



A PANEL FIXING SYSTEM

This invention relates to a panel support assembly and a panel fixing system, and in particular to the fixing of panels between posts.

The invention will find many applications. The most common application is the fixing of glass panels between a plurality of upright posts. This produces a structure which can be used for decorative purposes, as a swimming pool enclosure, as a wind and noise screen or as a balustrade among many examples.

In addition to the use of flat panels such as panes of glass, it should be understood that the word panel is used in this specification to also include panels of complex shape including curved panels, segmented panels or panels having a combination of curved and flat surfaces.

Existing panel fixing systems include upright posts with channels into which the edge of panels locate. In the case of glass panels, silicone sealer is normally used to secure the edges of the glass panels within the channels.

There is some difficulty with such installations. Firstly, the posts need to be accurately located both laterally and angularly to ensure that the channels are aligned. Secondly, as the posts are fixed in position, the panels can only be located by inserting them from the top of the posts and dropping them into place. There may be some difficulties in positioning the panels in this method if the channels on the post do not properly align.

Obviously, it is time consuming to ensure accurate alignment between the posts, and location of the panels in the manner described is also exceedingly difficult.

It is often necessary for there to be an angle between adjacent panels. This means using either an excessively wide channel in the posts, or making a number of



different posts with channels at different angles. It is prohibitively costly to produce a range of posts to produce all of the required angles between adjacent panels.

It is an aim of this invention to overcome the problems referred to above, and to provide a panel support assembly and associated panel fixing system which enables easy fixing of panels between post members and to provide a system that allows greater flexibility in terms of relative angles between panels on either side of a post.

In its broadest form, the invention is a panel support assembly comprising a post having at least one elongate recess, rotatably supporting a respective panel receiving member, said panel receiving member comprising a rod-like member having an internal channel adapted to receive a panel, characterised in that said recess and said respective panel receiving member are mutually shaped so as to allow relative rotation.

Preferably, the recess is arcuate in shape partially surrounding said a least one panel receiving member, and said panel receiving member has an external shape that is substantially cylindrical to thereby allow relative rotation about the longitudinal axis of the panel receiving member. However, other arrangements may be provided which allow relative rotation between the two elements.

The angle of the arc defined by the recess in the post may be greater than 180° which in turn means that the panel receiving member is held captive within the recess. In other words, the opening of the recess is narrower than the diameter of the panel receiving member. This will obviously act to hold the panel receiving member captive within the recess thereby positively joining the panel receiving member to the post.

Alternatively, the width of the recess in the post may be sufficient to allow the panel receiving member to pass laterally into the recess through the recess opening.



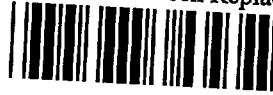
The width may be such that a slight resistance to location within the recess is provided. This enables the panel receiving member to be pushed into the opening of the recess while at the same time providing sufficient holding force to keep it within the recess.

The posts can be of any suitable cross-sectional shape, and ideally would comprise extruded sections produced from material such as aluminium. Most would be produced with recesses on both sides with some posts being produced with recesses on one side.

The panel receiving member is also provided with a channel into which the edge of the panel locates. Preferably, this comprises a generally U-shaped channel providing adequate dimensions for the type of panel being supported. In the case of flat panels such as glass panels, then sufficient clearance is provided to enable a sealer such as a silicone based sealant to be put in place to hold the panel with respect to the channel.

As the panel receiving member is able to rotate with respect to the post, this enables the panel to be positioned within a range of angles defined by the degree of rotation of the panel receiving member with respect to the post. This provides several advantages. One is the ability to correct for small errors of alignment between adjacent posts or to simply allow a panel to be positioned at an angle with respect to adjacent panels.

It also has significant advantages in respect of locating panels between adjacent posts. By ensuring that the channel within the panel receiving member is deep enough, one edge of the panel may be located fully within its panel receiving member, and then the panel and panel receiving member can be rotated so that the opposite edge can locate within the channel of the second panel receiving member. Ideally, the second panel receiving member can be rotated so that the second edge of the panel easily locates within the recess. Continued rotation of both panel receiving



members enables the panel to be put into its desired position ready for insertion of the silicone sealant. This assembly process is obviously significantly easier by comparison to known techniques.

In order to fully understand the invention, a preferred embodiment will now be described. However, it should be realised that this invention is not to be confined or restricted to the precise details of this embodiment.

Fig. 1 shows a perspective view of a panel support assembly.

Fig. 2 shows a plan view of a horizontal cross-section through a panel and its two panel support assemblies.

Fig. 3 shows a plan view of a series of panels and their respective panel support assemblies.

Referring to Fig. 1, there is shown in perspective view a panel support assembly 25 comprising two parts. The first part, a post 10, is a hollow extruded aluminium section. The post 10 has a pair of arcuate recesses 12 formed on either side. The recesses 12 have a generally circular cross-section and have an arc of approximately 180°. The walls of recesses 12 are joined by web 16 which provides additional strength.

