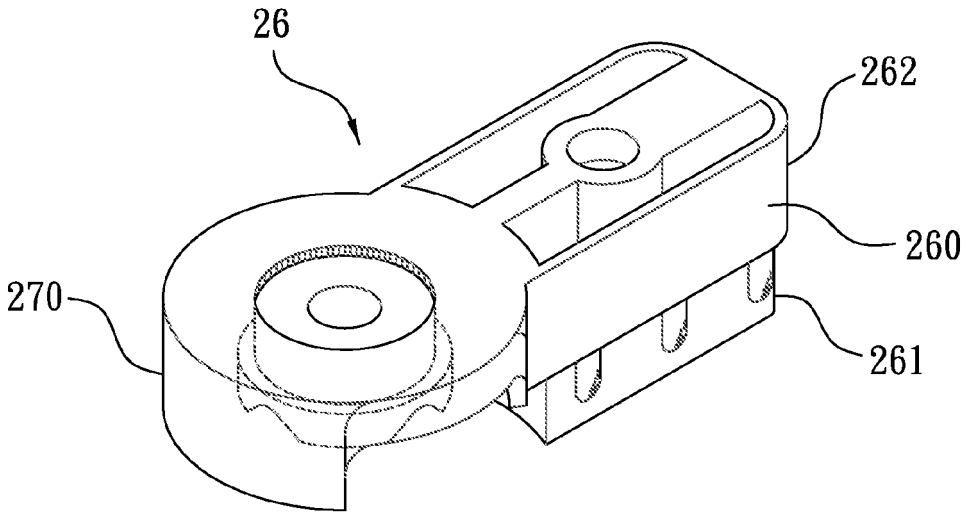

Fig. 9

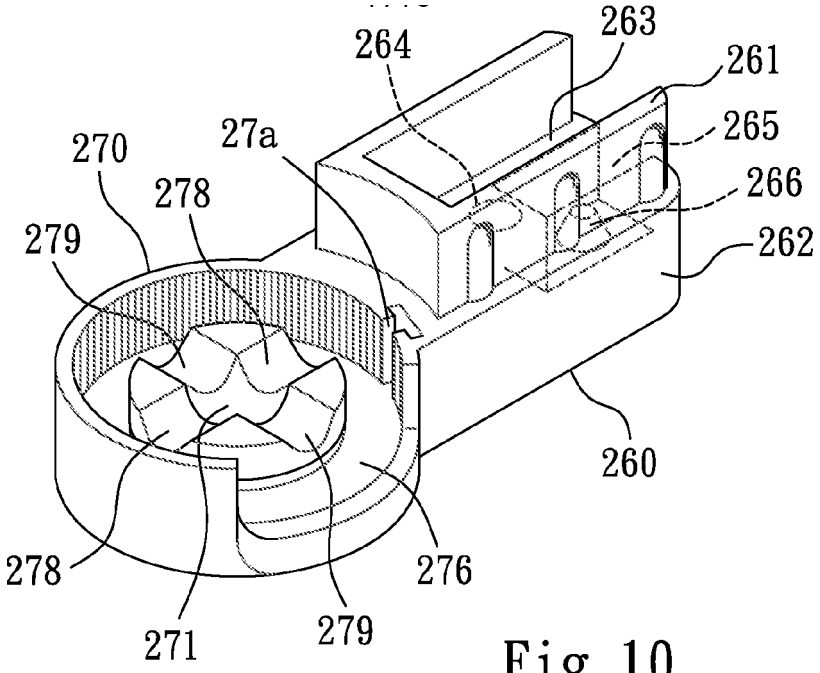
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Fig. 10

