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(54) **A shower enclosure**

(57) A shower enclosure (1) comprises two vertical panels (5, 6) articulated to one another so as to constitute an articulated wall (10), the panels being movable between a folded position and an unfolded position in which the articulated wall (10) defines the space (7) inside the shower enclosure. Advantageously, one panel (5) is flat and the other panel (6) is a curved panel having a curved horizontal cross-section the concave side of which faces towards the space (7) inside the shower enclosure. Moreover, the shower enclosure (1) comprises means for guiding the curved panel (6) from the folded position to the unfolded position and *vice versa* along a path which extends around the space (7) inside the shower enclosure (1).

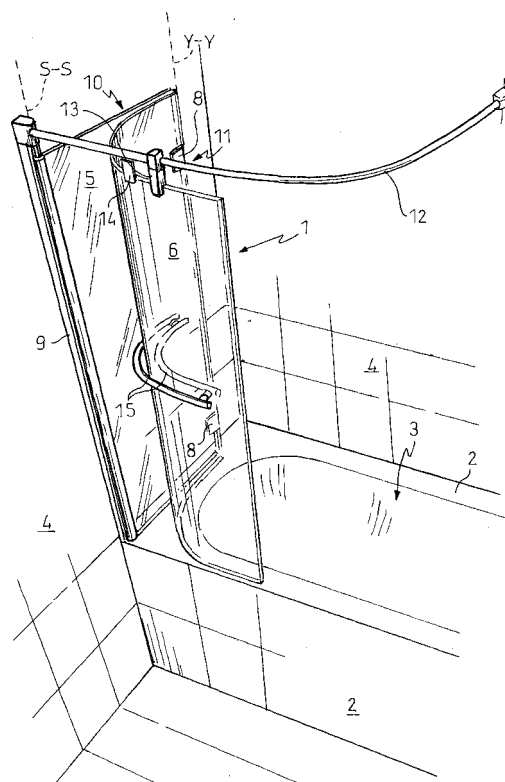


FIG.1

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Description

[0001] The present invention relates to a shower enclosure according to the preamble to Claim 1 which is intended to be associated with a shower tray or with a bathtub to enable a person to take a shower without splashing the whole of the surrounding area.

[0002] This application is intended to relate particularly to situations in which the shower enclosure has to close two sides, the other sides already being closed by fixed panels and/or by masonry walls. This latter situation is that of a shower or bathtub positioned in a corner of a room.

[0003] The following description will refer, in non-limiting manner, to a shower enclosure to be associated with a bathtub positioned in a corner, in which the requirement to be satisfied is that it should be possible to fold the shower enclosure back on itself as far as possible when it is not required and to unfold the panels constituting the movable articulated wall of the shower enclosure quickly when there is a need to use it.

[0004] In this connection, it is pointed out that the requirement to be satisfied is that the user of the shower enclosure should be able to unfold and fold up the panels whilst standing in the space inside the bathtub without interfering with the panels during their movement.

[0005] Shower enclosures used at the moment provide for the use of several articulated flat panels which are folded one upon another against a fixed wall in the manner of a book. When required, the panels are unfolded to form an articulated, movable wall. However, these systems have the above-mentioned disadvantage that, during the unfolding and folding movements of the articulated, movable wall, the panels interfere with the person who is inside the bathtub, forcing him to perform dangerous contortions.

[0006] Moreover, the solution of performing the movements to unfold and fold up the panels by causing the panels to go outside the space occupied by the shower enclosure which is defined, in this case, by the space inside the bathtub, is also undesirable. In fact this would lead to water dripping outside the shower enclosure and, above all, presupposes that it is possible to provide sufficient space around the bathtub or the shower tray, which is not always the case.

[0007] The technical problem upon which the present invention is based is that of devising a shower enclosure which has structural and functional characteristics such as to satisfy the above-mentioned requirements and, at the same time, to prevent the problems mentioned with reference to the prior art.

[0008] This problem is solved by a shower enclosure according to Claim 1.

[0009] Further characteristics and the advantages of the shower enclosure according to the invention will become clear from the following description of some preferred embodiments thereof, given by way of non-limiting example with reference to the appended drawings,

in which:

- Figure 1 is a simplified perspective view of a shower enclosure according to the invention, in the folded configuration,
- Figure 2 is a perspective view of the shower enclosure of Figure 1 in the unfolded configuration,
- Figure 3 is a schematic view of the shower enclosure of Figure 1 from above, with the unfolded position and some intermediate positions shown in broken outline,
- Figure 4 is a simplified, perspective view of a second embodiment of the shower enclosure according to the invention, in the folded configuration,
- Figure 5 is a perspective view of a third embodiment of a shower enclosure according to the invention, in the folded configuration, and
- Figure 6 is a perspective view of the shower enclosure of Figure 5, in the unfolded configuration.

[0010] With reference to appended Figures 1 to 3, a preferred embodiment of a shower enclosure according to the invention is generally indicated 1.

[0011] In the embodiment of Figures 1 to 3, the shower enclosure 1 is associated with a bathtub 2 having an internal space 3 and positioned, in wholly conventional manner, in a corner defined by two perpendicular and adjacent walls 4 of a bathroom. As can be seen from the drawings, the bathtub 2 is arranged with its shorter side, which is next to the rounded portion of the internal space 3, disposed in abutment with the wall.

