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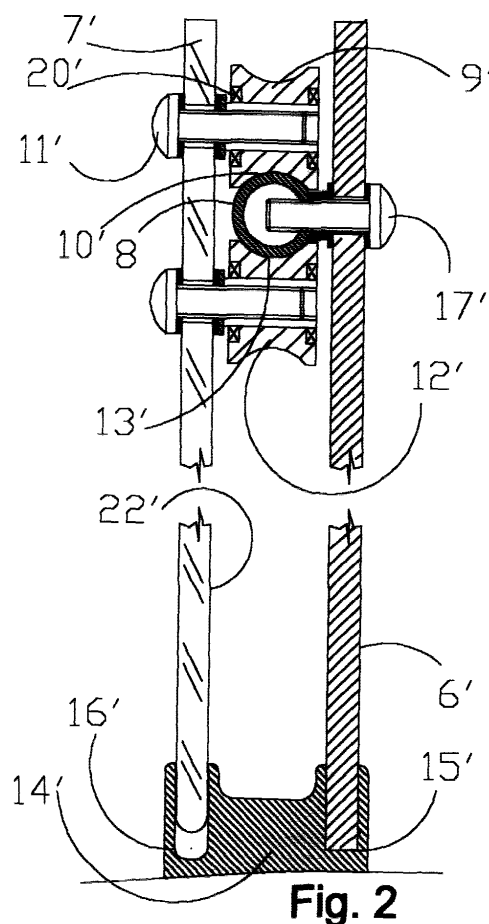
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(54) **Slide system for shower stall door**

(57) In a shower stall (1) having a sliding door with at least one sliding wing (7, 7'), a system of sliding of said at least one sliding wing (7, 7') characterised in that it comprises:

- a fixed horizontal bar (8) extending along the slide stroke of said at least one sliding swing (7, 7'), and provided with an upper surface and respectively a lower surface;
- means (9 and 9, 9' and 9') for supporting and guiding the sliding of said at least one sliding swing (7, 7'), integral with said at least one sliding swing (7, 7') and resting on the upper surface of said fixed horizontal bar (8) slidably along the slide stroke of said at least one sliding swing (7, 7'); and
- means (12 and 12, 12' and 12') for blocking the upward vertical movement of the said at least one sliding swing (7, 7'), integral with said at least one sliding swing (7, 7') and resting on the lower surface of said fixed horizontal bar (8) slidably along the slide stroke of said at least one sliding swing (7, 7').



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Description

[0001] The present invention relates to a system of sliding of the door of a shower stall.

[0002] Shower stalls have been known for some time which comprise a framework formed by fixed panels and a door formed by one or two sliding panels each supported by a corresponding fixed panel. At the base and respectively at the top of each sliding panel forming the door, profiles, generally in aluminium, are attached for supporting wheels guided in tracks integral with the corresponding fixed support panel. The tracks are more particularly formed on profiles, also generally in aluminium, fixed to the walls of the room wherein the shower stall is installed; in the case of a shower stall integrated in a bathtub the aluminium profile at the base of each sliding panel is supported directly by the edge of the same bathtub.

[0003] Given that the tracks for the sliding door are formed by recesses formed in the aluminium profiles, access to the tracks for the operations of cleaning is greatly hindered.

[0004] On the other hand, failure to clean or unsatisfactory cleaning of the door sliding mechanism can in time also cause malfunctioning of the same, leading for example to defective or very noisy closure of the door.

[0005] All the profiles in aluminium used for the slide system also make the structure of the shower stall excessively heavy and often penalise the appearance of the overall structure.

[0006] The object of the present invention is therefore that of providing a slide system for the door of a shower stall which avoids the disadvantages of a traditional system, and in particular one object is that of providing a slide system for the door of a shower stall which is practical, simplified, compact, easily accessible in all its component parts and such also as to have a pleasant appearance.

