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(54) **SLIDE SHOWER**

(57) The present disclosure discloses a slide shower, which comprises a fixed portion (10) and a lifting and lowering rod (20) slidably connected to the fixed portion (10), a water outflowing terminal (30) is disposed on the lifting and lowering rod (20); a gravity balancer (40) is disposed between the fixed portion (10) and the lifting and lowering rod (20), the gravity balancer (40) comprises an elastic body (41) and a first pull rope (42), the elastic

body (41) is assembled to the fixed portion (10), the first pull rope (42) is configured to be pulled and is connected to the lifting and lowering rod (20), and a function generated by a pulling force applied to the first pull rope (42) and a function of an elastic force generated by the elastic body (41) are opposite. It balances the elastic force and the gravity to achieve stepless lifting and lowering and improves comfort for the lifting and lowering.

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## Description

### FIELD OF THE DISCLOSURE

[0001] The present disclosure relates to sanitary wares, in particular relates to a slide shower.

### BACKGROUND OF THE DISCLOSURE

[0002] The existing slide shower comprises a lifting and lowering rod and a side shower (i.e., a hand-held shower). The side shower is fixedly disposed below the lifting and lowering rod. An upper section of the lifting and lowering rod is movably encompassed with a lifting and lowering rod outer cover. A top of the lifting and lowering rod outer cover is fixedly disposed with a top shower. A positioning structure configured to enable two positions to be fixed is disposed between the lifting and lowering rod and the lifting and lowering rod outer cover. The positioning structure comprises a positioning pin disposed in the lifting and lowering rod outer cover and a plurality of positioning holes disposed on the lifting and lowering rod, an elastic piece is disposed between the positioning pin and the lifting and lowering rod outer cover, and the positioning pin is alternatively locked to one of the plurality of positioning holes. The slide shower can not achieve stepless lifting and lowering, and driving forces for lifting and lowering are very different. Therefore, further improvement is necessary.

### BRIEF SUMMARY OF THE DISCLOSURE

[0003] The present disclosure provides a slide shower to solve the deficiencies of the slide shower in the background.

[0004] In order to solve the technical problems, a solution of the present disclosure is as follows. A slide shower, which comprises a fixed portion (10) and a lifting and lowering rod (20) slidably connected to the fixed portion (10), a water outflowing terminal (30) is disposed on the lifting and lowering rod (20); a gravity balancer (40) is disposed between the fixed portion (10) and the lifting and lowering rod (20), the gravity balancer (40) comprises an elastic body (41) and a first pull rope (42), the elastic body (41) is assembled to the fixed portion (10), the first pull rope (42) is configured to be pulled and is connected to the lifting and lowering rod (20), and a function generated by a pulling force applied to the first pull rope (42) and a function of an elastic force generated by the elastic body (41) are opposite.

[0005] In an embodiment, the function generated by the pulling force applied on the first pull rope (42) counteracts the function of the elastic force generated by the elastic body (41) to enable a lifting and lowering driving force of the lifting and lowering rod (20) to be constant.

[0006] In an embodiment, the gravity balancer (40) further comprises a fixed pulley (43) rotatably assembled to the fixed portion (10) and a second pull rope (44); one

end of the elastic body (41) is fixedly connected to the fixed portion (10), the second pull rope (44) is connected to another end of the elastic body (41), and the second pull rope (44) is connected to the fixed pulley (43) to drive the fixed pulley (43) to rotate in a forward direction; the first pull rope (42) is configured to be pulled and is connected to the lifting and lowering rod (20), and another end of the first pull rope (42) is connected to the fixed pulley (43) to drive the fixed pulley (43) to rotate in a reverse direction.

[0007] In an embodiment, a movable pulley (411) is assembled to the another end of the elastic body (41), one end of the second pull rope (44) is fixedly connected to the fixed portion (10), and another end of the second pull rope (44) wraps around the movable pulley (411) and is fixed to the fixed pulley (43); a connection position between the first pull rope (42) and the lifting and lowering rod (20) is lower than a position of the fixed pulley (43).

[0008] In an embodiment, the fixed pulley (43) comprises a first outer diameter portion (431) and a second outer diameter portion (432) that are coaxially and fixedly connected, an outer diameter of the first outer diameter portion (431) is larger than an outer diameter of the second outer diameter portion (432), the another end of the first pull rope (42) is connected to the first outer diameter portion (431), and the second pull rope (44) is connected to the second outer diameter portion (432).

[0009] In an embodiment, the one end of the first pull rope (42) is connected to a bottom end of the lifting and lowering rod (20).

[0010] In an embodiment, the fixed portion (10) comprises a water inflowing passage (11) and a first water outflowing passage (12), and the first water outflowing passage (12) is in communication with the water inflowing passage (11); a second water outflowing passage (21) is disposed in the lifting and lowering rod (20), and the second water outflowing passage (21) is in communication the first water outflowing passage (12) and the water outflowing terminal (30).

[0011] In an embodiment, an outer pipe (13) is fixedly disposed in the fixed portion (10), and two sealing plugs (131) are fixedly disposed in the outer pipe (13), a section of the outer pipe (13) between the two sealing plugs (131) comprises a first through hole (132) penetrating an inner side and an outer side, and the first water outflowing passage (12) comprises the first through hole (132) and a gap between the outer pipe (13) and an inner pipe (22); the inner pipe (22) in communication with the gap is fixedly disposed in the lifting and lowering rod (20), and the inner pipe (22) is slidably connected to an inner side of the outer pipe (13), an upper end of the inner pipe (22) extends out of one of the two sealing plugs (131) disposed on an upper side, the upper end of the inner pipe (22) is in communication with the water outflowing terminal (30), and the second water outflowing passage (21) comprises the inner pipe (22).

[0012] In an embodiment, two ends of the inner pipe (22) respectively extend out of the two sealing plugs

(131), a lower end of the inner pipe (22) is sealed, and the inner pipe (22) comprises a second through hole (221) penetrating an inner side and an outer side and disposed on a section of the outer pipe (13) between the two sealing plugs (131), and the second water outflowing passage (21) comprises the second through hole (221).

**[0013]** In an embodiment, the first water outflowing passage (12) further comprises a water pipe (14) configured to be in communication with the water inflowing passage (11) and the first through hole (132).

**[0014]** In an embodiment, which further comprises a faucet body (50), the fixed portion (10) is fixedly disposed on the faucet body (50), and the water inflowing passage (11) is in communication with the faucet body (50).

**[0015]** In an embodiment, the fixed portion (10) comprises a water inflowing passage (11) and two water dividing passages (15), a switching mechanism (16) connected to the water inflowing passage (11) and the two water dividing passages (15) is further assembled to the fixed portion (10), and one of the two water dividing passages (15) is in communication with the water outflowing terminal (30).

**[0016]** In an embodiment, the one of the two water dividing passages (15) in communication with the water outflowing terminal (30) comprises a hose (151), an upper end of the hose (151) extends out of the fixed portion (10), is disposed in the lifting and lowering rod (20), and is in communication with the water outflowing terminal (30).