[0012] The shower enclosure 1 includes a plurality of panels; in this embodiment, there are two panels, indicated 5 and 6, respectively, which are elongate along a major axis, are arranged in the direction of a vertical axis Y-Y, and are connected to one another laterally by an articulated connection so as to constitute an articulated wall 10. The articulated connection between the panels 5 and 6 is achieved by two hinges 8. Alternatively, the articulated connection between the panels may be constituted by a continuous hinge of the same length as the sides of the panels, or by another functionally equivalent system.

[0013] The above-mentioned panels 5 and 6 are movable between a folded position (Figure 1) in which they are close to the bathroom wall 4, and an unfolded position (Figure 2) in which the articulated wall defined by the panels delimits the space 7 inside the shower enclosure 1 in cooperation with the bathroom walls 4 and the sides of the underlying bathtub 2.

[0014] With reference to the panels 5 and 6, it is stated that they are preferably made of clear or opaque tempered glass or methacrylate, so as to be rigid, but these panels may be made of different materials.

[0015] The above-mentioned articulated wall 10 formed by the two panels 5 and 6 is fixed to the bathroom wall 4 by an articulated connection in the region of a first lateral extremity of one of the panels, that is, the left-

hand side of the panel 5 with reference to Figure 1. The articulated connection between the first end of the articulated wall 10 and the bathroom wall 4 is achieved by the interposition of an articulated fixing pillar 9 which enables the articulated wall 10 to be articulated to the bathroom wall 4 about a pivot axis S-S extending in the direction of the vertical axis Y-Y. The articulated fixing pillar 9 is positioned against the bathroom wall 4 in the region of a corner of the bathtub 2 which does not coincide with the corner situated in the corner of the bathroom defined by the meeting of the perpendicular adjacent bathroom walls.

[0016] The other end of the articulated wall 10 is free.

[0017] The articulated wall 10 formed by the two panels 5 and 6 is supported by the bathroom wall 4 in a cantilevered manner so that it can pivot or, more precisely, swing about the vertical articulation axis S-S.

[0018] In the embodiment shown, the panel 5 which is connected directly to the articulated fixing pillar 9 is a flat panel and the other panel 6, that is, the panel at the free end of the articulated wall 10, is a curved panel of which the transverse section, that is, the cross-section contained in a horizontal plane, is curved with its concave side facing the interior of the shower enclosure (Figure 3).

[0019] The curved panel 6 preferably comprises a central portion 6a extending along an arc corresponding to a quarter of a circle, adjoining two opposed, substantially perpendicular, straight portions, indicated 6b and 6c (Figure 3), the end straight portion 6b being longer than the straight portion 6c which is articulated directly to the panel 5.

[0020] The shower enclosure 1 also comprises means 11 for guiding the curved panel 6 in its movement from the folded position (Figure 1) to the unfolded position (Figure 2) and *vice versa* along a path which extends around the space 7 inside the shower enclosure 1, as can be seen from Figure 3. Basically, the curved panel 6 substantially follows its own concave shape.

[0021] The movement of the curved panel 6 from the folded position to the unfolded position and *vice versa* in fact takes the form of a rotational and translational movement whilst the flat panel 5 is forced, at the same time, to pivot through 90 degrees about the articulation axis S-S.

[0022] In the folded position (Figure 1), the articulated wall 10 is arranged with the flat panel 5 against the bathroom wall 4, along the short side of the bathtub 2 and the curved panel 6 is positioned in a manner such that the straight portion 6c is parallel to the panel 5 and the concavity of the central portion 6a extends around the rounded portion of the space 3 inside the bathtub 2.

[0023] In the unfolded position, the articulated wall 10 is arranged with the flat panel 5 extended along a long side of the bathtub 2 and with the straight portion 6c of the curved panel 6 extended as an extension of the flat panel 5. The shower enclosure 1 is closed by the central curved portion 6a and by the straight portion 6b.

[0024] In the unfolded position, the articulated wall 10 formed by the flat panel 5 and the curved panel 6 thus defines two substantially perpendicular sides of the shower enclosure 1.

[0025] The above-mentioned means 11 advantageously also ensure the stability of the shower enclosure 1 when the panels forming the articulated wall are arranged in the unfolded position along two substantially perpendicular sides.

[0026] In the embodiment shown, the means 11 for guiding the curved panel 6 in its movement from the folded position (Figure 1) to the unfolded position (Figure 2) and *vice versa* comprise a rail 12 positioned above the panels 5 and 6 and a sliding block 13 associated slidably with the rail 12 and in engagement with a portion of the curved panel 6.

[0027] In the embodiment shown, the sliding block 13 is fixed at an intermediate point of the curved panel 6, preferably in the central portion 6a.

[0028] According to a preferred embodiment, the sliding block 13 is fixed at a point on the circular arc of the central portion 6a which is spaced from the end of the arc facing the free end of the curved panel 6, that is, of the straight portion 6b, by a distance equal to the length of an arc portion subtended by an angle α of between 20 degrees and 30 degrees, preferably 25 degrees.

[0029] It is appropriate to point out that the above-mentioned geometry of the shower enclosure 1 enables the movement of the flat panel 5 and of the curved panel 6 between the folded position (Figure 1) and the unfolded position (Figure 2) to be performed without the panels going outside the space defined by the shower enclosure 1, that is, the plan area of the bathtub 2.

[0030] Moreover, the shower enclosure 1 has stop means for defining the travel limit position of the panels in the unfolded position.

[0031] In the embodiment shown, the stop means comprise a block 14 which is fixed to the rail 12 and which the flat panel 5 abuts when it reaches the unfolded position (Figure 3).

