

Title: Mounting

Description

The present invention relates to a fitting for an all-glass door according to the characteristics of patent claim 1.

- 5 Glass partitioning walls are known from the company's brochure "DORMA Universal", edition 12/93, where all-glass door leaves, which are pivotable by means of fittings, are disposed between stationary lateral panels. An overpanel is disposed above the all-glass door.
- 10 These fittings combine the pivotable support of the all-glass door leaf and simultaneously the connection thereof to the overpanel and to the adjacent lateral panel. Therefore, a functional dependency is given between the fittings in one respect and the glass
- 15 elements, a fact that leads to a large amount of different fitting variants.

Hence, mounting the overpanels is very expensive and time-consuming, as the fitting parts, on account of the extreme fragility of the material glass, have to be

20 mounted precisely and tension-free with regard to each other and need to be adjusted.

The object of the invention is to essentially simplify the mounting of an overpanel above an all-glass door and to reduce the amount of fitting parts.

This problem is solved with the characteristics specified in patent claim 1. The dependent claims include further advantageous embodiments of the inventive idea.

The separation of the functions, a pivotable support and
5 an attachment of glass elements, in this case an overpanel in conjunction with a stationery lateral panel, can be realized in that a clamping device be provided at a fitting part, which part is positively and non-positively connected as a fixed member to the over panel. With this
10 clamping device, due to the conception thereof, it is possible to realize the connection to the stationary lateral panel on the side of the fitting without additional tools or other means.

The clamping device basically consists of two protruding
15 arms, which are spaced apart from each other. In this case, the arms are fork-like spaced apart and oriented towards each other. This fact creates a springy effect, of which is taken advantage to insert the glass pane of the adjoining lateral panel between these two fork-shaped
20 arms, which are spaced apart.

It has been proven advantageous to realize the complete clamping device from plastic material. This plastic material may be of the same colour as the fixed member and thus as all the fittings. However, it is likewise
25 possible to use transparent plastic material.

In addition to a clamping device realized from plastic material, the choice may be a metal execution. In case of a metallic embodiment, it is important to make sure that the arms, which are spaced apart, have a springy execution.

Both, with the embodiment in plastic material and in metal, the arms have to be realized such that the dimension at the front side of the arms is smaller than the thickness of the glass pane of the lateral panel. Inserting the glass pane of the lateral panel will thus achieve a fixing thereof and consequently a support of the overpanel at the adjacent lateral panel.

In this case, the clamping device may extend only over a partial portion of the fitting. However, it is also possible, that the clamping device extends over the total length of the used fitting.

With respect to visual appearance, an advantageously dematerialized partitioning wall is created this way. Cleaning is likewise considerably simplified, as the soiling edges of the fittings are largely reduced and an almost even glass surface is created.

Simultaneously, the clamping device is conceived in that it is adjustable in relation to the stationary lateral panel. Said adjustability allows for compensating angle errors

and tolerances without any problem. It is imaginable to realize a continuous adjustability.

In addition to a continuous adjustability, an adjustability in fixed increments may be realized, particularly through
5 a corresponding tothing. The clamping device may thus present a tothing which cooperates with a tothing that is conformed to the fixed member. To achieve the adjustability, the clamping device, which is positively and non-positively attached at the fixed member by means of
10 a screw element, is provided with an oblong hole. Advantageously this oblong hole is not straight, but is located on an arc of a circle.

It is however also conceivable that the fixed member is provided with a bearing bushing, which serves for the
15 support of the all glass door's upper bearing. In one respect, this bearing bushing may be conceived in that it is positively and non-positively inserted into the fixed member and simultaneously presents a tothing complementary to the tothing of the clamping device.
20 This embodiment likewise allows for an adjustment in fixed increments, according to the chosen tooth dimensions.

Thus the attachment of the lateral panel and the overpanel to each other is realized without fittings, the
25 existing gap between both glass panes being filled by means of a permanently elastic substance, which

positively connects the longitudinal borderings of the overpanel with the respective bordering of the lateral panel.

Now the swing leaf of the all-glass door, which is put in place, is supported only by means of the fixed member, as already described above, and on the lower side on the floor. As the attachment functions to the adjoining glass panel, which are usually used, are omitted, the fittings are considerably smaller and simplified.