**[0017]** In an embodiment, another water dividing passage of the two water dividing passages (15) downwardly extends out of the fixed portion (10).

**[0018]** In an embodiment, the fixed portion (10) comprises a first accommodating cavity (101) and an access hole (102) in communication with the first accommodating cavity (101), and the lifting and lowering rod (20) comprises a second accommodating cavity (201); the upper end of the hose (151) passes through the first accommodating cavity (101), cooperated with and slidably extends out of the access hole (102), and passes through the second accommodating cavity (201).

**[0019]** In an embodiment, the lifting and lowering rod (20) comprises an outer sleeve (23) and a top base (24), and the outer sleeve (23) encompasses an outer side of the fixed portion (10); the top base (24) comprises a connection portion (241) fixedly connected to a top of the outer sleeve (24) and a cantilever (242) fixedly connected to the connection portion (241), and the water outflowing terminal (30) is assembled to an end of the cantilever (242).

**[0020]** In an embodiment, the fixed portion (10) comprises an inner core (171) and an upper fixed base (172) fixedly connected to a top of the inner core (171), and the fixed pulley (43) is assembled to the upper fixed base (172).

**[0021]** Compared with the existing techniques, the technical solution has the following advantages.

**[0022]** The gravity balancer is disposed between the

fixed portion and the lifting and lowering rod. The gravity balancer comprises the elastic body and the first pull rope. The function of the pulling force of the sum gravity of the lifting and lowering rod and the water outflowing terminal applied on the first pull rope and the function of the elastic force generated by the elastic body are opposite. On the one hand, it balances the elastic force and the gravity to achieve stepless lifting and lowering. On the other hand, it reduces a difference between driving forces for the lifting and lowering and improves comfort for the lifting and lowering.

**[0023]** The gravity balancer comprises the fixed pulley and the second pull rope, the elastic body is connected to the fixed pulley through the second pull rope to drive the fixed pulley to rotate in the forward direction, and the lifting and lowering rod is connected to the fixed pulley through the first pull rope to drive the fixed pulley to rotate in the reverse direction. The fixed pulley is further added to improve a stability and an accuracy of the balance. The layout is reasonable, and the structure is compact.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0024]** The present disclosure will be further described below in combination with the accompanying drawings and embodiments.

Fig. 1 illustrates a left view of a slide shower of Embodiment 1.

Fig. 2 illustrates an exploded perspective view of the slide shower of Embodiment 1.

Fig. 3 illustrates a first cross-sectional view of the slide shower of Embodiment 1 when a lifting and lowering rod is at a lowest position.

Fig. 4 illustrates a second cross-sectional view of the slide shower of Embodiment 1 when the lifting and lowering rod is at a highest position.

Fig. 5 illustrates a graph of a principle of a gravity balancer of Embodiment 1.

Fig. 6 illustrates a front view of a slide shower of Embodiment 2.

Fig. 7 illustrates a cross-sectional view of the slide shower of Embodiment 2.

## References:

**[0025]** References of Embodiment 1: fixed portion 10, lifting and lowering rod 20, water outflowing terminal 30, gravity balancer 40, water inflowing passage 11, first water outflowing passage 12, outer pipe 13, sealing plug 131, first through hole 132, water pipe 14, communication passage 141; inner core 171, upper fixed base 172, lower fixed base 173; elastic body 41, movable pulley 411, connecting frame 412, first pull rope 42, fixed pulley 43, first outer diameter portion 431, second outer diameter portion 432, second pull rope 44, second water outflowing passage 21, inner pipe 22, second through hole 221, outer sleeve 23, top base 24, connection portion 241,

cantilever 242, water communication passage 243;  
References of Embodiment 2: first accommodating cavity 101, access hole 102, water dividing passage 15, hose 151, switching mechanism 16, valve core 161, automatic ballpoint pen mechanism 162, second accommodating cavity 201.

## DETAILED DESCRIPTION OF THE EMBODIMENTS

### Embodiment 1

**[0026]** Referring to Figs. 1-5, a slide shower comprises a fixed portion 10, a lifting and lowering rod 20 slidably connected to the fixed portion 10, a water outflowing terminal 30 assembled to the lifting and lowering rod 20, a gravity balancer 40 disposed between the fixed portion 10 and the lifting and lowering rod 20 and a faucet body 50. The water outflowing terminal 30 is, for example, a top shower.

**[0027]** The fixed portion 10 comprises an inner core 171, an upper fixed base 172 and a lower fixed base 173, and the inner core 171 is fixedly disposed between the upper fixed base 172 and the lower fixed base 173.

**[0028]** The lifting and lowering rod 20 comprises an outer sleeve 23 and a top base 24, and the outer sleeve 23 encompasses the fixed portion 10; the top base 24 comprises a connection portion 241 fixedly connected to a top of the outer sleeve 24 and a cantilever 242 fixedly connected to the connection portion 241. The water outflowing terminal 30 is assembled to an end of the cantilever 242, and the top base 24 comprises a water communication passage 243 in which one end is disposed on a bottom surface of the connection portion and another end is disposed on an end surface of the cantilever to be in communication with the water outflowing terminal.

**[0029]** The gravity balancer 40 comprises an elastic body 41, a first pull rope 42, a fixed pulley 43 and a second pull rope 44. The fixed pulley 43 is disposed on an upper part of the upper fixed base 172 and comprises a first outer diameter portion 431 and a second outer diameter portion 432 that are coaxially and fixedly connected, and an outer diameter of the first outer diameter portion 431 is greater than an outer diameter of the second outer diameter portion 432. A lower end of the elastic body 41 is fixedly connected to the lower fixed base 173, an upper end of the elastic body 41 is connected to a movable pulley 411 through a connecting frame 412, one end of the second pull rope 44 is fixedly connected to the upper fixed base 172, and another end of the second pull rope 44 wraps about the movable pulley 411 and is fixedly connected to the second outer diameter portion 432 of the fixed pulley 43. The second pull rope 44 is connected to the fixed pulley 43 to drive the fixed pulley 43 to rotate in a forward direction due to an elastic force of the elastic body 41, the elastic body is, for example, a tension spring. One end of the first pull rope 42 is connected to a bottom end of the lifting and lowering rod 20, and another end of the first pull rope 42 is connected to the first outer diam-