[0032] The curved panel has a handle 15 which can be used to move the panel, and hence the entire articulated wall 10, from the folded position (Figure 1) to the unfolded position (Figure 2) and *vice versa*, in the manner described above.

[0033] The shower enclosure 1 further comprises elements such as sealing strips to be fitted on the bottoms of the panels or between the panels to prevent leakage of water, as well as protective coverings for the parts of which the enclosure is composed, which are not described or illustrated in the drawings since they are conventional.

[0034] When the shower enclosure 1 according to the invention is in use, a person, indicated P in Figure 3, who is to take a shower, simply has to enter the shower space 7, that is, in the specific embodiment, to step into the space 3 inside the bathtub 2, whilst the shower enclosure is in the folded position (Figures 1, 3 and 4). It

then suffices for the person P to use the handle 15 to bring the articulated wall 10 to the unfolded position in which the shower enclosure is substantially closed (Figure 2).

[0035] As stated, the geometrical shape of the shower enclosure 1 and its movement mechanism allow a person P standing in the shower space 7 to close the shower enclosure 1 by closing the curved panel 6 in a natural manner, without interference, along the rotational/translational path imposed on it by the rail 12, by means of the sliding block 13.

[0036] As can be seen in Figure 3, as it moves from the folded position to the unfolded position, the curved panel 6 extends around the person P who is inside the shower, leaving him ample room for movement without ever interfering with him. This is by virtue of the fact that most of the shower space 7 is unaffected by the articulated wall 10 during its movement.

[0037] It should also be pointed out that, at the same time, the guide means 11 ensure that the curved panel 6 and the flat panel 5 move without ever going outside the space occupied by the shower enclosure 1, that is, the plan area of the bathtub 2, in the embodiment in question.

[0038] Figure 4 shows a second embodiment of a shower enclosure according to the invention, generally indicated 101. The parts of the shower enclosure 101 which are structurally and functionally identical to those of the shower enclosure 1 are identified by the same reference numerals and will not be described again.

[0039] The shower enclosure 101 differs from the shower enclosure 1 described above substantially in that the articulated wall 10 is fixed, by means of hinges 103 having a vertical pivot axis F-F, to a fixed panel 102 extending perpendicular to the bathroom wall 4 along a long side of the tub. The articulated wall 10 and, in particular, its flat panel 5, can therefore pivot or, more precisely, swing relative to the vertical articulation axis F-F.

[0040] The fixed panel 102 is attached to the bathroom wall 4 so as to be fixed firmly thereto with the interposition of a conventional support frame 104.

[0041] The function of the fixed panel 102 is to space the point of articulation of the articulated wall 10 of the shower enclosure 101 from the bathroom wall 4 by the desired predetermined distance, for example, 0.15 m. This is particularly useful when taps and fittings 105 such as the water taps or the shower head project from the bathroom wall 4 against which the articulated wall 10 is disposed in the folded position. The presence of the fixed wall 102 in fact enables the articulated wall 10 of the shower enclosure 101 to be folded without the flat panel 5 being obstructed by the taps and fittings 105.

[0042] Figures 5 and 6 show a third embodiment of a shower enclosure according to the invention, generally indicated 201. The parts of the shower enclosure 201 which are structurally and functionally identical to those of the shower enclosure 1 are identified by the same reference numerals and will not be described again be-

low.

[0043] The shower enclosure 201 constitutes basically a simplified embodiment of the shower enclosure 1 which, in comparison with the latter, has no means for guiding the curved panel 6 in its movement from the folded position (Figure 5) to the unfolded position (Figure 6) and *vice versa*.

[0044] The shower enclosure 201 thus constitutes an embodiment which is less expensive than the shower enclosure 1 although it requires the panels forming the articulated wall 10 to be closed and guided manually during the unfolding and folding movement.

[0045] It should, however, be pointed out that with the shower enclosure 201 it is still possible to move the curved panel 6 from the folded position (Figure 5) to the unfolded position (Figure 6) or *vice versa* along a path which extends around the space inside 7 the shower enclosure 201.

[0046] In comparison with conventional shower enclosures, the shower enclosure 201, like the shower enclosure 1, has the advantage of leaving the area disposed above the space 3 inside the bathtub 2 completely free when the articulated wall 10 is folded up (Figure 5) against the bathroom wall 4. This is made possible by the fact that the concave side of the curved panel 6 faces towards the interior of the shower enclosure and that, in the folded position, the concave side of the central portion of the curved panel 6 is disposed along an edge of the bathtub 2 so as to extend around the rounded portion of the space 3 inside the tub.

[0047] As can be appreciated from the foregoing description, the shower enclosure according to the invention satisfies the above-mentioned requirements and, at the same time, prevents the problems mentioned with reference to the shower enclosures of the prior art.

[0048] Another advantage of the shower enclosure according to the invention lies in the fact that it is structurally and functionally simple so as to be reliable over time and easy to use.

[0049] A further advantage of the shower enclosure according to the invention lies in the fact that it can be installed in a pre-existing structure of any type, whether it be a shower tray or a bathtub.

[0050] Naturally, in order to satisfy contingent and specific requirements, an expert in the art may apply to the above-described shower enclosures many modifications and variations all of which, however, are included within the scope of protection of the invention as defined by the following claims.

[0051] Thus, for example, the shower enclosure may be associated with a shower tray rather than with a bathtub. In this case, the only noticeable difference is that it is necessary to use longer vertical panels.