[0007] This object is achieved in a shower stall having a sliding door with at least one sliding wing, by a system of sliding of said at least one sliding wing characterised in that it comprises:

- a fixed horizontal bar extending along the slide stroke of said at least one sliding wing, and provided with an upper surface and respectively a lower surface;
- means for supporting and guiding the sliding of said at least one sliding wing, integral with said at least one sliding wing and resting on the upper surface of said fixed horizontal bar slidably along the slide stroke of said at least one sliding wing; and
- means for blocking the upward vertical movement of the said at least one sliding wing, integral with said at least one sliding wing and resting on the lower surface of said fixed horizontal bar slidably

along the slide stroke of said at least one sliding wing.

[0008] The system of sliding of the door of the shower stall of the present invention therefore provides a single fixed horizontal guide which, by means of its two separate upper and lower slide surfaces, performs the dual function of support and blocking of the vertical movement of the door.

[0009] The slide system of the present invention is thus practical and compact and can be at least partially hidden from view by the door in that positioned opposite the door and not, as is traditionally the case, at the top of the door.

[0010] The fixed horizontal guide, preferably tubular, offers an easy surface of sliding for the door, albeit retaining pleasing visual impact.

[0011] The fixed horizontal guide, together with the means for sliding and guiding of the door and the means for blocking the upward vertical movement of the door, preferably formed by wheels capable of rolling along the upper and respectively lower coupling surfaces of the fixed horizontal guide, can easily be accessed, inspected and handled for cleaning or maintenance work.

[0012] These and other aspects will be made clearer on reading a preferred embodiment of the invention, understood to be a non-limiting example of the more general principle claimed.

[0013] The preferred embodiment of the present invention refers to the accompanying drawings, in which:

Fig. 1 shows a schematic view from above of a shower stall with a system of sliding of the door in accordance with a preferred embodiment of the present invention; and

Fig. 2 illustrates a view taken along line 2-2 of Fig. 1.

[0014] Fig. 1 illustrates a shower stall 1 with square plan which has two consecutive sides 3 and 4 entirely bordered by two consecutive walls of the room.

[0015] In each of the remaining two sides 5 and 5' respectively of the shower stall 1 a fixed panel 6 and respectively 6' in glass are provided, resting on the walls 4 and 3 respectively, having a width equal to at least half the side of the shower stall 1.

[0016] The parts of the slide system on the side 5' of the shower stall 1, corresponding to those of the side 5, will be denoted by the same reference numeral followed by an apostrophe.

[0017] Inside and parallel to the fixed panels 6 and 6' respectively, glass panels 7 and 7' respectively slide, forming the two wings of the door for access to the shower stall 1, which must be made to slide by the user simultaneously together for closure and apart for opening of the shower stall 1.

[0018] Naturally the fixed and mobile panels of the shower stall can also be made in a material other than

glass, for example in a plastic material not transparent to the light.

[0019] The system of sliding of the door is positioned near the top of the shower stall 1 and comprises a horizontal tubular bar 8 in steel with an L shape, fixed at one of its two ends to the walls 3 and 4 of the room in such a way that the two rectilinear sections which compose it are interposed between each sliding wing 7, 7' and the respective fixed panel 6, 6'.

[0020] Each fixed panel 6, 6' is supported by means of a corresponding pin 17, 17' on the side of the tubular guide 8 turned towards the exterior of the shower stall 1.

[0021] For supporting and guiding each wing 7, 7' of the door an upper pair of vertical wheels, 9, 9 and 9', 9' is provided, horizontally aligned and rotatably supported on the external side 22, 22' of the respective wing 7, 7' and capable of coupling with the external upper surface of the tubular bar 8 in such a way as to slidably roll on the bar 8 along the stroke of the sliding door.

[0022] The upper pair of vertical wheels 9, 9 and 9', 9' has on the external circumference an arched profile groove 10 and 10' with radius equal to the external radius of the tubular guide 8.

[0023] The groove of each wheel 9, 9 and 9', 9' engages on the horizontal tubular guide 8, preventing the stresses transverse to the longitudinal direction of the tubular guide 8, present during opening or closure of the shower stall 1, from causing exiting of the wheels 9, 9 and 9', 9' from the tubular guide 8.