eter portion 431 of the fixed pulley 43, so that the fixed pulley 43 is driven to rotate in a reverse direction due to a gravity (e.g., a weight) of the lifting and lowering rod 20, and the forward direction can be clockwise or counterclockwise. A connection position between the first pull rope 42 and the lifting and lowering rod 20 is lower than a position of the fixed pulley 43. Wherein a function generated by a pulling force applied to the first pull rope 42 counteracts a function generated by an elastic force generated by the elastic body 41 to enable lifting and lowering driving forces of the lifting and lowering rod 20 to be constant. A detail gravity balance principle of lifting and lowering by constant force is described as follows: a gravity of a top shower lifting and lowering module (the lifting and lowering rod 20 and the water outflowing terminal 30) is applied to a large diameter wheel (the first outer diameter portion 431) of the fixed pulley 43 through the first pull rope 42 and is converted into a torque force F1 by which the large diameter wheel rotates about a center axis; a pulling force of the elastic body 41 is applied to the small diameter wheel (the second outer diameter portion 432) of the fixed pulley 43 through the movable pulley and the second pull rope 44 and is converted into a torque force F2 by which the small diameter wheel rotates about the central axis; In the gravity balancer 40, directions of the torque forces F1 and F2 are opposite, when values of the torque forces F1 and F2 are equal, the top shower lifting and lowering module reaches a balance state and is fixed at a balance position. Further, the large diameter wheel and the small diameter wheel in combination with the movable pulley is used to balance a weight of the top shower lifting and lowering module through the tension force of the tension spring, it can stop at any position, a stepless adjustment is achieved, and a height is adjustable; the large diameter wheel of the fixed pulley rotates, the small diameter wheel also rotates synchronously to wrap the second pull rope, after vertical lifting and lowering movement distance of the top shower lifting module is converted and reduced (a reduction factor is based on a ratio of radii of the large diameter wheel and the small diameter wheel, as needed, when the ratio is larger, the reduction factor is higher), the movable pulley is then pulled again, and a movement of the movable pulley is reduced. An expansion and contraction amount of the tension spring connected to the movable pulley is further half reduced due to the movable pulley. Therefore, a large lifting and lowering movement of the top shower lifting and lowering module corresponds to a small expansion and contraction amount of the spring (i.e., the tension spring), the expansion and contraction amount of the spring is small, a value variation of the force is small, the tension force and the gravity remain balanced, and affect resulting from variation of lifting and lowering height movement is small and can be basically negligible compared with an overall gravity. Therefore, it is regarded as counteracted each other and balanced, and the lifting and lowering with the constant force is achieved.

**[0030]** The fixed portion 10 comprises a water inflowing

passage 11 and a first water outflowing passage 12, the first water outflowing passage 12 is in communication with the water inflowing passage 11; a second water outflowing passage 21 is disposed in the lifting and lowering rod 20, the second water outflowing passage 21 is in communication with the first water outflowing passage 12 and the water outflowing terminal 30 to transport water from the water inflowing passage of the fixed portion to the water outflowing terminal 30.

**[0031]** The fixed portion 10 is fixedly disposed on the faucet body 50 and the water inflowing passage 11 is in communication with the faucet body 50, and the water inflowing passage 11 is disposed on the lower fixed base 173.

**[0032]** An outer pipe 13 is fixedly disposed in the fixed portion 10, and two sealing plugs 131 are fixedly disposed in the outer pipe 13. A section of the outer pipe 13 between the two sealing plugs 131 comprises a first through hole 132 penetrating an inner side and an outer side. The first water outflowing passage 12 comprises the first through hole 132 and a gap between the outer pipe 13 and an inner pipe 22, and the first water outlet passage 12 further comprises a water pipe 14 configured to be in communication with the water inflowing passage 11 and the first through hole 132. The upper fixed base 172 comprises, for example, a communication passage 141 in communication with an upper end of the water pipe 14 and the first through hole 132. The inner pipe 22 configured to be in communication with the gap is fixedly disposed in the lifting and lowering rod 20. The inner pipe 22 is slidably connected to an inner side of the outer pipe 13 and two ends of the inner pipe 22 respectively extend out of two sealing plugs 131. The inner pipe 22 comprises a second through hole 221 penetrating an inner side and an outer side and disposed on a section of the outer pipe 13 between the two sealing plugs 131. A lower end of the inner pipe 22 is sealed, and an upper end of the inner pipe 22 is in communication with the water communication passage 243. The second water outflowing passage 21 comprises the inner pipe 22, the second through hole 221 and the water communication passage 243. Water passages can be in communication in the lifting and lowering structure and a hydraulic balance state can also be achieved due to the aforementioned structure. The principle is as follows: water from the faucet body flows through the lower fixed base, the water pipe, and the upper fixed base and flows into an inner cavity of the outer pipe. The upper sealing plug and the lower sealing plug (e.g., the two sealing plugs) of the inner cavity of the outer pipe are sealed with a side wall of the inner pipe, and areas of an outer side of the inner pipe subjected to water pressure are equal, and the water pressure does not work (e.g., the inner pipe will not be affected by the water pressure); the water flows through the second through hole 221 of the side wall of the inner pipe, flows into the inner pipe, and is in communication with the top shower lifting and lowering module, the top shower lifting and lowering module is subjected to an upward

pushing force F3 of the water pressure, the lower end of the inner pipe is a sealed surface and is therefore subjected to a downward force F4 of the water pressure, and the inner pipe is fixed to the top shower lifting and lowering module, the upward pushing force F3 from the water pressure applied to the top shower and the downward force F4 from the water pressure applied on the sealed surface of the lower end of the inner pipe are nearly equal and counteract each other, so that the top shower lifting and lowering module reaches a hydraulic balance and will not be affected by the water pressure; when the inner pipe is in a lifting and lowering process, the first through hole remains between the upper sealing plug and the lower sealing plug of the outer pipe, the water pressure does not change during the lifting and lowering process, so that hydraulic power remains in a balanced state at any lifting and lowering position and does not affect the lifting and lowering.

## Embodiment 2

**[0033]** Embodiment 2 differs from Embodiment 1 in that: referring to Figs. 6 and 7, the lower fixed base 173 of the fixed portion 10 comprises the water inflowing passage 11 and two water dividing passages 15, and the lower fixed base 173 further comprises a switching mechanism 16 connected to the water inflowing passage 11 and the two water dividing passages 15, one of the two water dividing passages 15 is in communication with the water outflowing terminal 30, and another water dividing passage 15 downwardly extends out of the lower fixed base 173 to be in communication with other water outflowing terminals, for example, a hand-held shower. The switching mechanism adopts a push and slide switching method, it comprises a valve core 161 and an automatic ballpoint pen mechanism 162 configured to drive the valve core 161 to slide. The valve core 161 slides to enable the two water dividing passage to be switched to be in communication with the water inflowing passage. The one of the two water dividing passages 15 in communication with the water outflowing terminal 30 comprises a hose 151. An upper end of the hose 151 extends out of the fixed portion 10, is disposed in the lifting and lowering rod 20, and is in communication with the water outflowing terminal 30. Flexible characteristic of the hose is used to satisfy that the upper end of the hose 151 follows the lifting and lowering rod to be lifted up and lowered accordingly while ensuring a performance of water flow effect. Wherein the fixed portion 10 comprises a first accommodating cavity 101 and an access hole 102 in communication with the first accommodating cavity 101, the lifting and lowering rod 20 comprises a second accommodating cavity 201; the upper end of the hose 151 passes through the first accommodating cavity 101, cooperates with and slidably extend out of the access hole 102, and passes through the second accommodating cavity 201, so that the accommodating cavities (e.g., the first accommodating cavity and the second accommodating

cavity) can be used to receive a bent part of the hose.