[0052] If it is desired to have a shower enclosure which covers the entire length of the longer side of a rectangular tub, shower enclosures composed of more than two movable panels, preferably an even number of panels, may be used. For example, an articulated wall

formed by three flat panels and by one curved end panel may be used.

Claims

1. A shower enclosure comprising a plurality of vertical panels (5, 6, 102) articulated to one another so as to constitute an articulated wall (10), the panels being movable between a folded position and an unfolded position in which the articulated wall defines the space (7) inside the shower enclosure, characterized in that at least one of the panels has a curved horizontal cross-section the concave side of which faces towards the interior of the shower enclosure, constituting a curved panel (6),
5
2. A shower enclosure according to Claim 1, characterized in that it comprises means (11) for guiding the curved panel (6) from the folded position to the unfolded position and vice versa along a path (T) which extends around the space (7) inside the shower enclosure.
10
3. A shower enclosure according to Claim 2, in which the panels (5, 6) move between the folded position and the unfolded position without going outside the space occupied by the shower enclosure, defined by the panels in the unfolded position.
15
4. A shower enclosure according to Claim 2, in which the movement of the curved panel (6) from the folded position to the unfolded position is a rotational and translational movement.
20
5. A shower enclosure according to Claim 2, in which the means (11) for guiding the curved panel (6) from the folded position to the unfolded position comprise a rail (12) positioned above the panels (5, 6).
25
6. A shower enclosure according to Claim 5, in which a sliding block (13), associated slidably with the rail (12), is fixed to the curved panel (6).
30
7. A shower enclosure according to Claim 1 or 2, comprising stop means (14) for defining the travel limit position of the panels (5, 6) in the unfolded position.
35
8. A shower enclosure according to Claims 5 and 7, in which the stop means (14) is fixed firmly to the rail (12).
40
9. A shower enclosure according to Claim 1 or 2, characterized in that it comprises only two movable panels (5, 6).
45
10. A shower enclosure according to Claim 9, in which the movable panels comprise the curved panel (6) and a substantially flat panel (5).
50
11. A shower enclosure according to Claim 1 or 2, in which there is an even number of movable panels (5, 6).
55
12. A shower enclosure according to Claim 1 or 2, in which the curved panel (6) is an end panel of the continuous wall (10).
13. A shower enclosure according to Claim 1 or 2, in which the curved panel (6) comprises a central portion (6a) extending along an arc of a circle and adjoining two opposed, substantially perpendicular, straight portions (6b, 6c).
14. A shower enclosure according to Claims 12 and 13, in which the free end portion (6b) of the curved panel (6) is longer than the other, remaining straight portion (6c).
15. A shower enclosure according to Claims 6 and 13, in which the sliding block (13) is fixed at a point on the central portion (6a) of the curved panel (6).
16. A shower enclosure according to Claim 15, in which the sliding block (13) is fixed at a point of the circular arc (6a) which is spaced from the end of the arc facing the free end (6b) of the panel (6) by a distance equal to an arc portion subtended by an angle (α) of between 20 degrees and 30 degrees, preferably 25 degrees.
17. A shower enclosure according to Claim 1 or 2, in which the movable panels (5, 6) are fixed, by an articulated connection, to a lateral support pillar (9) positioned in the region of a first end of the articulated wall (10).
18. A shower enclosure according to any one of the preceding claims, in which the articulated wall (10) formed by the panels (5, 6) defines two substantially perpendicular sides of the shower enclosure, in the unfolded position.
19. A shower enclosure according to Claim 1 or 2, in which the movable panels are associated above a shower tray.
20. A shower enclosure according to Claim 1 or 2, in which the movable panels (5, 6) are associated above a bathtub (2).
21. A shower enclosure according to Claim 1 or 2 in which the panels (5, 6, 102) are rigid.