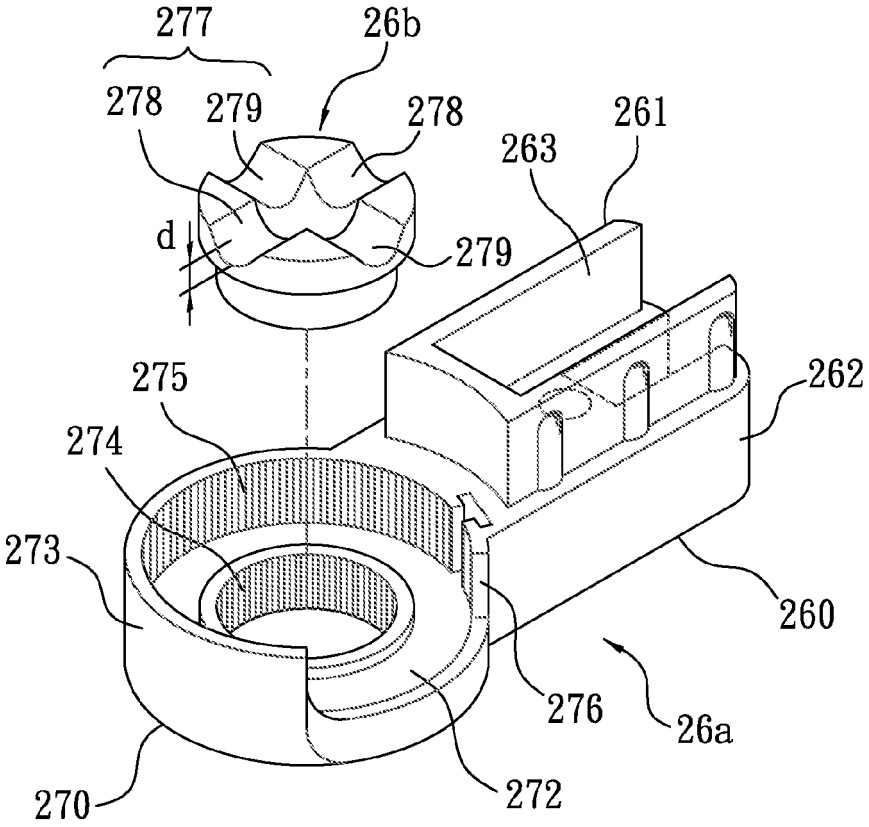
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Fig. 11

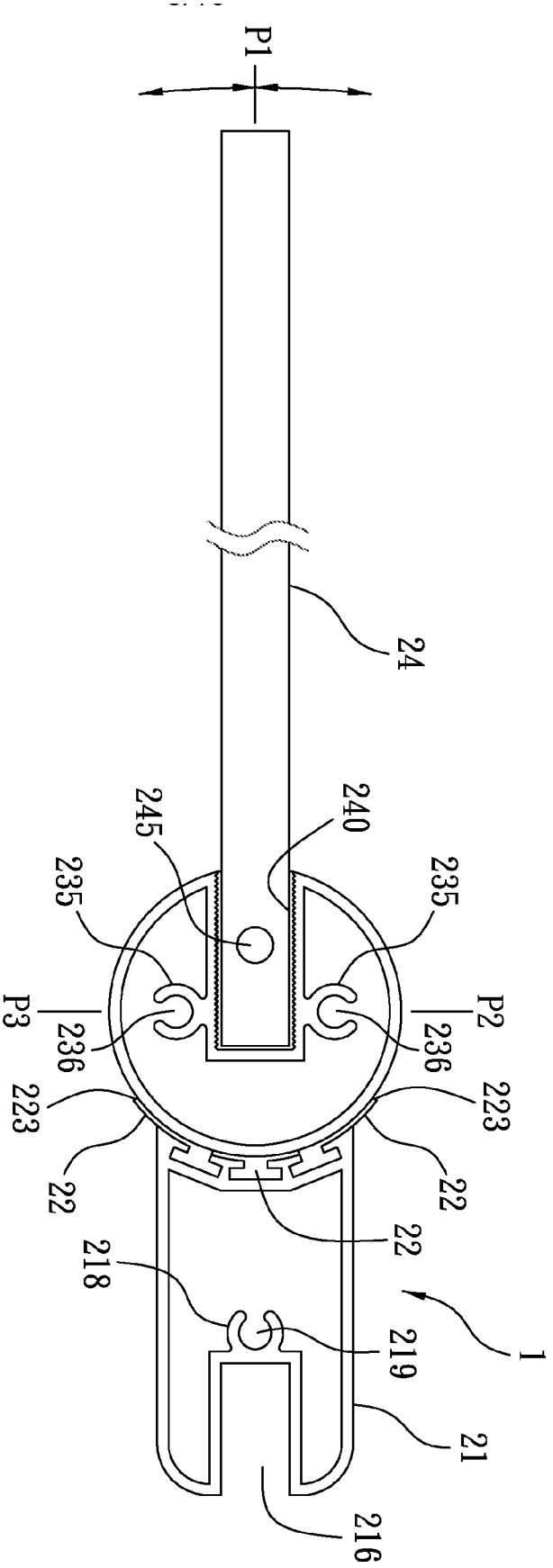
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Fig. 12