**[0034]** The invention may be summarized as follows: The present disclosure discloses a slide shower, which comprises a fixed portion (10) and a lifting and lowering rod (20) slidably connected to the fixed portion (10), a water outflowing terminal (30) is disposed on the lifting and lowering rod (20); a gravity balancer (40) is disposed between the fixed portion (10) and the lifting and lowering rod (20), the gravity balancer (40) comprises an elastic body (41) and a first pull rope (42), the elastic body (41) is assembled to the fixed portion (10), the first pull rope (42) is configured to be pulled and is connected to the lifting and lowering rod (20), and a function generated by a pulling force applied to the first pull rope (42) and a function of an elastic force generated by the elastic body (41) are opposite. It balances the elastic force and the gravity to achieve stepless lifting and lowering and improves comfort for the lifting and lowering.

**[0035]** The aforementioned embodiments are merely some embodiments of the present disclosure, and the scope of the disclosure of is not limited thereto. Thus, it is intended that the present disclosure cover any modifications and variations of the presently presented embodiments provided they are made without departing from the appended claims and the specification of the present disclosure.

## Claims

1. A slide shower, which comprises a fixed portion (10) and a lifting and lowering rod (20) slidably connected to the fixed portion (10), a water outflowing terminal (30) is disposed on the lifting and lowering rod (20); **characterized in that:** a gravity balancer (40) is disposed between the fixed portion (10) and the lifting and lowering rod (20), the gravity balancer (40) comprises an elastic body (41) and a first pull rope (42), the elastic body (41) is assembled to the fixed portion (10), the first pull rope (42) is configured to be pulled and is connected to the lifting and lowering rod (20), and a function generated by a pulling force applied to the first pull rope (42) and a function of an elastic force generated by the elastic body (41) are opposite.
2. The slide shower according to claim 1, **characterized in that:** the function generated by the pulling force applied on the first pull rope (42) counteracts the function of the elastic force generated by the elastic body (41) to enable a lifting and lowering driving force of the lifting and lowering rod (20) to be constant.
3. The slide shower according to claim 1 and/or 2, **characterized in that:** the gravity balancer (40) further comprises a fixed pulley (43) rotatably assembled to the fixed portion (10) and a second pull rope (44); one end of the elastic body (41) is fixedly connected to the fixed portion (10), the second pull rope (44) is connected to another end of the elastic body (41), and the second pull rope (44) is connected to the fixed pulley (43) to drive the fixed pulley (43) to rotate in a forward direction; the first pull rope (42) is configured to be pulled and is connected to the lifting and lowering rod (20), and another end of the first pull rope (42) is connected to the fixed pulley (43) to drive the fixed pulley (43) to rotate in a reverse direction.
4. The slide shower according to claim 3, **characterized in that:** a movable pulley (411) is assembled to the another end of the elastic body (41), one end of the second pull rope (44) is fixedly connected to the fixed portion (10), and another end of the second pull rope (44) wraps around the movable pulley (411) and is fixed to the fixed pulley (43); a connection position between the first pull rope (42) and the lifting and lowering rod (20) is lower than a position of the fixed pulley (43).
5. The slide shower according to claim 3 and/or 4, **characterized in that:** the fixed pulley (43) comprises a first outer diameter portion (431) and a second outer diameter portion (432) that are coaxially and fixedly connected, an outer diameter of the first outer diameter portion (431) is larger than an outer diameter of the second outer diameter portion (432), the another end of the first pull rope (42) is connected to the first outer diameter portion (431), and the second pull rope (44) is connected to the second outer diameter portion (432).
6. The slide shower according to any one or more of claims 1 to 5, **characterized in that:** the one end of the first pull rope (42) is connected to a bottom end of the lifting and lowering rod (20).
7. The slide shower according to any one or more of claims 1 to 6, **characterized in that:** the fixed portion (10) comprises a water inflowing passage (11) and a first water outflowing passage (12), and the first water outflowing passage (12) is in communication with the water inflowing passage (11); a second water outflowing passage (21) is disposed in the lifting and lowering rod (20), and the second water outflowing passage (21) is in communication the first water outflowing passage (12) and the water outflowing terminal (30).
8. The slide shower according to claim 7, **characterized in that:** an outer pipe (13) is fixedly disposed in the fixed portion (10), and two sealing plugs (131) are fixedly disposed in the outer pipe (13), a section of the outer pipe (13) between the two sealing plugs (131) comprises a first through hole (132) penetrating

ing an inner side and an outer side, and the first water outflowing passage (12) comprises the first through hole (132) and a gap between the outer pipe (13) and an inner pipe (22); the inner pipe (22) in communication with the gap is fixedly disposed in the lifting and lowering rod (20), and the inner pipe (22) is slidably connected to an inner side of the outer pipe (13), an upper end of the inner pipe (22) extends out of one of the two sealing plugs (131) disposed on an upper side, the upper end of the inner pipe (22) is in communication with the water outflowing terminal (30), and the second water outflowing passage (21) comprises the inner pipe (22).

9. The slide shower according to claim 8, **characterized in that:** two ends of the inner pipe (22) respectively extend out of the two sealing plugs (131), a lower end of the inner pipe (22) is sealed, and the inner pipe (22) comprises a second through hole (221) penetrating an inner side and an outer side and disposed on a section of the outer pipe (13) between the two sealing plugs (131), and the second water outflowing passage (21) comprises the second through hole (221).

10. The slide shower according to claim 8 and/or 9, **characterized in that:** the first water outflowing passage (12) further comprises a water pipe (14) configured to be in communication with the water inflowing passage (11) and the first through hole (132).

11. The slide shower according to any one or more of claims 7 to 10, **characterized in that** it further comprises a faucet body (50), the fixed portion (10) is fixedly disposed on the faucet body (50), and the water inflowing passage (11) is in communication with the faucet body (50).

12. The slide shower according to any one or more of claims 1 to 6, **characterized in that:** the fixed portion (10) comprises a water inflowing passage (11) and two water dividing passages (15), a switching mechanism (16) connected to the water inflowing passage (11) and the two water dividing passages (15) is further assembled to the fixed portion (10), and one of the two water dividing passages (15) is in communication with the water outflowing terminal (30).

13. The slide shower according to claim 12, **characterized in that:** the one of the two water dividing passages (15) in communication with the water outflowing terminal (30) comprises a hose (151), an upper end of the hose (151) extends out of the fixed portion (10), is disposed in the lifting and lowering rod (20), and is in communication with the water outflowing terminal (30).

14. The slide shower according to claim 12 and/or 13,

**characterized in that:** another water dividing passage of the two water dividing passages (15) downwardly extends out of the fixed portion (10).

15. The slide shower according to claim 13 and/or 14, **characterized in that:** the fixed portion (10) comprises a first accommodating cavity (101) and an access hole (102) in communication with the first accommodating cavity (101), and the lifting and lowering rod (20) comprises a second accommodating cavity (201); the upper end of the hose (151) passes through the first accommodating cavity (101), cooperated with and slidably extends out of the access hole (102), and passes through the second accommodating cavity (201).