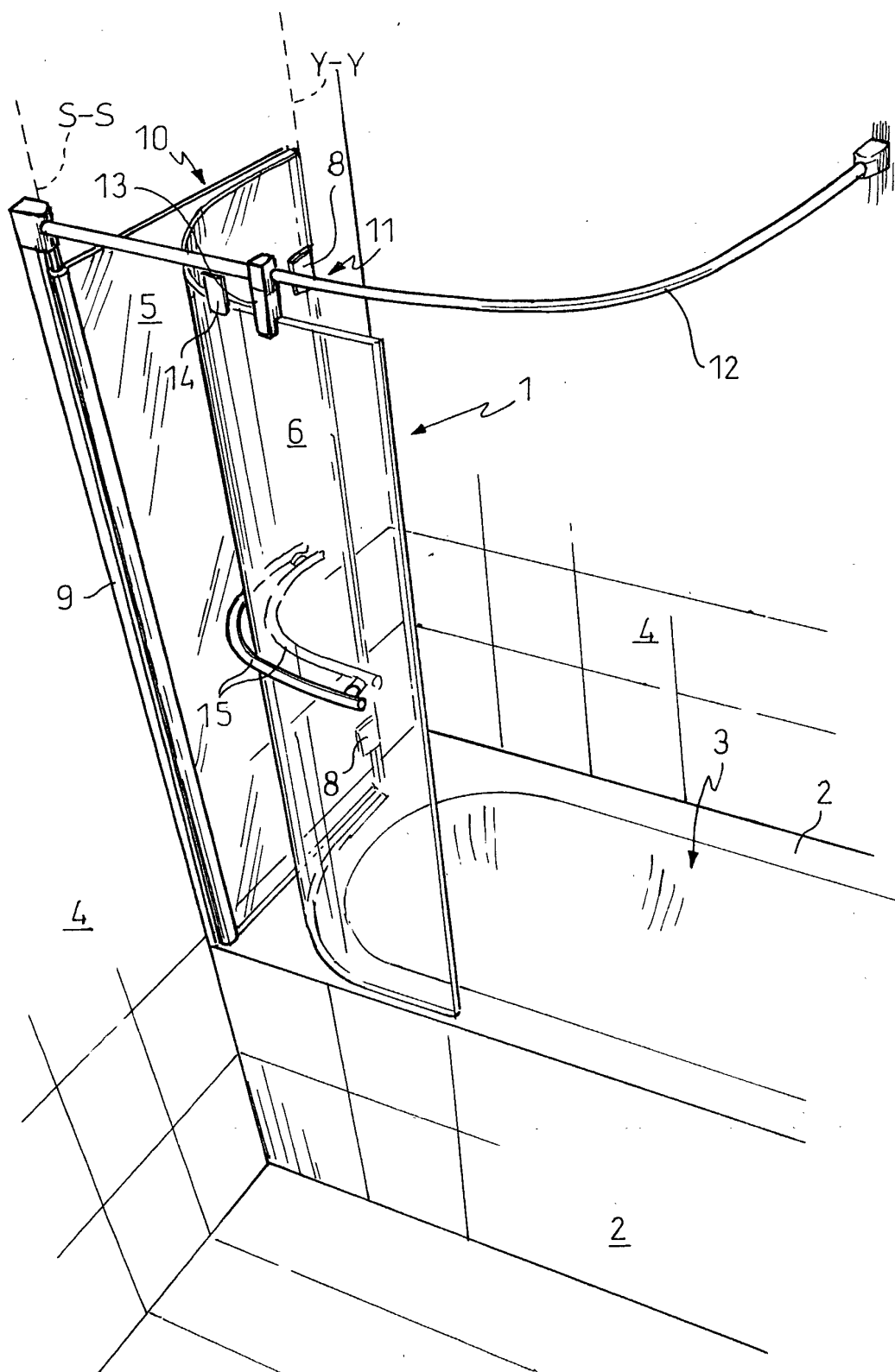


FIG.1

