

LOUVRE WINDOWS

This invention relates to an adjustable louvre window.

Many different constructions of adjustable louvre windows are known. These windows generally include a plurality of shutter or panel elements which are positioned
5 between a pair of parallel opposing frame members to be pivotally moveable therebetween. The shutter or panel elements are normally coupled at each end to a mounting member which is pivotally mounted by each associated frame member. A control bar or bars normally couple the individual
10 mounting members of each frame so that controlled pivotal movement of each shutter or panel elements can be achieved. An operating handle is usually provided to permit the user of the window to move the control bars so that the shutter or panel elements can be adjusted between opened and closed
15 positions.

The louvre windows are normally composed of a large number of individual components which lead to a high manufactured cost as not only do all the components need to be manufactured but the time and effort required to assemble
20 the window represents a high labour content which is significant part of the end cost of the product. In addition to adding to the costs the large number of components can lead to unreliability of the window due to fastenings etc. becoming loose, breaking or like failures due to corrosion or operating wear and tear.

The object of the present invention is to provide an adjustable louvre window which is of a simple but effective construction and is thus straight forward and economic to manufacture.

5 In its broadest form the invention provides an adjustable louvre window comprising a pair of parallel oppositely disposed frame members, two or more panel or shutter elements located between said frame members, a mounting member fitted to each end of each panel or shutter element, a boss on each
10 mounting member being rotatably located within an opening in the associated frame member, retaining means being provided to substantially prevent axial movement of said boss in said opening except at a predetermined angular disposition of the mounting member relative to said associated frame member, said
15 angular disposition being one which the mounting member does not attain during normal opening and closing of the window, the said bosses of the mounting members associated with each respective frame member being pivotally coupled by a pair of control bars, each boss having a pair of spigots each of which
20 is pivotally press fitted into an opening in a control bar, said control bars being prevented from detaching from said spigots by locating means except when said mounting members are in said predetermined angular disposition.

According to one preferred embodiment of the invention
25 the retaining means can be provided by at least one projection associated with said boss, said projection engaging with the frame member on the side thereof which is opposite that on which the mounting member is located. Axial movement of the boss is permitted by aligning the or one projection with a

recess in said opening to permit passage of the projection therethrough. In a preferred form the boss is of circular cross section and has a pair of diametrically disposed projections. The opening is circular and has one recess in
5 the wall thereof, said recess being of a shape and size which is complementary to the said one of the projections.

Pivotal movement of the mounting members is effected by the control bars which couple the individual mounting members of a frame together. In the preferred form of the invention
10 parallel control bars are located within the confines of the frame member. The pair of spigots on each boss are located on a line which is diametric to the rotational axis of said boss. The spigots are so positioned that the control bars are at their point of closest approach to one another when the
15 mounting member is at ~~pr-near~~ the aforesaid angular disposition where axial movement of the boss within the opening is permitted.

Accordingly an adjustable louvre window is provided wherein mounting members and control bars can be assembled on
20 the frame member without the need for any separate fastening elements. The louvre window thus incorporates a minimum of components and is straight forward and economic to manufacture and assemble.

In the following more detailed description of the
25 invention according to one preferred form reference will be made to the accompanying drawings in which:-

Figure 1 is a transverse cross section taken through one frame member of the louvre window,

Figure 2 is a top plan view of the one of the mounting
30 members for the panel shutter elements,

Figure 3 is an underside plan view of the mounting member is Figure 2,

Figure 4 is a face view of a modified form of frame member,

5 Figure 5 is a cross section on line A-A of Figure 4, and

Figure 6 is an elevational view of a form of operating lever for effecting control movement of the control bars.

10 The adjustable louvre window according to the invention can be provided with a plurality of adjustable shutter or panel elements as may be required for the particular application of the window. In the accompanying drawings the shutter or panel elements are not illustrated but these are of normal construction usually formed of transparent or opaque glass.
15 Referring to Figure 1 of the drawings a mounting member 10 for the shutter or panel element is shown mounted on a frame 11.

20 The frame 11 is generally of channel cross section and can be constructed of any suitable material, for example a metal alloy with a suitable anti-corrosive coating such as being provided by anodisation or powder coating. Throughout the length of the base flange 12 of the frame 11 are openings 13 through which can be passed fastenings for mounting the frame 11 to a window surround. These openings 13 are so
25 located that when the window is shut the openings are covered by the mounting members 10.

30 As shown in Figure 1 the side flanges 14 of the frame 11 are each provided with an inwardly projecting flange 15 at the free end thereof. These flanges 15 permit the frame 11 to be mounted on either timber window surrounds or metal window surrounds. The frame 11 can thus be face, back or front mounted on the window surround depending on the type, shape and configuration of the particular window surround.