Furthermore, identical individual parts are largely used. Thus, a simple and budget-priced attachment and support for an all-glass swing leaf door below an overpanel has been created, while the amount of individual parts and the constitution of the fittings have been optimized. Simultaneously a secure connection of the overpanel at the stationary lateral panel has been achieved. Thus, it is no longer required to drill boreholes into the glass panes at the location of the connection between the overpanel/lateral panel. On the one hand, manufacturing is simplified and, on the other hand, cost is reduced to the effect that simple tolerance compensation is possible.

Further details, characteristics and advantages of the invention will be obvious from the following description of one preferred embodiment example, reference being

made to the diagrammatically illustrated figures, in which:

- Figure 1 is a frontal view of an all-glass door with stationary lateral panels and an overpanel,
- 5 Figure 2 is a detail of figure 1,
- Figure 3 is a partial view of figure 2, however with one upper fixed member only,
- Figure 4 is a perspective view of a fixed member including a clamping device,
- 10 Figure 5 is a sectional illustration according to figure 4 along a line A-A,
- Figure 6 is a view from below on a mounted fixed member with a clamping device and an overpanel and a lateral panel,
- 15 Figure 7 is a plan view of a clamping part including a bearing bushing.

The illustration of figure 1 shows a detail of a partitioning wall, in which stationary lateral panels 7, 19 are disposed laterally of an all-glass door leaf 15. A stationary
20 overpanel 16 is provided above the all-glass door leaf 15.

Between the overpanel 16 and the lateral panels 7, 19 is provided one gap 20 respectively, which has been

closed with a permanently elastic substance for interconnecting the individual glass panes.

The all-glass door leaf 15 is supported by means of a lower bearing 17 and an upper bearing 18 (as can be
5 seen on the left hand side in figure 1). In addition, the lower bearing 17 and the upper bearing 18 are interconnected by means of a continuous fitting 24. The lower bearing 17 is realized in the floor, without being referenced, for example by means of a concealed door
10 closer or by means of a floor spring. A fixed member 1, having several functions, is provided at the overpanel 16 and exclusively attached thereto. On the one hand, the fixed member 1 serves as a counter-bearing to the upper bearing 18 of the all-glass door leaf 15 and, on the other
15 hand, the fixed member 1 is provided with a clamping device 2. The clamping device 2 protrudes into the stationary lateral panel 19 on the left-hand side.

For illustrative purposes, the supporting part of the all-glass door leaf 15 has been represented at a larger scale
20 in figure 2. In an illustration of figure 3, likewise at a larger scale, the connection of the lateral panel 7 (on the left-hand side) by means of the clamping element can be viewed. The clamping element 2 is provided – starting at a separating wall 23 – with arms 3, which, starting
25 respectively at the lateral edge of the lateral panel 7, overlap the latter at the lateral surfaces thereof.

The perspective illustration of figure 4 represents the fixed member 1 together with clamping device 2, which is the positively and non-positively connected thereto. By means of two boreholes, which are provided within the overpanel 16 without being referenced, the overpanel 16 is exclusively received and attached within a reception 26 in the fixed member 1. A cover 27 forms the upper closure respectively. The fixed member 1 is solidly connected to the overpanel 16 by means of screw connections, which are not illustrated. A clamping device 31 having screw connections, which are covered by means of a facing 25 towards the exterior side, is provided to make such attachments invisible. The clamping device 2 is provided at one end of the fixed member 1. The clamping device 2 is positively and non-positively connected to the lower part of the fitting 28 of the fixed member 1 by means of a screw connection 5. While the overpanel 16 is positively and non-positively connected to the fixed member 1 on the one hand, the lateral panel 7 is connected to the fixed member 1 via a clamping connection by means of the clamping device 2.

The clamping device 2 presents – starting at the separating wall 23 – two arms 3, which are oriented to the exterior side and are conceived in that they slightly converge to each other. The arms 3 are spaced apart and formed such that they are springy. It is thus possible, that, due to the dimensional adjustment, the thickness of

the lateral panel 7 is larger than the space between the arms 3 with regard to each other. A clearance 8 embraced by the arms 3 is almost filled when the lateral panel 7 is being inserted, the lateral panel 7 being simultaneously supported due to the clamping effect of the arms 3.