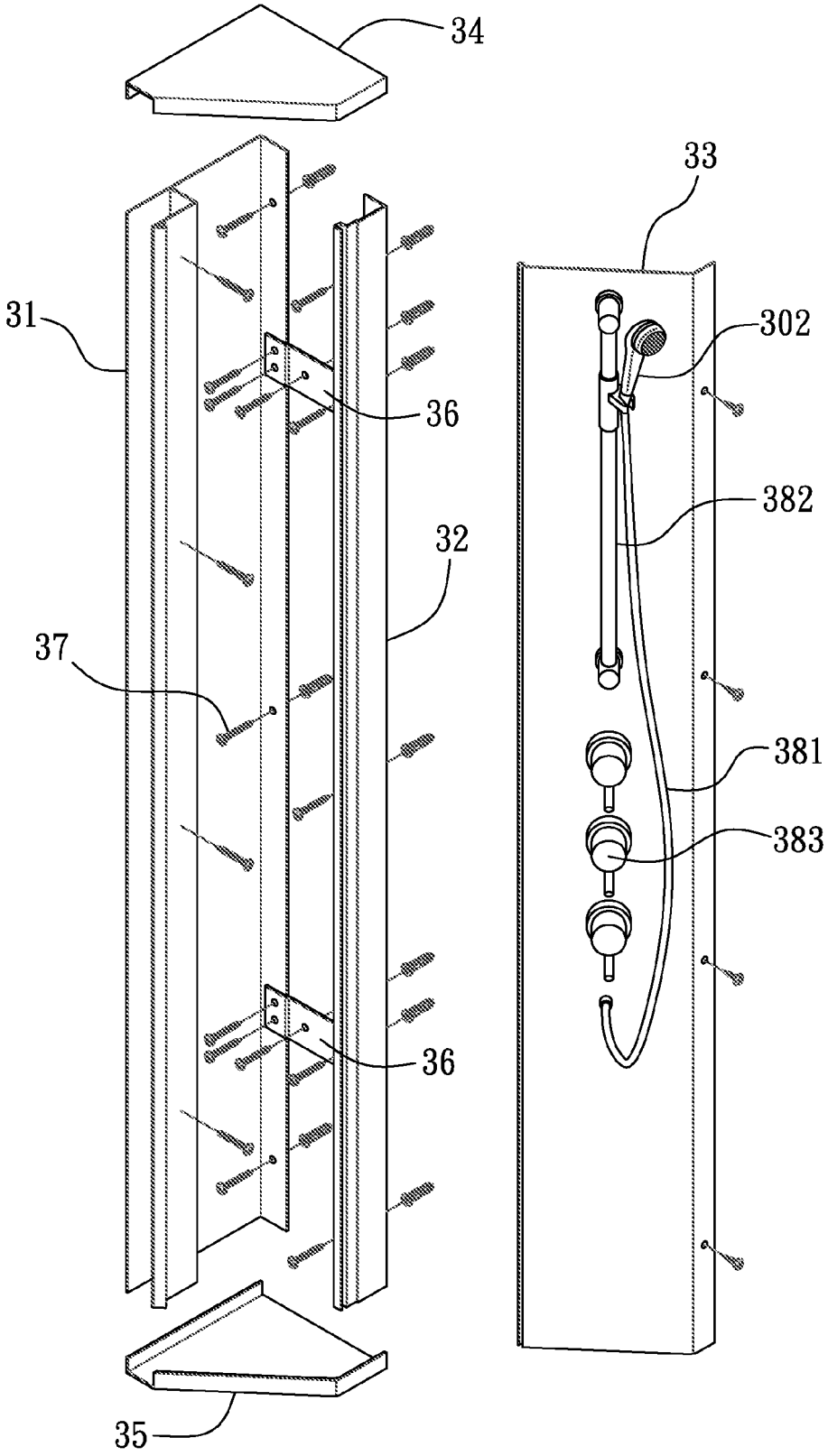

Fig. 13

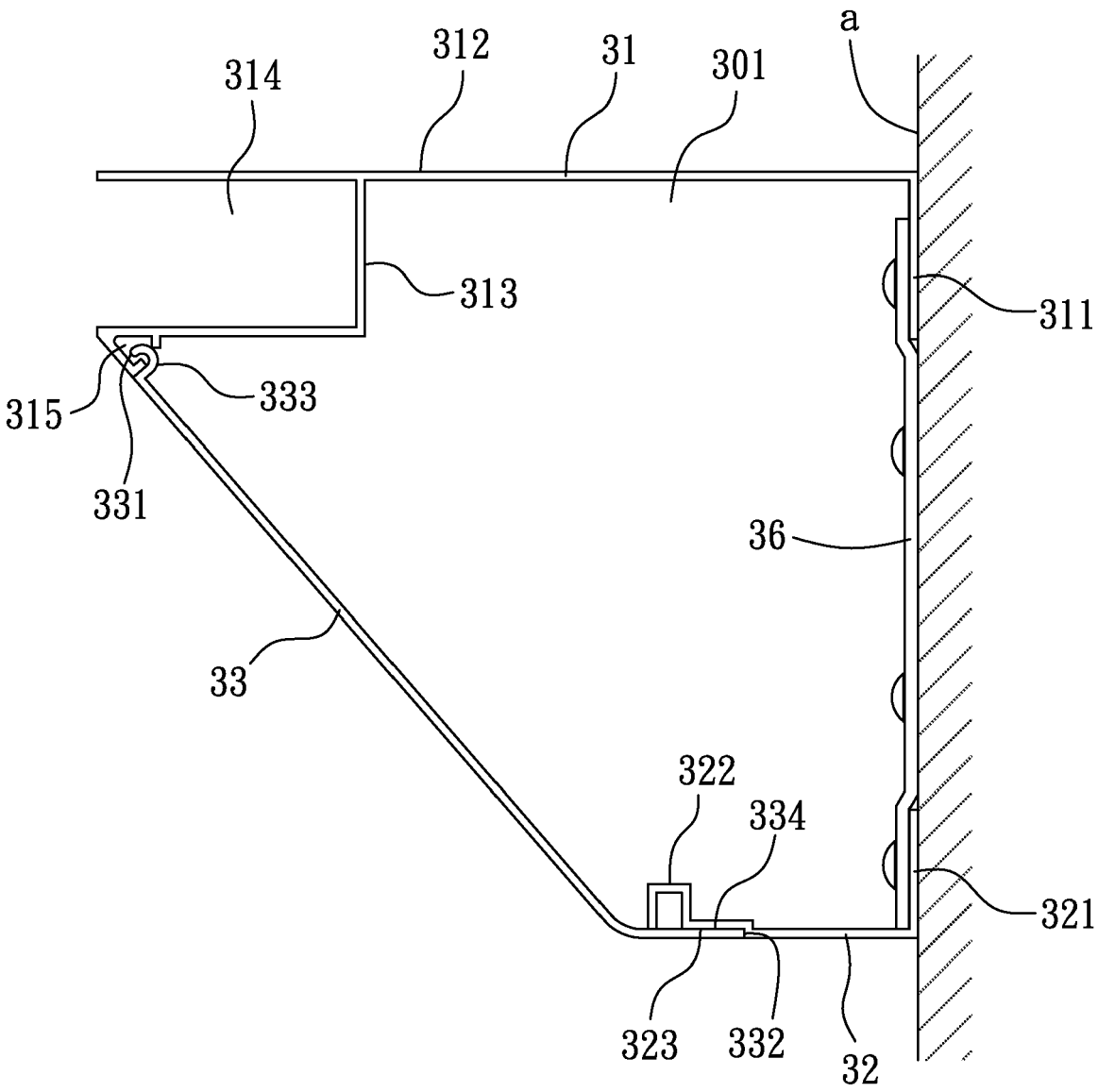

Fig. 14