The mounting members 10 are preferably formed of a plastics material such as a resilient synthetic plastics which has a low co-effecient of friction. Accordingly the mounting member 10 can be moulded in one piece thus resulting in ease of manufacture as well as a mounting member which has a pleasing and aesthetically favourable appearance. The mounting member incorporates a channel 16 which opens at the ends thereof into rebated portions 17. The shutter or panel elements can thus be pushed directly into groove 16 or slid into the groove via the open end thereof. The rebates 17 permit the overlapping of the shutter or panel elements when the louvre window is in the closed position.

The groove 16 is formed by a pair of parallel flanges 18 which project upwardly from the base portion 19 of the mounting member 10. These flanges 18 curve outwardly from their intersection with the base 19 to form what can be termed wiper blades or edges 20.

Projecting downwardly from the base 19 of the mounting member 10 is a circular boss 21 which preferably is of a diameter slightly greater than the transverse width between the wiper edges 20. The diameter of this boss 21 is substantially the same or slightly less than the diameter of openings 22 in the base flange 12 of frame 11. The boss 21 can thus be inserted in opening 22 and is rotatable therein.

The retaining means is provided by a pair of projecting portions 23 which are set diametrically across the end of boss 21. To permit the boss with its projecting portions 23 to be inserted into opening 22, the opening 22 is provided with one recess 24 which is of a size and shape complementary to one of the projecting portions 23. In an alternative embodiment to the frame 11, a pair of recesses 24 diametrically opposed can be provided. With the projecting portion 23 aligned with recess 24 the boss can be inserted into opening 22 and then by rotating the mounting member 10 the boss 21 is

substantially restrained from axial movement within the opening 22 by the projections 23 engaging on the underside of the base flange 12 as shown in Figure 1. Accordingly only at a particular angular disposition of the mounting member 10 relative to the frame 11 can boss 21 be axially moved in relation to the frame 11 to permit the mounting member 10 to be removed therefrom.

The free end of boss 21 is also provided with a pair of spigots 25 which as can be seen in Figure 3 are diametrically disposed in relation to the axis of rotation of the boss 21. These spigots 25 are provided one each side of an elongate diametrically extending portion 26 the ends of which form the projections 23.

The control bars 27 are of L shape in cross section and have openings throughout the length of one flange, these openings being such as to provide a push fit over the spigots 25. The other flange 27a extends parallel to the side flange 14 of frame 11. Extending in from each said side flange 14 is a fixed ledge 28.

As the mounting member 10 is pivoted about the rotational axis of boss 21 the control bars 27 move transversely with the closest point of approach to each other being when the mounting member 10 is at an angular disposition to the frame 11 as shown in Figure 1. This angular disposition is the position of the mounting member 10 when axial movement of the boss 21 within opening 22 is permitted. As can be seen from Figure 1 the ends of flanges 27a when the control bars 27 are in such position clear the terminal edges of the respective fixed ledges 28. Accordingly in such position the control bars 27 can be removed from spigots 25 and the boss 21 thus withdrawn from opening 22. This disposition of the mounting member 10 relative to the frame 11 is, however, a disposition which the mounting member 10 does not take up during normal opening and closing of the louvre window.

During normal opening and closing operations the control

bars 27 are thus in a position where the terminal edges of flanges 27a are located behind the fixed ledges 28 to be slidably engagable therewith and thus they cannot be removed from spigots 25.

- 5 The control bars 27 are controlled in their transverse movement within frame 11 by a control handle 30 (see Figure 6). The control handle 30 is of generally L shape with a handle portion 31 which is located outside frame 11 and a portion 32 which is located through a slot in the side
- 10 flange 14 of frame 11 so as to be located therewithin. The control bars 27 are pivotally coupled to the control member 30 by a pivot point 34 on portion 32 and a pivot point 35 on an arm 36 which is pivotally coupled to portion 32 at pivots 33. The control lever 30 is shown in the
- 15 position it takes up when the louvre window is fully closed and the control bars 27 are in the illustrated positions. As the control lever 30 is pivotted in the direction indicated by the arrow the pivot points 34 and 35 move about pivot point 33 thus moving the control arms 27 to open the window.
- 20 The window is locked closed by an over centre action provided by the non-alignment of pivot points 33, 34 and 35 as can be seen from Figure 6.

The louvre window is thus composed of a series of shutter or panel elements, mounting members 10, two frame

25 members 11, control members 27 and the control lever 30. None of the components need to be fastened together by fastenings as the construction as previously detailed allows for the mounting members 10 to be merely attached to the frame member by insertion of the bosses 21 in the respective

30 openings 20 following which the control bars 27 are placed over the spigots 25. The interaction of the projections 23 with the underside of the base flange 12 of frame member 11 plus the ends of the projecting flanges of the control bars 27 locating behind fixed ledges 28 ensure that the mounting

35 members 10 and control bars 27 do not become uncoupled

during normal opening and closing of the window. The window thus employs the minimum of componentary and has no fastenings which means that the window is particularly suitable for selling in kit set form so that the end user can assemble the window prior to mounting in the window opening.

