

IMPROVED STRUCTURE OF SHOWERHEAD

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to an improved structure of showerhead, and
5 more particularly, to an improved structure of showerhead having a control mechanism furnished at an appropriate position thereof for achieving the object of continuously varying the mode of water spray.

2. Description of the Prior Art

FIG. 1 is an exploded view of the water-flow control mechanism of
10 the showerhead of the prior art while FIG. 2 is an exploded view of the converting seat of the water-flow control mechanism of the showerhead of the prior art. FIG. 1 and FIG. 2 show the water-flow control mechanism of the water-spraying head (i.e. the showerhead) of Taiwan's Patent application No.881227258--"Multimode of water-spraying control
15 mechanism of the showerhead" of the prior art. As shown in FIG. 1 and FIG. 2, a converting seat (200) having a multiplicity of water-spraying passageways (2001), (2002), and (2003) is furnished at an end of a showerhead (100) to match members such as an inner slipping seat (300), a water-spraying sleeve (400), and an adjusting cap sleeve (500) etc. for
20 forming a mechanism that is able to switch around and to adjust to various flow passageways. In this way, the mechanism is capable of generating various water-spraying modes in order to apply to various service requirements. However, this kind of mechanism is a mode of step-by-step water flow variation since it switches the water flow
25 passageway through the transfer of water converting seat (200). Consequently, the mechanism has the demits of being complex in

structure, not easy to fabricate, and high in manufacturing cost etc.

SUMMARY OF THE INVENTION

In light of the above-mentioned demerits of the water-flow control
5 mechanism of the showerhead of the prior art, the invention aims to
ameliorate at least some of the disadvantages of the prior art or to
provide a useful alternative.

The primary objective of the invention is to provide an improved
structure of showerhead that when the control slipping ring is rotated to
10 generate displacement, the slant conical surface appeared in the interior
portion thereof will press against the control plates making its front end
concentrate or expand toward the resisting catch cylinder. In this way,
the relative positions among the control slipping ring, the control plates
and the resisting catch cylinder will be changed making the
15 cross-sectional shape and area of the water flow generate continuously
varying mode of water spray.

Another objective of the invention is to provide an improved
structure of showerhead that has the efficacy of continuously changing
the mode of water spray, and the showerhead structure is simple in
20 structure, easy to fabricate, and low in manufacturing cost.

To achieve the above-mentioned objective, the invention provides a
improved structure of showerhead that includes at least a showerhead, a
positioning seat, a control seat, a control head, a resisting catch cylinder,
a screw, a control slipping ring, and a cap etc. An indented containing
25 mouth and a securing seat are furnished at an appropriate location of the
water outlet end of the showerhead. The positioning seat is placed in

the containing mouth of the showerhead. Moreover, the resisting catch cylinder and the control head are slipped in the control seat and are secured to the securing seat of the showerhead by a screw. The control slipping ring is capable of engaging with the control seat to perform rotation and back-and-forth motion through the meshing between the internal thread of the control slipping ring and the external thread of the control seat. When the control slipping ring is rotated to generate displacement, the slant conical surface appeared in the interior portion thereof will press against the control plates making its front end concentrate or expand toward the resisting catch cylinder. In this way, the relative positions among the control slipping ring, the control plates and the resisting catch cylinder will be changed making the cross-sectional shape and area of the water flow generate continuously varying mode of water spray.

The accomplishment of this and other objectives of the invention will become apparent from the following description and its accompanying drawings of which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of the water-flow control mechanism of the showerhead of the prior art;

FIG. 2 is an exploded view of the converting seat of the water-flow control mechanism of the showerhead of the prior art;

FIG. 3 is an isometric view of the preferred embodiment of the invention;

FIG. 4 is an exploded view of the preferred embodiment of the invention;

FIG. 5 is an exploded view of the preferred embodiment showing partly assembled elements of the invention;

FIG. 6 is a cross-sectional view of the preferred embodiment showing the water-spraying action of the invention;

5 FIG. 6A is a cross-sectional view of the preferred embodiment showing the mode of varying the water spray of the water-spraying action of the invention;