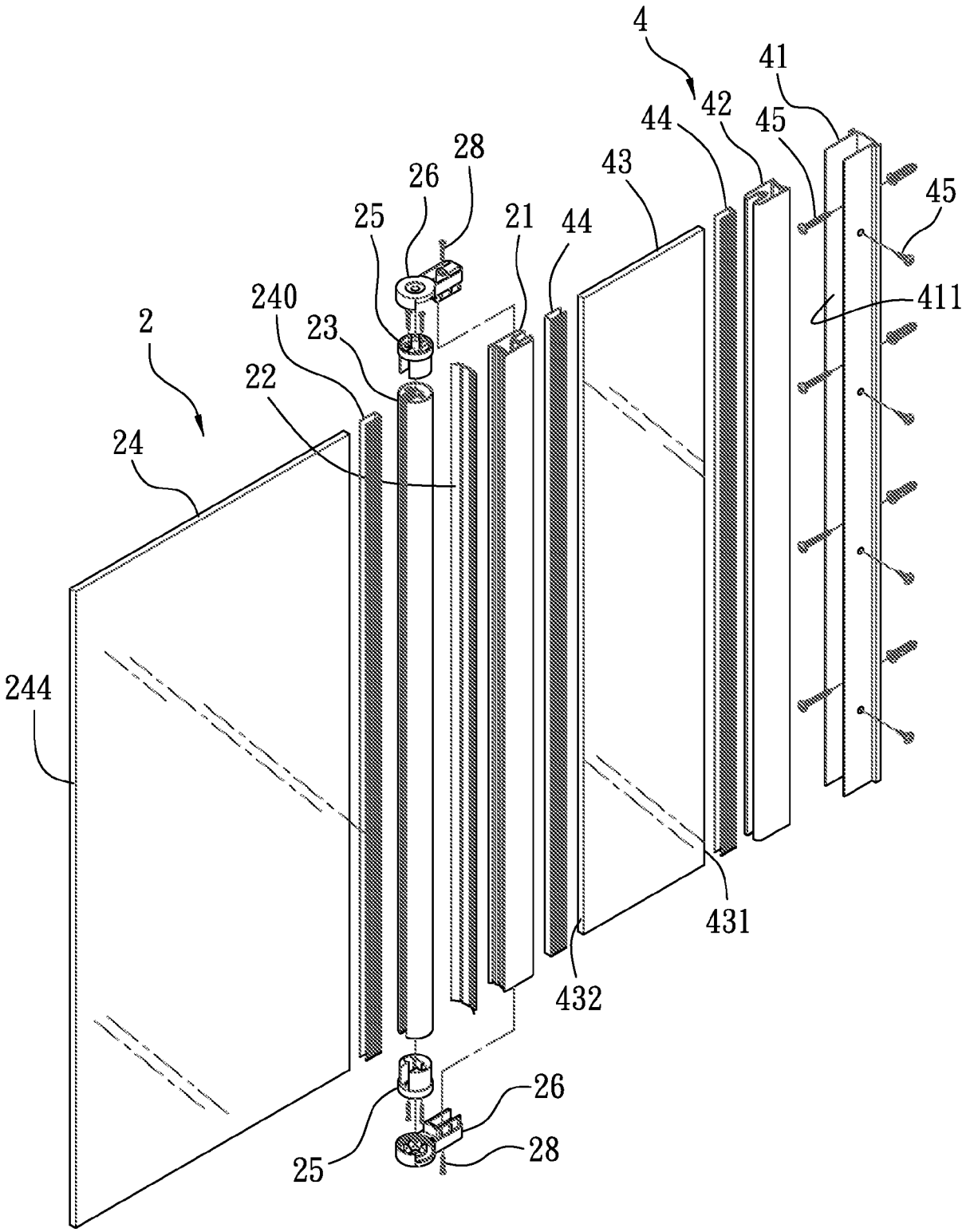
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Fig. 15