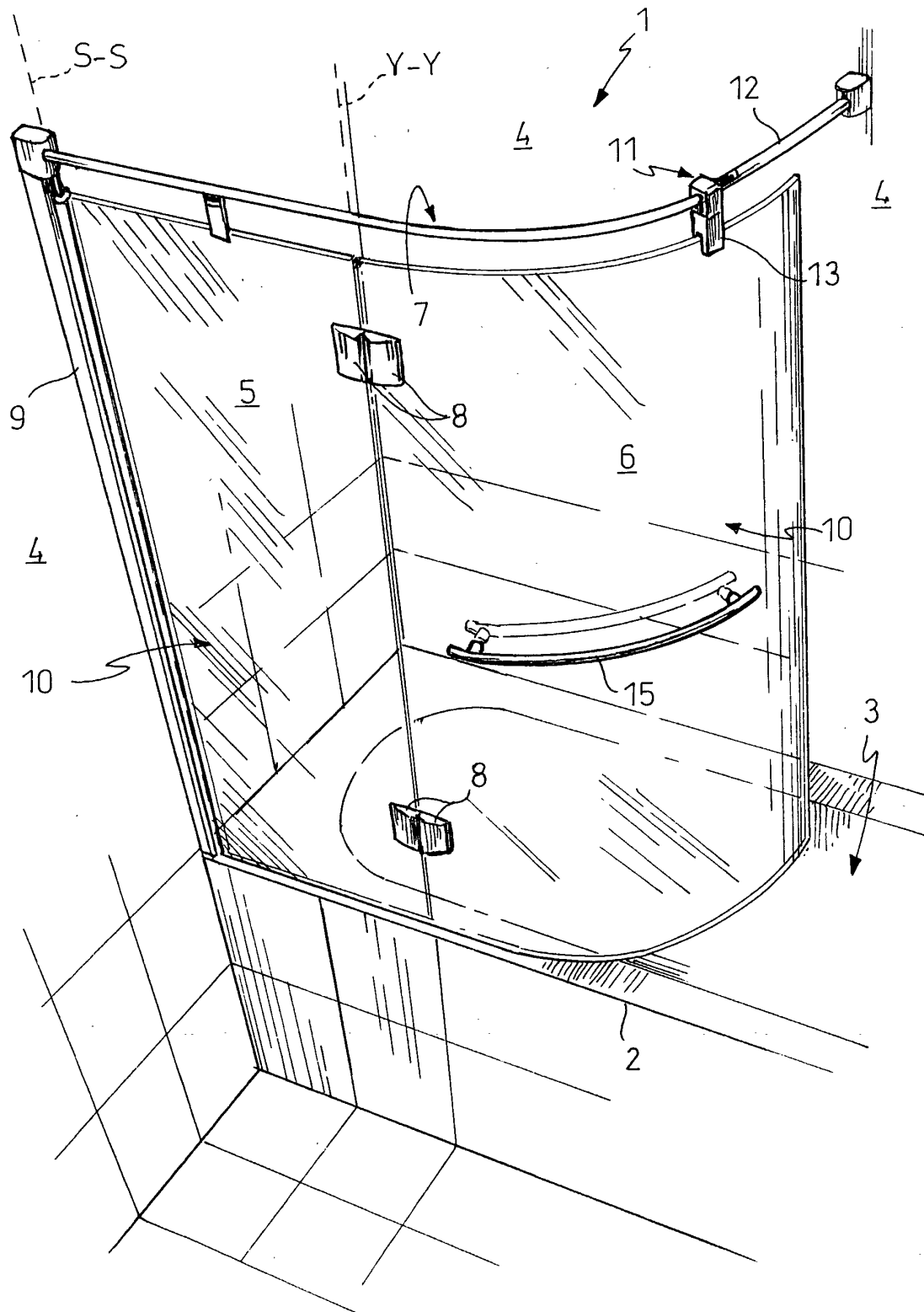
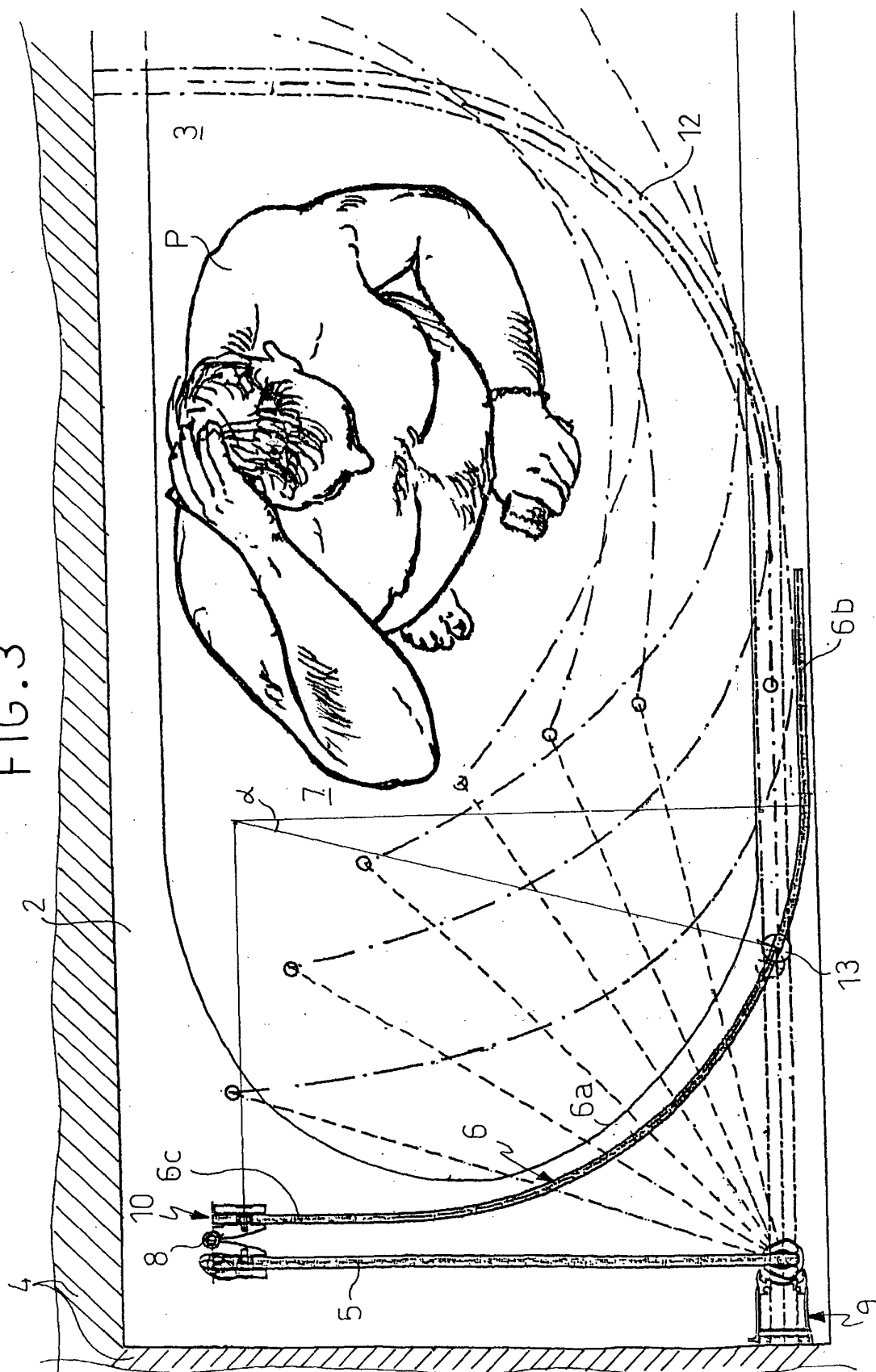