FIG. 7 is a cross-sectional view of the preferred embodiment showing the other mode of varying the water spray of the water-spraying
10 action of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 3 is an isometric view of the preferred embodiment of the
15 invention; FIG. 4 is an exploded view of the preferred embodiment of the invention; while FIG. 5 is an exploded view of the preferred embodiment showing partly assembled elements of the invention. As shown in FIG. 3, FIG. 4, and FIG. 5, the improved structure of showerhead of the invention includes at least a showerhead (1), a positioning seat (2), a
20 control seat (3), a control head (4), a resisting catch cylinder (5), a screw (6), a control slipping ring (7), and a cap (8). An indented containing mouth (11) is furnished at an appropriate location of the water outlet (13) end of the showerhead (1). The containing mouth (11) is communicating with the water outlet (13) of the water flow passageway
25 of the showerhead (1). A salient securing seat (12) is also furnished at the center portion on the backside of the containing mouth (11). The

positioning seat (2) being a hollow tube with diminishing outside diameter has a check channel (22) furnished on the inner side, and a sealing ring belt (21) furnished by slipping on the outside surface thereof.

The control seat (3) being substantially in tube-shape and having a large-diameter and a small-diameter ones has its exterior surface form a stepped surface. A check edge (34) is formed at the large-diameter one with external thread (33) while a flange (35) is provided closed to the bottom of the small-diameter one, and a multiplicity of radial-shaped water-outlet hole (31) is provided at the outer edge thereof. The control head (4) being substantially in cylindrical shape has a penetrating hole (43) furnished at the center of the bottom portion thereof, and has a water-outlet (42) (not shown in the Figure) corresponding to the water-outlet (31). The control head (4) is formed by placing a multiplicity of arcuate control plates (41) in order along the circumference thereof with appropriate spaces between them. The resisting catch cylinder (5) being an inverted-cone-shaped body has a penetrating hole (52) furnished at the center of the bottom portion thereof, as well as a flange (50) formed around the external surface at the outside of the open end thereof where a plastic ring (51) is also furnished beneath the flange (50). A screw (6) is also provided for securing the resisting catch cylinder (5), control head (4), and control seat (3), and the positioning seat (2). to the securing seat (12) of the showerhead (1).

The control slipping ring (7) having its interior portion appear a slant conical surface has a internal thread (71) at one end thereof, and has a number of indented channels (72) arranged in annular shape for facilitating rotational handling. A cap (8) is employed for slipping on the front end of the resisting catch cylinder (5).

When it comes to assembling the members of the showerhead (1) of the invention, the seal ring (21) is slipped on the positioning seat (2) first. Afterwards, the positioning seat (2) is placed in the containing mouth (11) of the showerhead (1). Moreover, the control head (4) is placed in the control seat (3) through the end of the large diameter one thereof making the water outlet (42) of the control head (4) communicate with the water outlet (31) of the control seat (3). The resisting catch cylinder (5) is placed in the control head (4). A sealing ring (36) is provided at the bottom of the control seat (3) by slipping on the neck portion (37) adjacent to the flange (35). The control seat (3) is then slipped on the outer edge of the securing seat (12). Moreover, the check edge (34) is pressing against the check channel (22) of the positioning seat (2), then the screw (6) is employed to have the resisting catch cylinder (5), control head (4), control seat (3), and the positioning seat secure at the securing seat (12). Furthermore, the cap (8) is slipped on the front end of the resisting catch cylinder (5). Finally, the control slipping ring (7) is capable of engaging with the control seat (3) to perform rotation and back-and-forth motion through the meshing between the internal thread (71) of the control slipping ring (7) and the external thread (33) of the control seat (3).

FIG. 6 is a cross-sectional view of the preferred embodiment showing the water-spraying action of the invention. As shown in FIG. 6, the water flows from the water outlet (13) into the containing mouth (11) and through the water outlet (31), (42) as well as the outer edge of the resisting catch cylinder (5), then through the space between the control plates (41) and resisting catch cylinder (5) and the space of itself to spray outward.

FIG. 6A is a cross-sectional view of the preferred embodiment showing the mode of varying the water spray of the water-spraying action of the invention. As shown in FIG. 6A, when the control slipping ring (7) is rotated to generate displacement, the slant conical surface appeared in the interior portion thereof will press against the control plates (41) making its front end concentrate or expand toward the resisting catch cylinder (5). In this way, the relative positions among the control slipping ring (7), the control plates (41), and the resisting catch cylinder (5) will be changed making the cross-sectional shape and area of the water flow generate continuously varying mode of water spray.