The panel support assembly further comprises panel receiving members 13 which locate within the recesses 12. Each of the panel receiving members 13 are elongate rod-like members having a generally circular cross-section to enable location within the recesses 12. The panel receiving members 13 have an elongate channel 14 within which the panel 11 locates as shown in Fig. 2. The channel 14 obviously does not need to be along the full length of the panel receiving member 13 particularly if the height of the panel 11 differs from the height of the post 10.



The panel receiving member 13 is able to rotate within the arcuate recess 12, enabling the angle of the panel with respect to the post 10 to vary considerably. This is shown in Fig. 2 by way of a ghost outline which shows positioning of channels 14 to enable the panel 11 to form the required angle.

As seen in Fig. 2, the panel fixing system comprises of posts 10 with a panel 11 located between. A number of panels and corresponding posts 10 may be used to complete a structure as shown in Fig. 3.

In order to locate the panel 11 between adjacent posts, one panel receiving member 13 is rotated so that the channel 14 is adjacent one side of the channel 12. The edge of the panel is located within the channel 14, and then the combination of the panel 11 and panel receiving member 13 are rotated so that the opposite edge locates within its respective panel receiving member 13. That particular panel receiving member 13 can also be rotated to position the opening so that the edge of the panel 11 can easily locate within the channel 14. The overall width of the panel 11 may be slightly shorter than the distance between the base of adjacent channels 14 which assists in location of the panel in the manner described above. By assembling a plurality of panels 11 between panel support assemblies 25, a screen wall can be created such as shown in Fig. 3. Caps 20 can be fitted to the tops of posts 10 to produce a sealed and aesthetically pleasing assembled screen.

Once the panel 11 is in position, silicone sealant 15 can be located within the channel 14 to hold the panel 11 securely in place.

There may be a slight interference fit between the panel support 13 and arcuate recess 12 which still allows for rotation of the panel receiving member 13 while at the same time preventing clearance that might cause movement or rattling of the assembly.

The invention will obviously find numerous applications ranging from glass screen or walls, balustrades, or any other application where panels need to be held between support posts. In addition to using the invention on horizontal surfaces, it will be equally suited to inclines such as the sides of stairs or on sloping ground.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A panel support assembly comprising a post having at least one elongate recess, rotatably supporting a respective panel receiving member, said panel receiving member comprising a rod-like member having an internal channel adapted to receive a panel, characterised in that said recess and said respective panel receiving member are mutually shaped so as to allow relative rotation.
2. A panel support assembly according to claim 1 wherein said recess is arcuate in shape, partially surrounding said a least one panel receiving member, and said panel receiving member has an external shape that is substantially cylindrical.
3. A panel support assembly according to claim 1 or claim 2 wherein said channel is substantially U-shaped.
4. A panel support assembly according to any of claims 1 to 3 having two said elongate arcuate recesses and two corresponding said panel receiving members wherein said post is symmetrical in cross-section about a plane through its longitudinal axis.
5. A panel support assembly according to claim 4 wherein said post is hollow and further comprises a web joining the walls of said arcuate recesses.
6. A panel fixing system comprising at least two spaced apart assemblies according to any one of the preceding claims angularly positioned about their longitudinal axes so that pairs of said panel receiving members face each other such that a panel is receivable between them.
7. A panel fixing system according to the preceding claim wherein said internal channels are rotatable through at least 80 degrees before their openings are partially obscured by the walls of said arcuate recesses.





8

8. A panel fixing system for fixing panels between at least a pair of supports comprising:

a pair of posts;

at least one recess in each post; and

at least one panel receiving member per said post located within said recess and comprising an elongate rod-like member having a panel receiving channel along at least a portion of its length;

characterised in that said at least one recess and said at least one panel receiving member are mutually shaped so as to allow relative rotation.

9. A panel fixing system according to claim 8 wherein said recess is arcuate in shape, partially surrounding said at least one panel receiving member, and said panel receiving member has an external shape that is substantially cylindrical.

10. A panel fixing system according to claim 8 or claim 9 wherein said channel is substantially U-shaped.

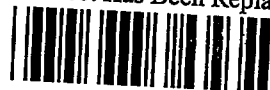
11. A panel fixing system according to any one of claims 8 to 10 wherein said posts are symmetrical in cross-section about a plane through its longitudinal axis.

12. A panel fixing system according to any one of claims 8 to 11 wherein said posts are hollow and each further comprise a web joining the walls of their said arcuate recesses.

13. A panel fixing system according to any one of claims 8 to 12 wherein said posts are angularly positioned about their longitudinal axes so that pair of said panel receiving members face each other such that a panel is receivable between them.

14. A panel fixing system according to the preceding claim wherein said internal channels are rotatable through at least 80 degrees before their openings are partially obscured by the boundaries of said arcuate recesses.

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15. A panel support assembly substantially as hereinbefore described with reference to and as illustrated in Fig. 1.

16. A panel fixing system substantially as hereinbefore described with reference to and as illustrated in Figs. 2 and 3.

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