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Title: Clamping fitting for the corner connection of three adjoining walls



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Description

The invention relates to a clamping fitting for the corner connection of three adjoining walls, especially glass panes or the like.

EP 0784 129 A1 deals with a suspension device for the connection of four adjacent single glass panes arranged in-plane, this is not a corner connection like the species described hereafter. In EP 0 784 129 A1, a suspension member is used, comprising four arms stretching out from a central attachment body including the structure attachment, at which arm's free ends the glass panes are suspended. The glass panes' connection at the arm's free ends is realised, in well-known manner, via glass adapter elements, whereby lens-like supporting members are arranged for the necessary tolerance compensation between the glass adapter elements and the arm's free ends.

On the contrary to the above description, the present invention relates to a corner connection of three walls, especially glass panes, which are not exposed in-plane, but are arranged towards each other at an angle, for example at a right angle. Such corner connections are for example required when conceiving large volume glass showcases. For this purpose, aesthetically appealing connection components are desired, the connection means should especially allow for tolerance compensation between the adjoining glass panes, tolerances being caused for example by different dimensions of the glass panes or by tolerances of the boreholes or of the apertures arranged in well-known manner in the panes for the connection with the respective adapter element of the clamping fitting. Moreover, the inventive clamping fitting should make possible corner connections where the walls, preferably glass panes, can be interconnected when their relative position towards each other includes angles of more or less than 90 degrees.

The object of the invention is to propose a clamping fitting belonging to the aforementioned species meeting the specified criteria.

The invention solves the given problem with the teaching according to claim 1. Further features are characterised by the sub-claims.

According to the technical teaching of claim 1, the clamping fitting presents a central coupling member with three locating bearings with therein rotatably and lockably supported connecting axles, which center longitudinal axes run radially with regard to the coupling member and respectively include between each other an angle of approximately

120 degrees, whereby, at their free end opposite to the coupling member, the connecting axles present a connector articulation, that can be stiffened, for the attachment of an adapter element, preferably a glass adapter element. Thanks to the rotatable support of the connecting axles in the locating bearings of the central coupling member on the one hand, and to the connector articulation between the connecting axles and the adapter element on the other hand, with regard to the whole clamping fitting, virtually three universal joints are realised, which allow for complete adjustment of the respective adapter element towards glass panes to be connected, regardless their angle positions towards each other. Simultaneously, the front edges of glass panes facing each other can be precisely adjusted, whereby once the adjustment is realised, as well the position of the connecting axle in the respective locating bearing of the central coupling member as the position of the connector articulation between the connecting axle and the adapter element can be made rigid.

The central coupling member could principally consist of a disc presenting the locating bearings, but it is preferably realised as a sphere, whereby the locating bearings are executed as three pocket borings displaced at angles of about 120 degrees.

Locking the connecting axle in the central coupling member is preferably realised in a way that the connecting axles are rotatably supported, with an axle journal presenting an undercut groove, in the locating bearing of the coupling member and are lockable by means of a threaded pin screwable into the coupling member and engaging into the groove. By this means is achieved an aesthetic appealing and simple locking of the connecting axle with regard to the central coupling member.

The connector articulation between the connecting axles and the adapter element is realised in an advantageous embodiment of the invention in a way that the connector articulation of the connecting axles is made of a bracket presenting an oblong hole and engaging into a fork of the adapter element. The oblong hole in the bracket of the connecting axles allows for additional tolerance compensation through respectively differently configured lengths of the individual connecting brackets, prior to stiffen the connector articulation.

In further execution of the invention in order to stiffen the connector articulation, it is conceived that one fork leg of the adapter element's fork presents a borehole with female thread and one fork leg presents an indentation for the reception of a clamp screw.

The invention results in the realisation of a clamping fitting for the corner connection of three adjoining walls, which not only provides a corner connection of high stability, but which is especially suitable to realise, with sufficient possible tolerance compensation, the

corner connection of adjoining panes, if these panes are inclined towards each other at different angle positions.