[0024] Each wheel 9, 9 and 9', 9' is supported by the respective wing 7, 7' by means of a respective pin 11, 11' and is made to rotate by a pair of ball bearings (only ball bearings 20' are illustrated) placed between the respective pin 11, 11' and the hub of the respective wheel 9, 9 and 9', 9', which ensure among other things regular and silent sliding.

[0025] For blocking the upward vertical movement of the wings 7, 7' of the door of the shower stall 1, a lower pair of vertical wheels 12, 12 and 12', 12' is provided, horizontally aligned each to the other and in turn aligned vertically with the upper pair of vertical wheels 9, 9 and 9', 9' and rotatably supported by the external side 22, 22' of the respective wing 7, 7'. Wheels 12, 12 and 12', 12' are capable of coupling with the external lower surface of the tubular bar 8 so as to slidably roll on the bar 8 along the stroke of the sliding door.

[0026] The lower vertical wheels 12, 12 and 12', 12' are identical in constructional terms to the upper vertical wheels 9, 9 and 9', 9' and therefore have, on the external circumference, an arched groove 13, 13', which can be engaged perfectly below the horizontal tubular guide 8.

[0027] The lower vertical wheels 12, 12 and 12', 12' are supported by part of the respective wing 7, 7' of the door of the shower stall 1 in an identical manner to what is described for the upper vertical wheels 9, 9 and 9', 9'.

[0028] A number of upper and lower vertical wheels different as that just shown can also be envisaged.

[0029] Naturally, for the fixed horizontal guide 8, a different section from the one illustrated here is possible,

for example rectangular or generically polygonal. The guide may also be a cylindrical solid section bar. The fixed horizontal guide must however always define an upper surface and a lower surface of sliding; in this case the groove for coupling on the upper vertical wheels 9, 9 and 9', 9' and respectively the groove for coupling on the lower vertical wheels 12, 12 and 12', 12' will have a profile complementary to the new section of the guide 8 for rolling on the upper surface and respectively lower surface of sliding of the fixed horizontal guide 8.

[0030] At the base of each of the two sides of the shower stall 1 involved by the sliding door, means are provided for maintaining the door on a vertical axis even with stresses acting transversely on these two sides of the shower stall 1. These means are formed by a longitudinal block 14, 14', fixed to the floor of the room, and provided above with an external longitudinal groove 15, 15' wherein the base of the corresponding fixed panel 6, 6' is inserted and fixed, and an internal longitudinal groove 16, 16' which forms a guide for containing and sliding of the base of the corresponding wing 7, 7' of the shower stall 1.

[0031] The slide system of the present invention can be applied to shower stalls of any shape provided with a door formed both by two wings, as described above, and by a single wing.

[0032] The slide system of the present invention can also be applied to a shower stall integrated in a bathtub.

[0033] For example a shower stall can be foreseen, integrated in a bathtub, formed by a singled arched panel fixed internally and parallel whereto a single panel slides, also arched, acting as door of the shower stall. The horizontal fixed guide assumes the same curvature as the panels of the shower stall and can be restrained at one of its ends also to a single available wall of the room.

[0034] Finally the block for inserting and anchoring the fixed panel and for containing the mobile panel is in this case attached not to the floor but to the edge of the bathtub.

[0035] Clearly a different configuration of the slide system can also be devised, with the sliding door placed outside of the horizontal slide guide and the fixed panels placed inside the horizontal slide guide without departing from the sphere of the present invention.