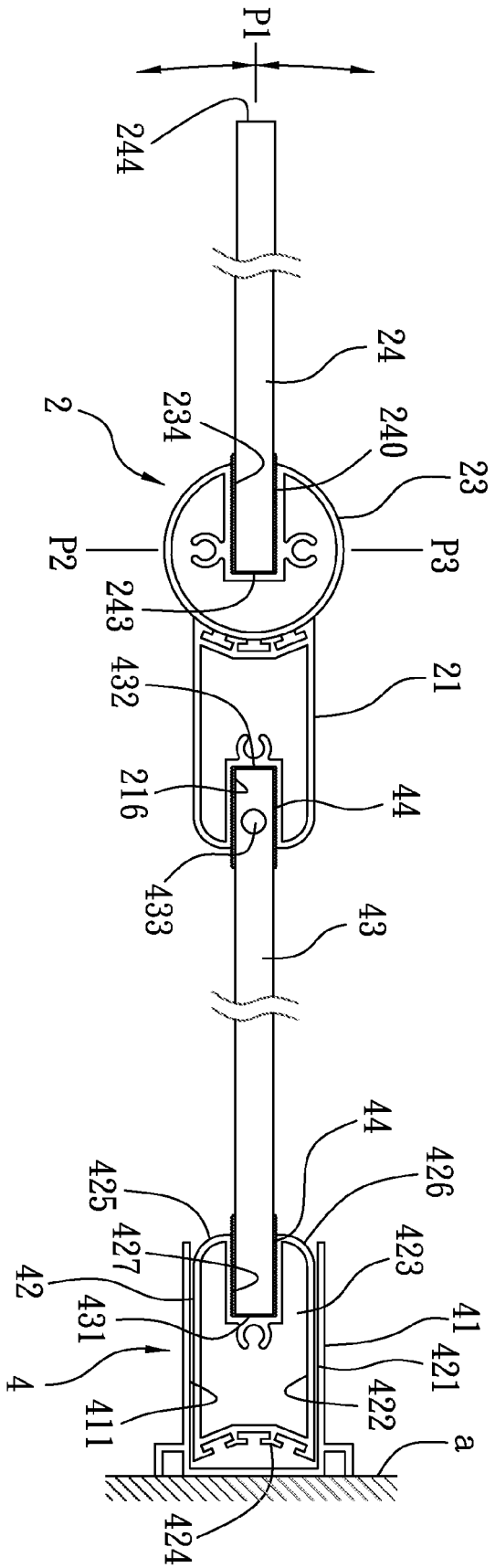
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Fig. 16