One particular advantage with the preferred form of the mounting member is that the glass channel 16 can be of a width which is suitable for accepting the normal minimum glass thickness. Such a glass thickness is usually 4mm however the resilient nature of the flanges 18 permits 5 and 6mm glass to also be inserted. The flexible wiper edges 20 of the mounting member 10 provide a degree of sealing between the mounting member 10 and frame 11 and this sealing is effectively increased when thicker glass is inserted as the deforming or flexing of the flanges 18 by the thicker glass results in a tighter engagement of wiper edges 20 with the surface of the base flange 12.

Sealing between the mounting member 10 and frame 11 can be enhanced by having the surface of the base flange 12 profiled in the form shown in Figures 4 and 5. The surface of the base flange 12 is provided with a raised portion extending from approximately the openings 13 to the flange 14 which in use is located on the inside of the window. This raised portion 37 also extends around the forward portion of opening 22 as indicated at 37a. Accordingly if any moisture does pass under the seal provided by the wiper edge 20 of the outer surface of the mounting member it comes up against the barrier formed by raised profiles 37 and 37a which assists in preventing the moisture from entering into the building. This moisture is then wiped away by the wiper edges 20 as the window is opened. The construction thus is contrary to normal louvre window constructions where efforts are made to seal at the outer face of the window so that if moisture does enter under that seal it has direct access into the interior of the building. With the present construc-

tion any moisture which does pass under the seal is trapped by the raised portion 37 and 37a as previously described and is removed during opening of the window.

5 The louvre window according to the invention is thus of a simple and economic construction which can be readily assembled without the need for fixtures to hold the mounting members and control bars in their operating relationship. The number of components required to construct the window are thus far less than known louvre window constructions.

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CLAIMS

1. An adjustable louvre window comprising a pair of parallel oppositely disposed frame members, two or more panel or shutter elements located between said frame member, a mounting member fitted to each end of each
5 panel or shutter element, a boss on each mounting member being rotatably located within an opening in the associated frame member, retaining means being provided to substantially prevent axial movement of said boss in said opening except at a predetermined angular disposition of the
10 mounting member relative to said associated frame member, said angular disposition being one which the mounting member does not attain during normal opening and closing of the window, the said bosses of the mounting members associated with each respective frame member being pivotally
15 coupled by a pair of control bars, each boss having a pair of spigots each of which is pivotally press fitted into an opening in a control bar, said control bars being prevented from detaching from said spigots by locating means except when said mounting members are
20 in said predetermined angular disposition.

2. The window as claimed in claim 1 wherein the retaining means is at least one radial projection associated with said boss which engages with the side of the frame member opposite to that on which the mounting member is located,
25 there being a peripheral recess in the opening to permit passage therethrough of said projection when the mounting member is in said predetermined angular disposition.



3. The window as claimed in claim 2 wherein the boss is of circular configuration with a pair of diametrically opposed radial projections, the recess in said opening being complementary in size and shape to one of said radial
5 projections.

4. The window as claimed in any one of claims 1 to 3 wherein said locating means is a pair of fixed flanges in said frame member, each flange being slidably engagable with a
respective control bar.

10 5. The window as claimed in claim 4 wherein each control bar is of substantially L shaped cross section, one flange of which has said openings into which said spigots are engaged, the openings being located in a spaced array along said bar, the edge of said other flange of said L shape being slidably
15 engagable on said locating flange, the locating flange being spaced away from but parallel to the portion of said frame member in which the boss accepting openings are formed.

6. The window as claimed in any one of claims 1 to 5 wherein each said mounting member is formed as an integral unit from a
20 synthetic plastics material and has an elongate groove into which an end of a said panel or shutter member is located, each said mounting member further having a pair of wiper surfaces which extend parallel to said groove and which engage with the surface of the frame member on which said mounting
25 members are located.

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7. The window as claimed in claim 6 wherein the said frame member surface has a raised area which surrounds each boss opening therein and extends longitudinally along said frame member surface between said boss openings to thereby form a moisture barrier to, in use of the window, provide a barrier to any moisture passing between the mounting members when in the closed position and said frame member surface.

8. The window as claimed in claim 4 or 5 wherein the pair of spigots projecting from the boss of each mounting member are located on a line which is diametric to the rotational axis of said boss and disposed relative to a pair of said radial projections such that the control bars are at their point of closest approach to one another when the mounting member is at the said predetermined angular disposition.

9. The window as claimed in any one of claims 6 to 8 further including actuating means for movement of the control bars coupling the mounting members of one frame member.

10. The window as claimed in claim 4 wherein each frame member, is of substantially channel shape and a said fixed flange extends inwardly from the surface of each side flange of the channel shape, each side flange having a further inwardly extending flange at or adjacent the free end thereof.

11. A louvre window substantially as herein described with reference to the accompanying drawings.