Hereinafter, the invention is explained in detail on the basis of one embodiment example. It shows:

- Figure 1: A general view of the clamping fitting in a perspective representation.
- Figure 2: A perspective view of the central coupling member with the connecting axles.
- Figure 3: A top view on the representation according to figure 2.
- Figure 4: A perspective top view on the representation according to figure 3.
- Figure 5: A sectional view of the central coupling member.
- Figure 6: A projection of the connecting axle.
- Figure 7: A top view according to figure 6.
- Figure 8: A perspective representation of the connecting axle.
- Figure 9: A sectional view of the adapter element.
- Figure 10: A top view on the adapter element.

A clamping fitting 1 according to figure 1 connects three glass panes 2, 3 and 4, in the embodiment example arranged at right angles. The clamping fitting 1 basically presents a central coupling member 5 to which are associated three connecting axles 7, respectively displaced at about 120 degrees, which are rotatably, however lockably supported in the central coupling member 5. The glass adapter elements 11, screwed into the apertures 25 in the glass panes 2, 3 and 4, are linked to the connecting axles 7 by means of connector articulations 10, stiffening by means of a clamp screw 24.

Figures 2 to 4 illustrate that the connecting axles 7 may be locked with regard to the central coupling member 5 by the threaded pin 15 screwed into the central coupling member 5. As figure 5 shows, the locating bearings 6, provided in the central coupling member 5 executed as a sphere, are realised as pocket borings 12, into which engage the axle journals 14 of the connecting axles 7. The axle journals 14 present an undercut groove 13 into which the threaded pins 15 are screwable.

Figures 6 to 8 represent that the free end 9 of the connecting axles 7 is realised as a bracket 18, which center longitudinal axis is identified by 8. The bracket 18 is provided with an oblong hole 16 and, as shown in figures 9 and 10, engages in a fork 17 of the glass adapter element 11. The fork 17 is composed of two fork legs 19 and 20, whereby the fork leg 19 is provided with a female threaded 22 borehole 21, into which a clamp screw 24 is screwable. The clamp screw's 24 head (refer to figure 1) fits into an indentation 23 of the fork leg 20. The connector articulation can be stiffened by means of the clamp screw 24.

References

- 1 Clamping fitting
- 2 Glass pane
- 3 Glass pane
- 4 Glass pane
- 5 Central coupling member
- 6 Locating bearing
- 7 Connecting axles
- 8 Center longitudinal axes of the connecting axles
- 9 Free end of the connecting axles
- 10 Stiffening connector articulations
- 11 Glass adapter elements
- 12 Pocket borings
- 13 Undercut groove
- 14 Axle journals
- 15 Threaded pin
- 16 Oblong hole
- 17 Fork
- 18 Bracket
- 19 Fork leg
- 20 Fork leg
- 21 Borehole
- 22 Female thread
- 23 Indentation
- 24 Clamp screw
- 25 Apertures

Claims

- 1) Clamping fitting for the corner connection of three adjoining walls, especially glass panes or the like, characterised in that the clamping fitting 1 presents a central coupling member (5) with three locating bearings (6) for the connecting axles (7) therein rotatably and lockably supported, which axle's center longitudinal axes (8) run radially with regard to the coupling member (5) and respectively include between each other an angle of approximately 120 degrees and in that at their free end (9) opposite to the coupling member (5) the connecting axles (7) present a connector articulation (10) that can be made rigid for the connection of an adapter element, preferably a glass adapter element (11).
- 2) Clamping fitting according to claim 1, characterised in that the coupling member (5) is executed as a sphere.
- 2) Clamping fitting according to claim 1 and 2, characterised in that the locating bearings (6) of the coupling member (5) are realised by three pocket borings (20) offset at an angle of approximately 120 degrees.
- 4) Clamping fitting according to any of the claims 1 to 3, characterised in that the connecting axles (7) are rotatably supported in the locating bearing (6) of the coupling member (5) by means of an axle journal (14) presenting an undercut groove (13) and are lockable by means of a threaded pin (15) screwable into the coupling member (5) and engaging into the groove (13).
- 5) Clamping fitting according to any of the claims 1 to 4, characterised in that the connector articulation (10) of the connecting axles (7) consists of a bracket (18) presenting an oblong hole (16) and engaging into a fork (17) of the adapter element (11).
- 6) Clamping fitting according to any of the claims 1 to 5, characterised in that a fork leg (19) of the fork (17) of the adapter element (11) presents a boring (21) with a female thread (22) and a fork leg (20) with an indentation (23) for the reception of a clamp screw (24).