FIG. 2

FIG. 3



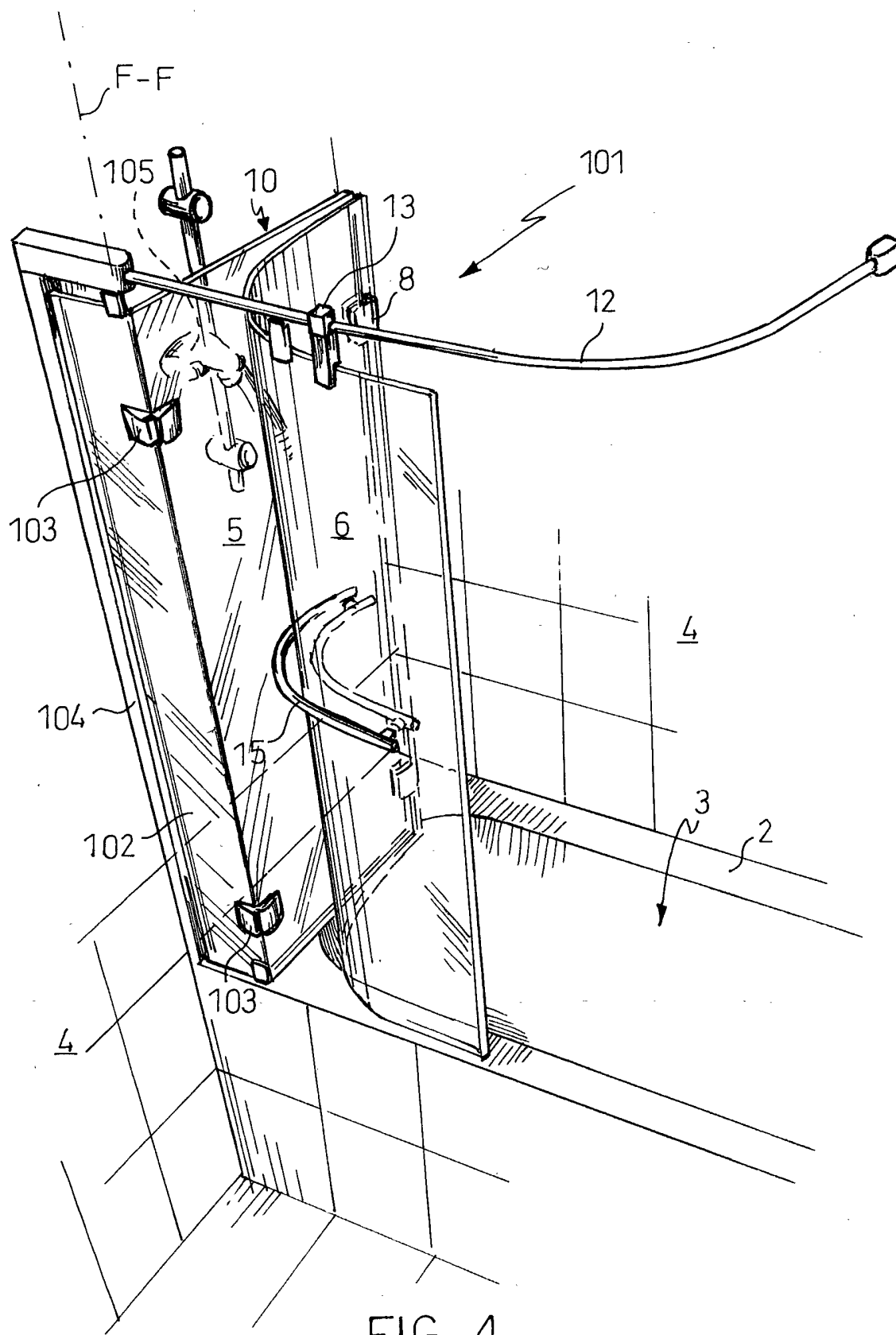


FIG. 4