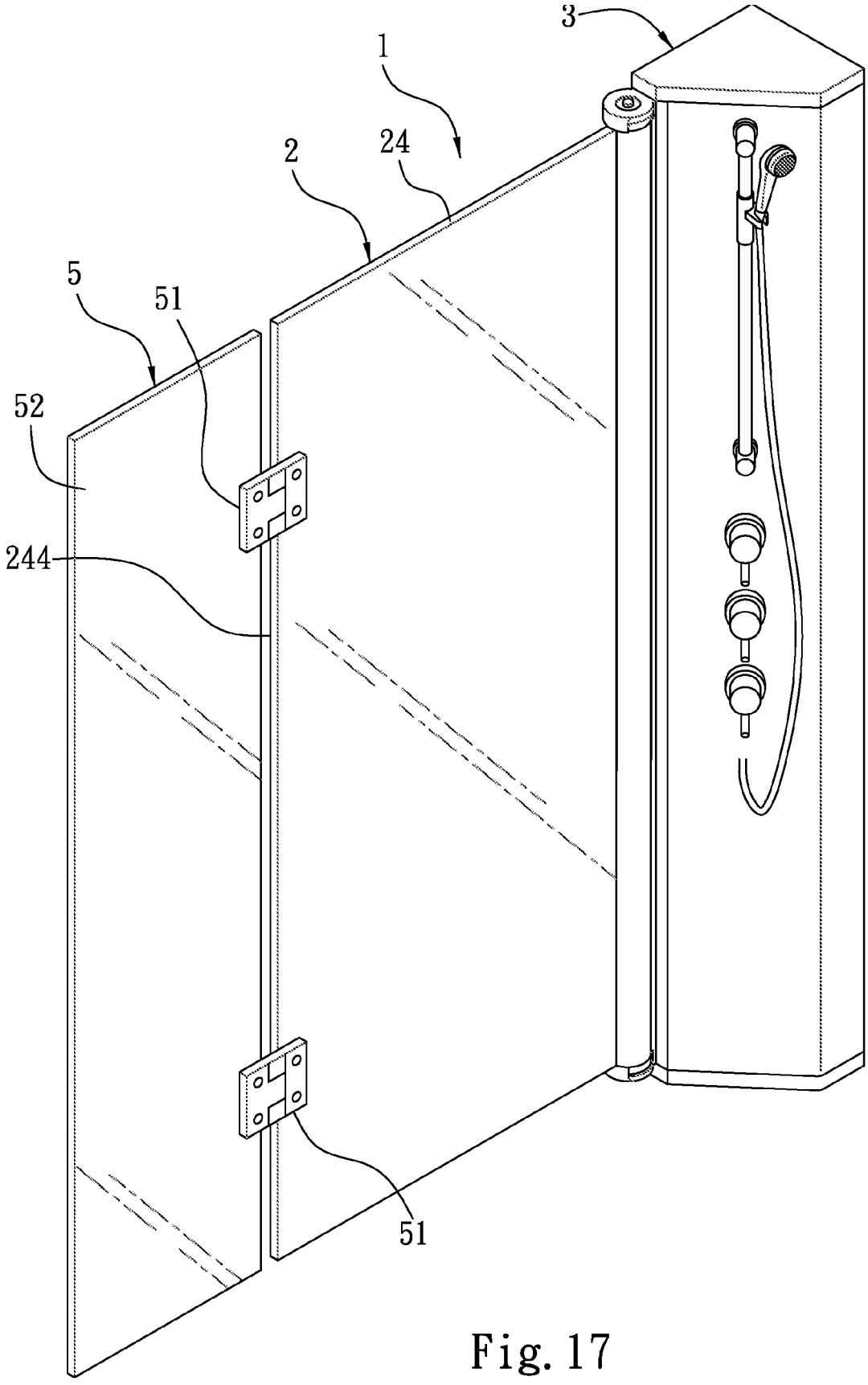

Fig. 17

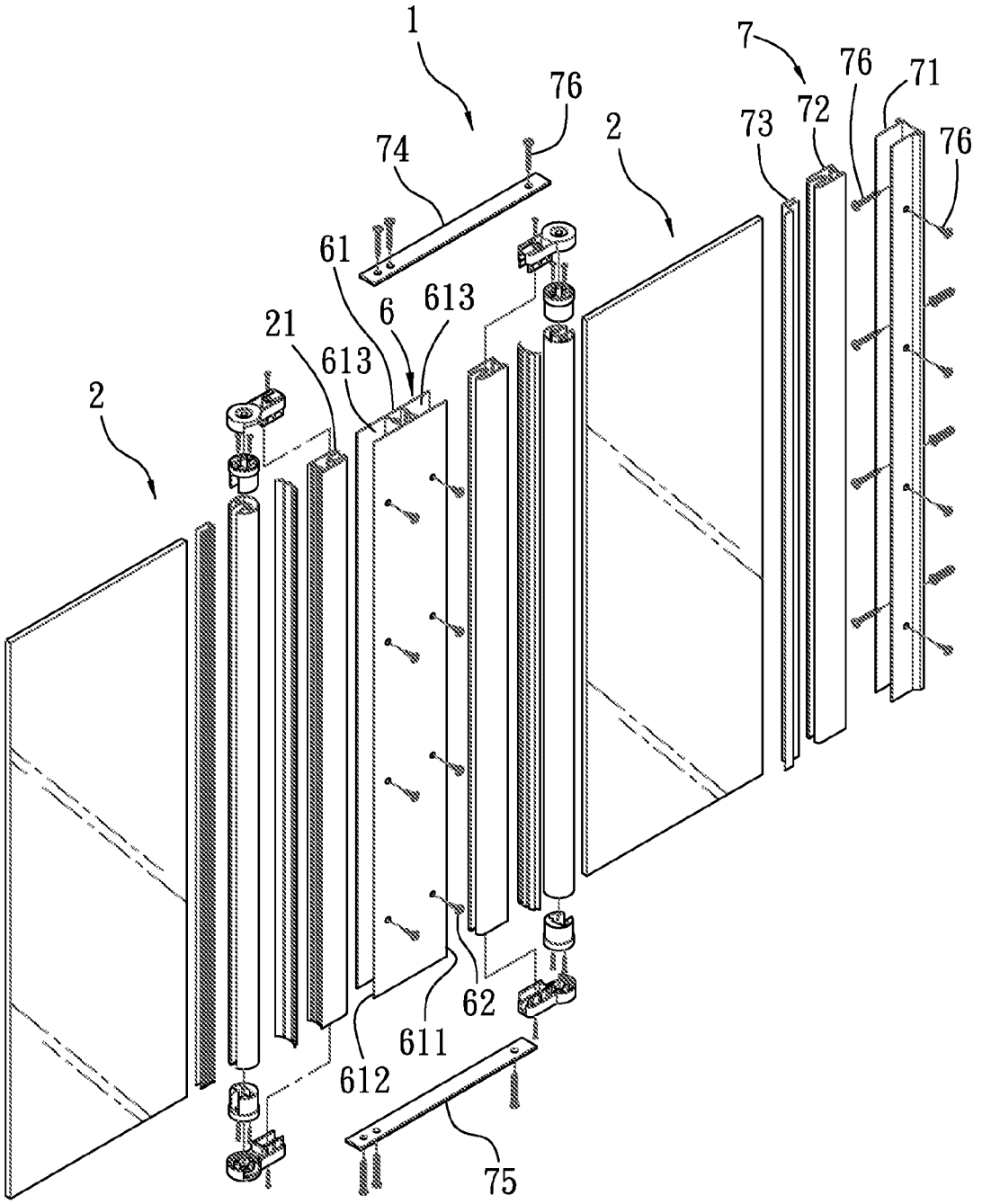

Fig. 18