FIG. 7 is a cross-sectional view of the preferred embodiment showing the other mode of varying the water spray of the water-spraying action of the invention. As shown in FIG. 7, as the control slipping ring (7) is rotated till the bottom, the interior surface of the control plates (41) will tightly press against the plastic ring (51) that is furnished at an appropriate position on the surface of the resisting catch cylinder (5). At this moment, the cross-section of the water passageway appears triangular shape in annular arrangement. The water flow sprays out through that position and dashes within the space between the control plates (41) and resisting catch cylinder (5), and splash into relatively finer water spray.

CONCLUSION

The invention is capable of positively improving the demerits of the prior art that the mechanism is complex in structure, not easy to fabricate,

and high in manufacturing cost etc. The improved structure of showerhead of the invention positively has the efficacy of continuously changing the mode of water spray, and the showerhead structure is simple in structure, easy to fabricate, and low in manufacturing cost.

5 It will become apparent to those people skilled in the art that various modifications and variations can be made to the structure of the invention without departing from the scope or spirit of the invention. In view of the foregoing description, it is intended that all the modifications and variation fall within the scope of the following appended claims and their
10 equivalents.

What Is Claimed Is:

1. An improved structure of showerhead comprising:
 - (a) a showerhead having an indented containing mouth furnished at an end thereof and a salient securing seat furnished at the center of the back portion of the containing mouth, as well as a water outlet furnished at an appropriate location of the containing mouth where the water outlet being communicating with the water flow passageway within the showerhead;
 - (b) a positioning seat being a hollow tube with diminishing outside diameter has a check channel furnished on the inner side thereof, and a sealing ring belt furnished by slipping on the outside surface thereof;
 - (c) a control seat being substantially in tube-shape and having a large-diameter and a small-diameter ones has its exterior surface form a stepped surfaces; a check edge is formed at the large-diameter one with external thread while a flange is provided closed to the bottom of the small-diameter one, and a multiplicity of radial-shaped water-outlet through holes are provided along the outer edge of the small diameter one on the stepped surface;
 - (d) a control head being substantially in cylindrical shape is formed by placing a multiplicity of arcuate control plates in order along the circumference thereof with appropriate spaces between them, the control head has a penetrating hole furnished at the center of the bottom portion thereof and has a water-outlet hole corresponding to the water-outlet hole of the control seat;
 - (e) a resisting catch cylinder being an inverted-cone-shaped body has

a penetrating hole furnished at the center of the bottom portion thereof, as well as a flange formed around the external surface at the outside of the open end thereof where a plastic ring is also furnished to slip on beneath the flange;

5 (f) a screw for securing the resisting catch cylinder, the control head, the control seat, and the positioning seat to the securing seat;

(g) a control slipping ring having its interior portion appear a slant conical surface has a internal thread at one end thereof, and has a number of indented channels arranged in annular shape for
10 facilitating rotational handling; and

(h) a cap for slipping on the front end of the resisting catch cylinder;

wherein, when it comes to assembling the members of the showerhead, the seal ring is slipped on the positioning seat first, then, the positioning seat is placed in the containing mouth of the
15 showerhead; afterwards, the control head is placed in the control seat through the end of the large diameter one thereof making the water outlet of the control head communicate with the water outlet of the control seat ; then the resisting catch cylinder is placed in the control head; a sealing ring is provided at the bottom of the control seat by
20 slipping it on the neck portion adjacent to the flange; the control seat is then slipped on the outer edge of the securing seat; moreover, the check edge is pressed against the check channel of the positioning seat, then the screw is employed to have the resisting catch cylinder, the control head, the control seat, and the positioning seat secure at
25 the securing seat, and finally, the cap is slipped on the front end of the resisting catch cylinder, and the control slipping ring is capable

of engaging with the control seat to perform back-and-forth motion by rotating the control slipping ring through the meshing between the internal thread of the control slipping ring and the external thread of the control seat.

- 5 2. The improved structure of showerhead as claimed in claim 1, wherein the control slipping ring further has at least two indented channels arranged in annular shape for facilitating rotational handling.
3. The improved structure of showerhead as claimed in claim 1, wherein
10 a plastic ring is further furnished at an appropriate position on the surface of the resisting catch cylinder to make the water flow become relatively finer water spray when the control slipping ring is rotated till the bottom.