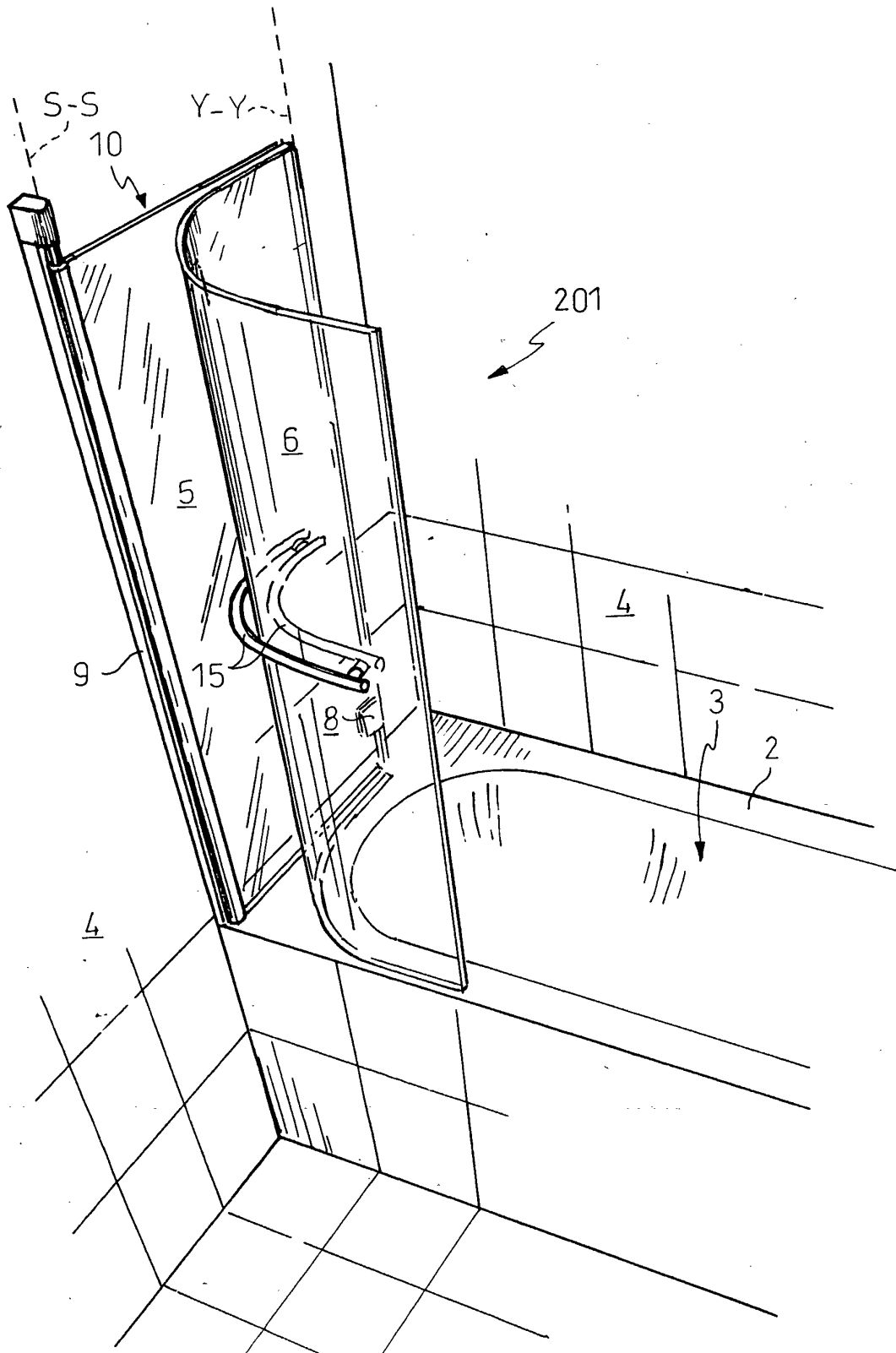


FIG. 5

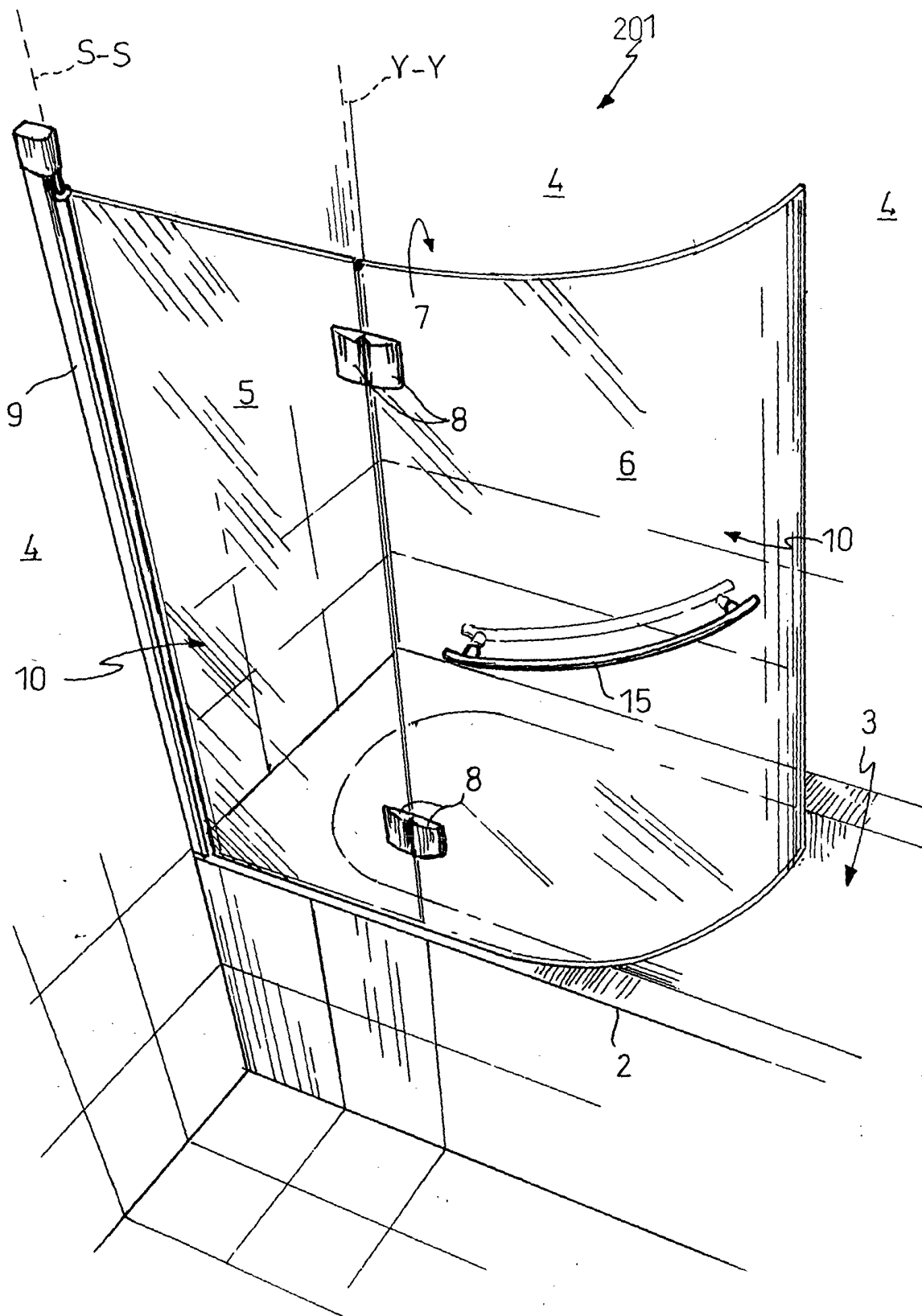


FIG. 6