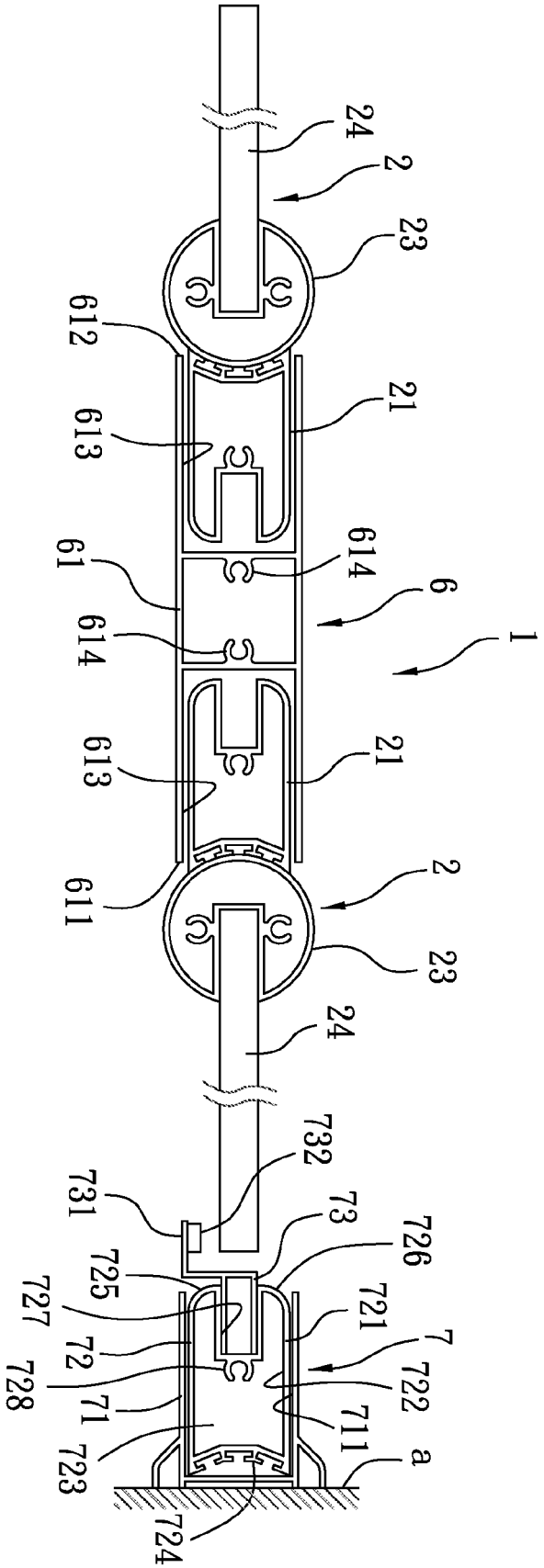
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Fig. 19