Claims

1. In a shower stall (1) having a sliding door with at least one sliding wing (7, 7'), a system of sliding of said at least one sliding wing (7, 7') **characterised in that** it comprises:

- a fixed horizontal bar (8) extending along the slide stroke of said at least one sliding wing (7, 7'), and provided with an upper surface and

respectively a lower surface;

- means (9 and 9, 9' and 9') for supporting and guiding the sliding of said at least one sliding swing (7, 7'), supported by said at least one sliding swing (7, 7') and resting on the upper surface of said fixed horizontal bar (8) slidably along the slide stroke of said at least one sliding swing (7, 7'); and
 - means (12 and 12, 12' and 12') for blocking the upward vertical movement of the said at least one sliding swing (7, 7'), supported by said at least one sliding swing (7, 7') and resting on the lower surface of said fixed horizontal bar (8) slidably along the slide stroke of said at least one sliding swing (7, 7').
2. A system of sliding of the sliding door of a shower stall (1) according to the previous claim, **characterised in that** said fixed horizontal bar (8) is fixed at one end at least to a wall of the room wherein the shower stall (1) is provided.
 3. In a shower stall (1) comprising one fixed panel (6, 6') of the shower stall (1) corresponding to said at least one sliding swing (7, 7') wherein said at least one sliding swing (7, 7') moves parallel to said corresponding fixed panel (6, 6') of the shower stall (1), a system of sliding of said at least one sliding swing (7, 7') according to any one of the previous claims, **characterised in that** said fixed horizontal bar (8) also has means for supporting said fixed panel (6, 6').
 4. A system of sliding of the sliding door of a shower stall (1) according to the previous claim, **characterised in that** said means for supporting said fixed panel (6, 6') are in the form of one pin (17, 17') linking said fixed panel (6, 6') to said fixed horizontal bar (8).
 5. A system of sliding according to any one of the previous claims, **characterised in that** means for supporting and guiding the sliding of said at least one sliding swing (7, 7') comprise an upper pair of vertical wheels (9 and 9, 9' and 9') horizontally aligned and rotatably hinged to said at least one sliding swing (7, 7'), and in that each vertical upper wheel (9 and 9, 9' and 9') comprises a groove (10, 10') extending along the peripheral edge of each upper vertical wheel (9 and 9, 9' and 9'), said groove (10, 10') receiving said upper surface of said fixed horizontal bar (8) for guiding the rotation of each upper vertical wheel (9 and 9, 9' and 9') along the slide stroke of said at least one sliding swing (7, 7').
 6. A system of sliding according to any one of claims 2 to 5, **characterised in that** said means for blocking the upward vertical movement of said at least one sliding swing (7, 7') comprise a pair of lower vertical wheels (12 and 12, 12' and 12') horizontally aligned and rotatably hinged to said at least one sliding swing (7, 7'), and in that each vertical lower wheel (12 and 12, 12' and 12') comprises a groove (13, 13') extending along the peripheral edge of each lower vertical wheel (12 and 12, 12' and 12'), said groove (13, 13') receiving said lower surface of said fixed horizontal bar (8) for guiding the rotation of each of said lower vertical wheel (12 and 12, 12' and 12') along the slide stroke of said at least one sliding swing (7, 7').
 7. A system of sliding according to the previous claim, **characterised in that** said pair of lower vertical wheels (12 and 12, 12' and 12') is vertically aligned with said upper pair of vertical wheels (9 and 9, 9' and 9').
 8. A system of sliding according to any one of the previous claims, **characterised in that** at the base of the shower stall (1) means are provided for maintaining said at least one swing (7, 7') on a vertical axis even with horizontal stresses which may occur during opening and closure.
 9. A slide system according to the previous claim, **characterised in that** said means for maintaining said at least one swing (7, 7') on a vertical axis are in the form of a fixed longitudinal block (14, 14') comprising a longitudinal containing guide (16, 16') wherein the base of said at least one swing (7, 7') can be coupled slidably along the slide stroke of said at least one swing (7, 7').
 10. In a shower stall comprising at least one swing (7, 7') sliding parallel to at least one corresponding fixed panel of the shower stall, a system of sliding according to the previous claim, **characterised in that** said block (14, 14') comprises a housing (15, 15') for inserting and fixing the base of said at least one fixed panel (6, 6') extending parallel to said containing guide (16, 16').
 11. A shower stall comprising a sliding door formed by one or two wings (7, 7'), each of which slides in relation to a corresponding fixed panel (6, 6') of the shower stall (1), **characterised in that** said one or two sliding wings (7, 7') forming the door use a slide system provided in accordance with any one of the previous claims.