In order to proceed to adjusting the lateral panel 7 with regard to the overpanel 16, a tothing 9 is provided at the opposite end of the arms 3, which is conformed to the clamping device 2. In the embodiment of figure 6 and figure 5, this tothing 9 engages into another complementary tothing 10 of a bearing bushing 11. It is obvious that, once the screw connection 5 is released, which passes through an oblong hole 4, it is possible to proceed to an adjustment of the clamping device 2 by one tooth at a time. This adjustment allows in one respect for compensating tolerances and manufacturing defects.

The exterior shape of the clamping device 2 presents a partial portion of an ellipse. This contour 21 presents in this case a lateral chamfer 22. Therefore, the clamping device 2 is not perceived as a protruding dominant construction component.

Starting from the separating wall 23, the clamping device 2 presents a projection 13, which at the same time is provided with the tothing 9.

While in figure 7 the toothing 9 of the clamping device 2 is engaging into the toothing 10, which forms an integral part of the clamping device 31, figure 5 clearly illustrates that a bearing bushing 11 is inserted into the lower part
5 of the fitting 28. In this case, the bearing bushing 11 is inserted with the shoulder 29 thereof into an opening 30. Thus, the bearing bushing 11 may receive, due to the borehole 12 thereof, an axle journal of the upper bearing 18, and simultaneously presents the toothing 10 on the
10 shoulder 29 at a portion of the circumference thereof. The bearing bushing 11, which being inserted into the opening 30, allows for quick exchange of this bearing bushing in the event of a defect.

References

	1	fixed member
	2	clamping device
	3	arms
5	4	oblong hole
	5	screw connection
	7	lateral panel
	8	clearance
	9	toothings/clamping device
10	10	toothings/bearing bushing
	11	bearing bushing
	12	borehole for axle journal
	13	projection
	14	glass partitioning wall
15	15	all-glass door leaf
	16	overpanel
	17	lower bearing
	18	upper bearing
	19	lateral panel
20	20	gap
	21	contour
	22	chamfer
	23	separating wall
	24	fitting (continuous)
25	25	facing
	26	reception for overpanel
	27	cover
	28	lower part of fitting
	29	shoulder
30	30	opening
	31	clamping device

Patent claims

1. A fitting for an all-glass door (15), which forms an integral part of a glass partitioning wall (14), the all-glass door (15) being executed as a swing leaf door and a stationary overpanel (16) being provided above the all-glass door (15), the fitting being essentially realized by means of a lower bearing (17) and an upper bearing (18), the upper bearing (18) cooperating with a fixed member (1), which is exclusively attached at the overpanel (16), and in that a clamping device (2) is provided at the fixed member (1), which serves for the connection of the fixed member (1) to a stationary lateral panel (19) of the glass partitioning wall (14).
2. A fitting according to claim 1, characterized in that the clamping device (2) is adjustable with regard to the fixed member (1).
3. A fitting according to one of the preceding claims, characterized in that the adjustment of the clamping device (2) is realized by means of a tothing.
4. A fitting according to one of the preceding claims, characterized in that a first portion (10) of the tothing is provided at the fixed member

(1) and another portion (9) of the toothing at the clamping device (2), the respective teeth thereof meshing with each other.

- 5 5. A fitting according to one of the preceding claims, characterized in that the clamping device (2) is fastened at the fixed member (1) by means of a screw connection (5).
- 10 6. A fitting according to claim 5, characterized in that the screw connection (5) is achieved through an oblong hole (4) within the clamping device (2) at the fixed member (1).
- 15 7. A fitting according to one of the preceding claims, characterized in that the clamping device (2) presents at least two arms (3), which are spaced apart, fork-like shaped and oriented away from the fixed member (1).
8. A fitting according to claim 7, characterized in that the arms (3) are springy and converging to each other.
- 20 9. A fitting according to one of the preceding claims, characterized in that the clamping device (2) is made from plastic material, preferably from transparent plastic material.

10. A fitting according to one of the preceding claims, characterized in that the clamping device (2) is made from metal.
- 5 11. A fitting according to one of the claims 3 to 10, characterized in that the toothing (10) is conformed to a bearing bushing (11).
12. A fitting according to one of the claims 3 to 10, characterized in that the toothing (10) is conformed to the fixed member (1).
- 10 13. A fitting according to claim 11 or 12, characterized in that the bearing bushing (11) is positively and non-positively connected to the fixed member (1).