16. The slide shower according to any one of claims 1 to 15, **characterized in that:** the lifting and lowering rod (20) comprises an outer sleeve (23) and a top base (24), and the outer sleeve (23) encompasses an outer side of the fixed portion (10); the top base (24) comprises a connection portion (241) fixedly connected to a top of the outer sleeve (24) and a cantilever (242) fixedly connected to the connection portion (241), and the water outflowing terminal (30) is assembled to an end of the cantilever (242).

17. The slide shower according to any one or more of claims 3 to 16, **characterized in that:** the fixed portion (10) comprises an inner core (171) and an upper fixed base (172) fixedly connected to a top of the inner core (171), and the fixed pulley (43) is assembled to the upper fixed base (172).

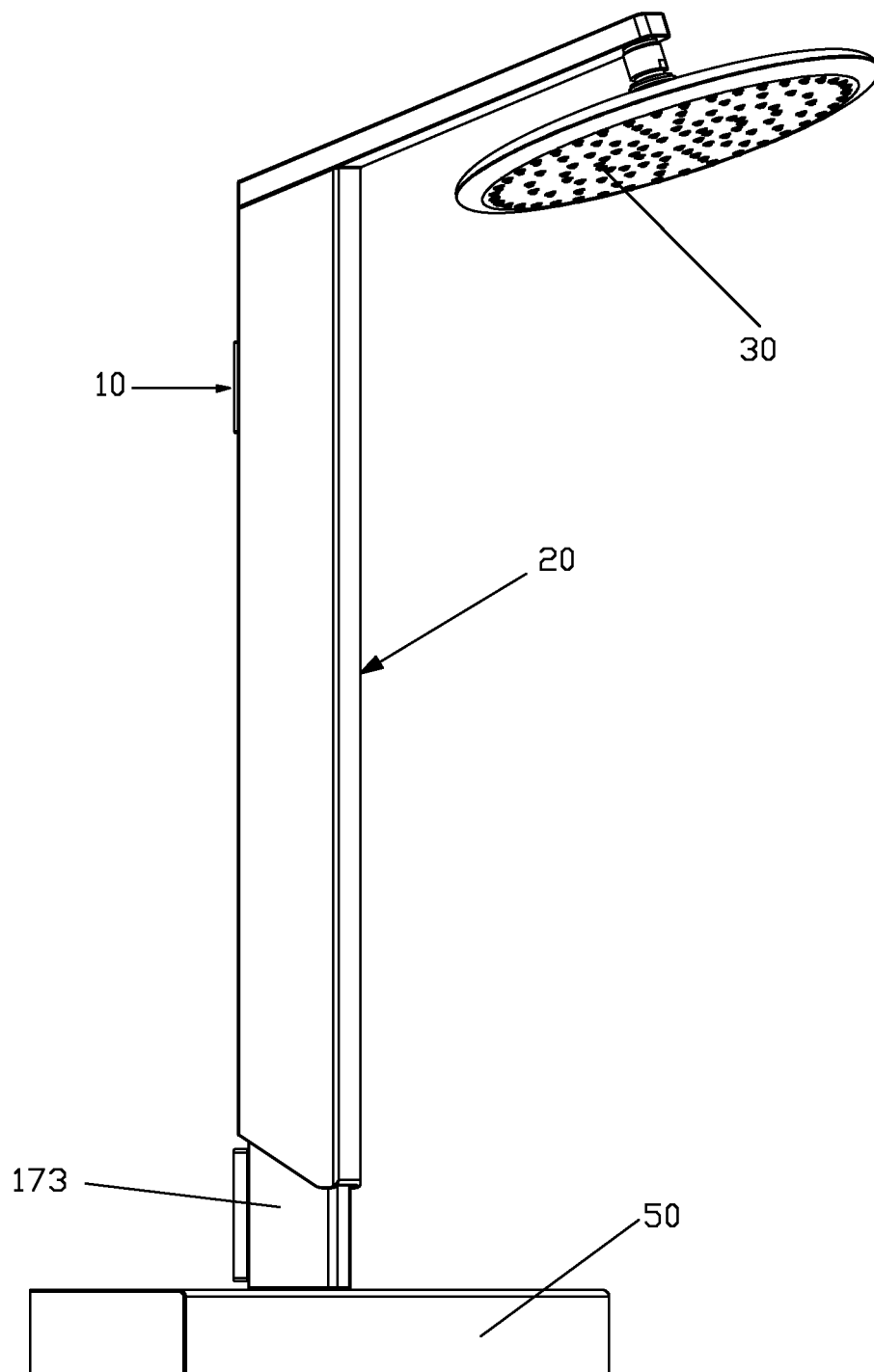


Fig.1



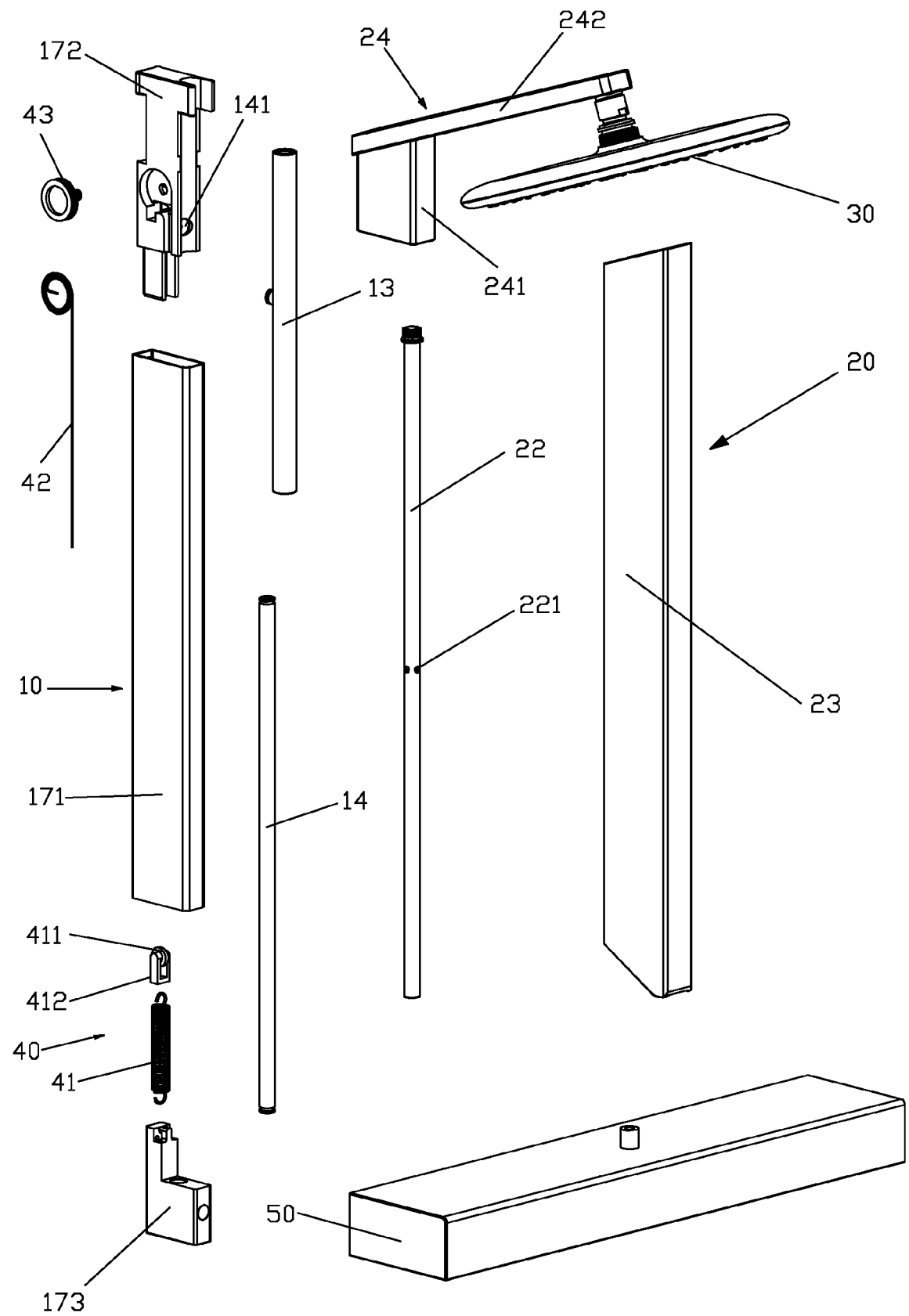


Fig. 2

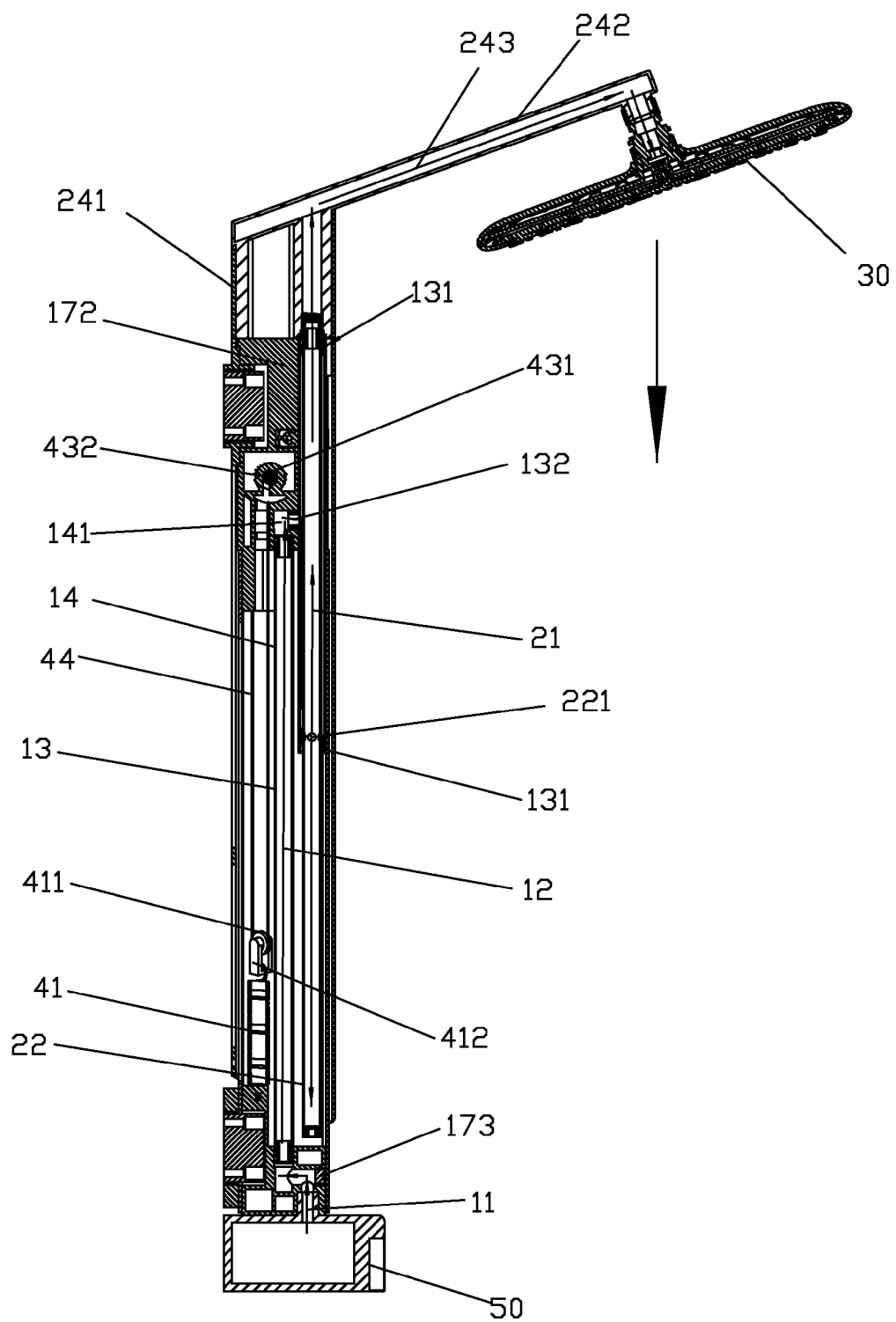


Fig. 3

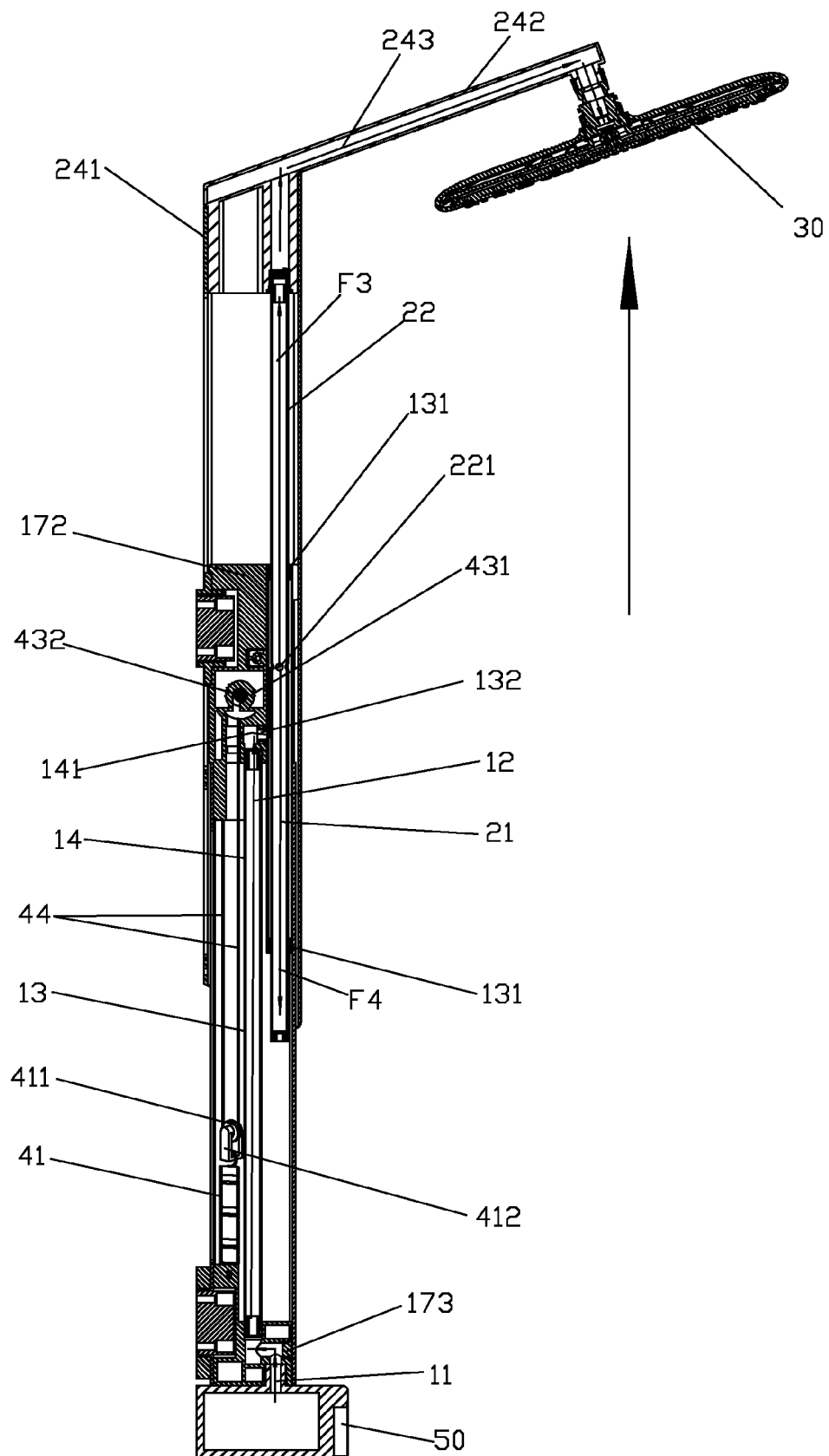


Fig.4

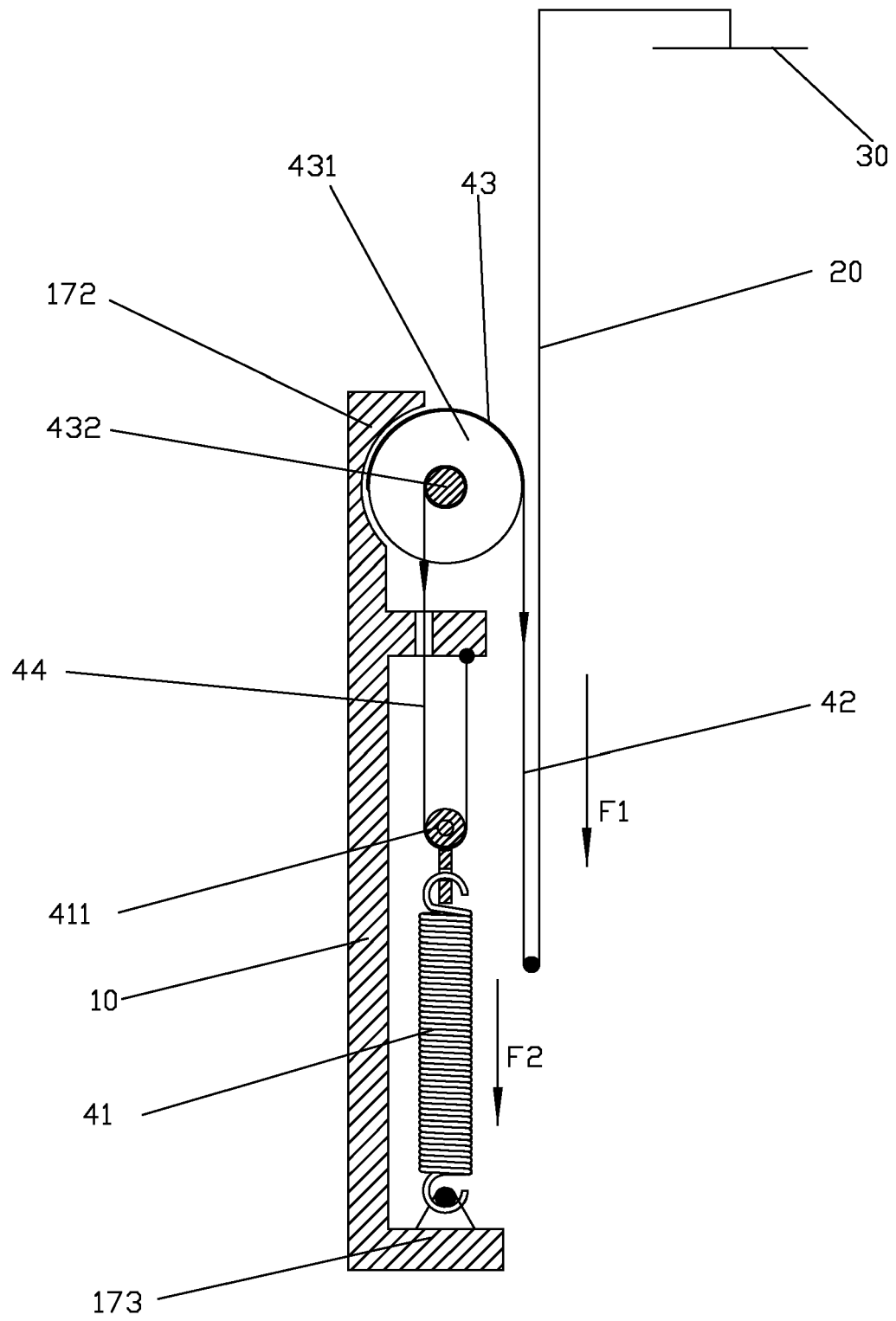


Fig.5

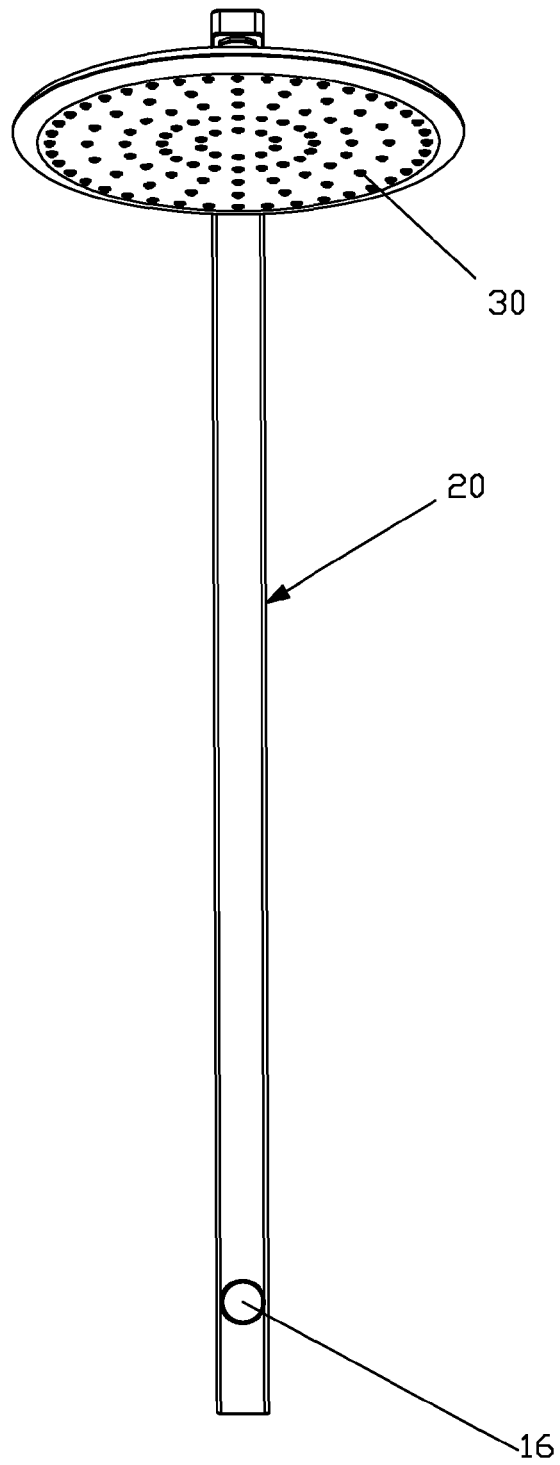


Fig. 6