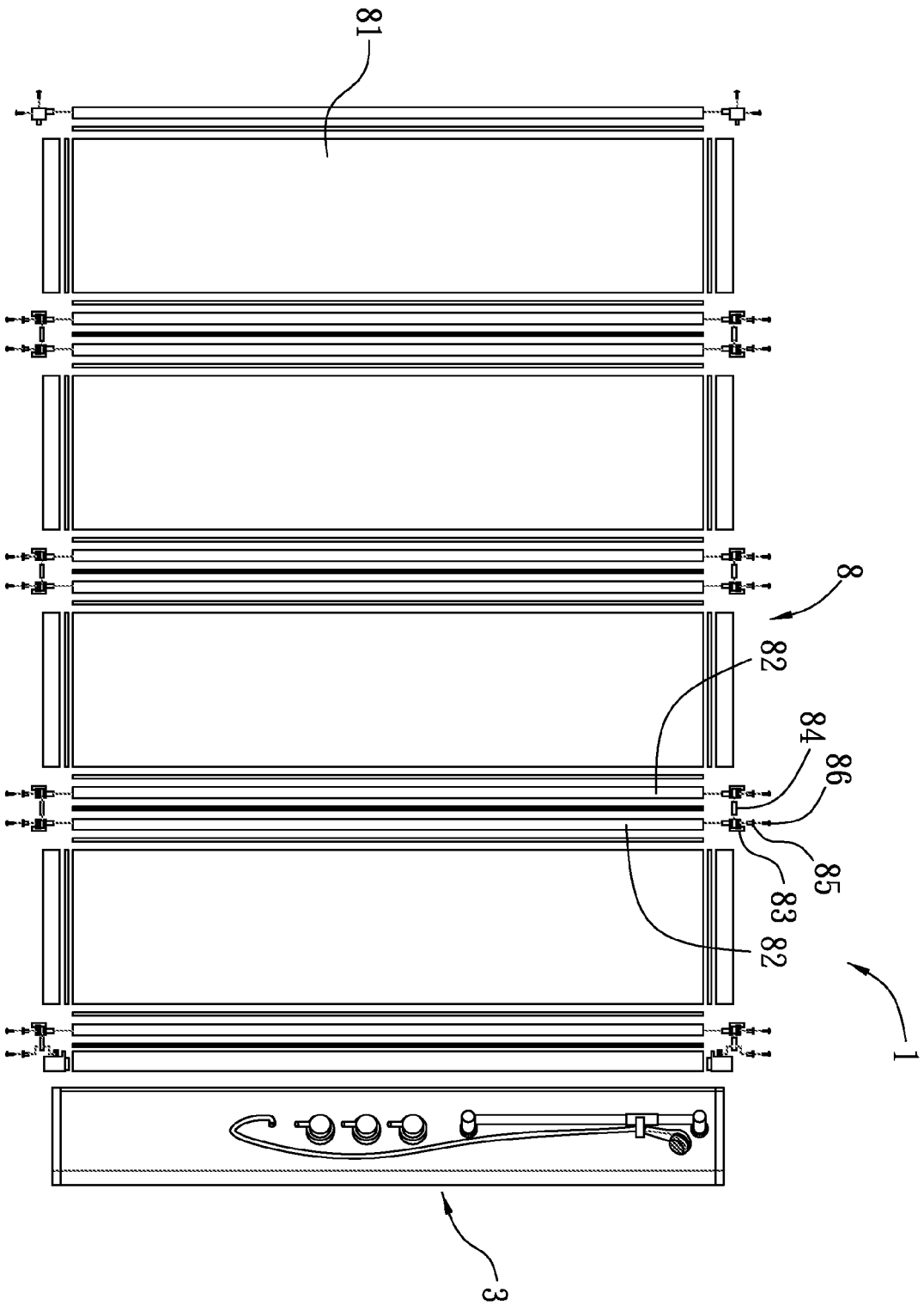

Fig. 20

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EUROPEAN SEARCH REPORT

Application Number
EP 11 17 4321

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A	* page 4, line 21 - page 11, line 34; figures *	9,10,13	

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A	* column 3, line 27 - column 6, line 68; figures *	2	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	16 December 2011	Fajarnés Jessen, A

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X : particularly relevant if taken alone
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82