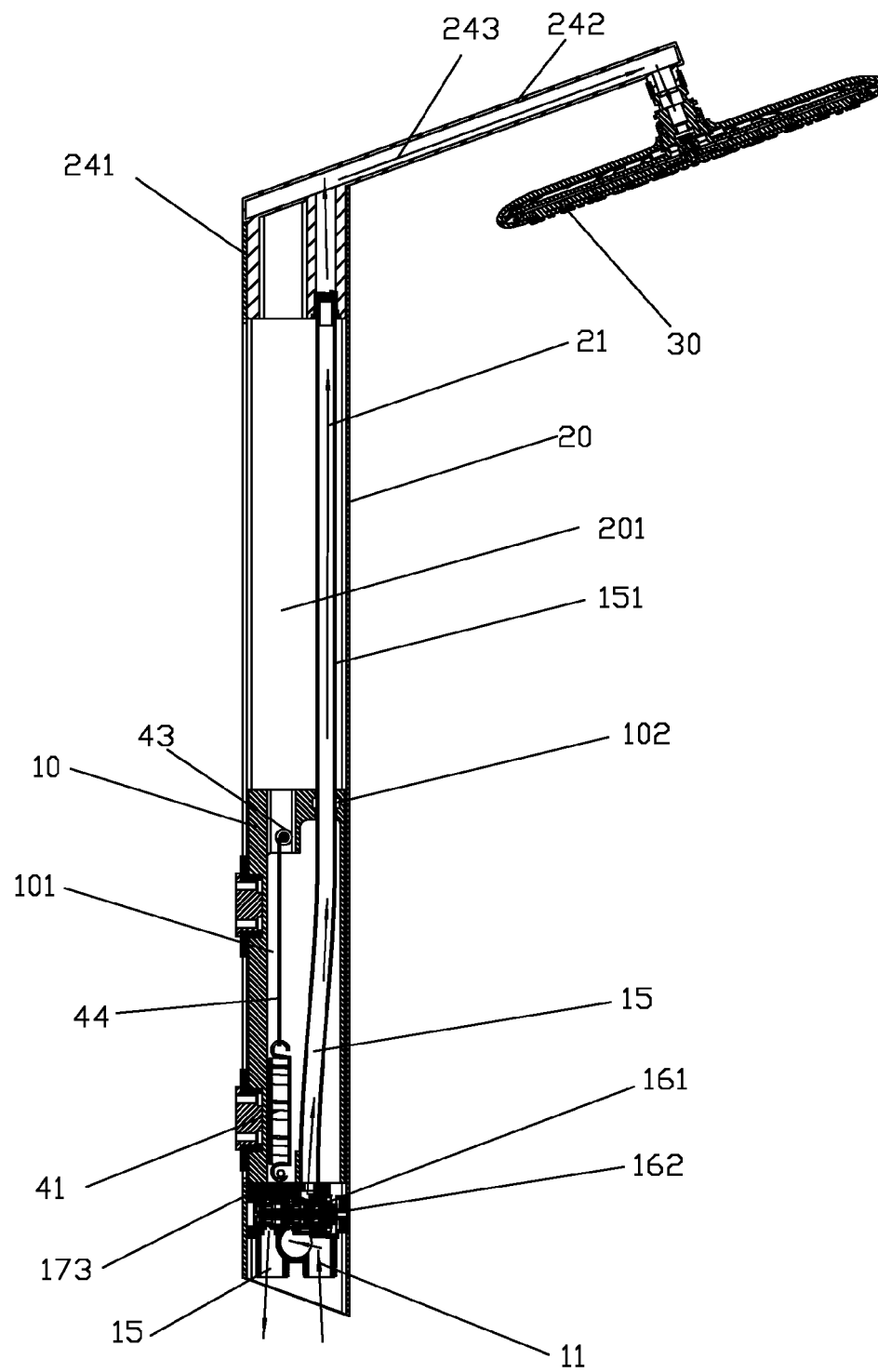


Fig. 7



## EUROPEAN SEARCH REPORT

Application Number

EP 21 19 0671

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 3 933 329 A (GRANGER MAURICE) 20 January 1976 (1976-01-20) * abstract; figures 2-8 * * column 2, line 26 - column 3, line 41 * -----	1-17	INV. E03C1/06 E03C1/04
A	CN 103 912 040 B (LIANG DONGHE) 9 September 2015 (2015-09-09) * the whole document * -----	1-17	
A	US 2019/390448 A1 (WANG QING-PING [CN] ET AL) 26 December 2019 (2019-12-26) * abstract; figures 1-4 * * paragraphs [0026] - [0032] * -----	1-17	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03C
The present search report has been drawn up for all claims			

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EPO FORM 1503 03.82 (P04C01)

Place of search <b>Munich</b>	Date of completion of the search <b>29 December 2021</b>	Examiner <b>Varelas, Dimitrios</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

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ON EUROPEAN PATENT APPLICATION NO.**

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-12-2021

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