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A LOUVRE BLADE**FIELD OF THE INVENTION**

This invention is directed to a louvre blade and is particularly directed to a louvre blade which has a shaped end edge which allows adjacent louvre blades to overlap each other thereby providing weatherproofing but also providing a flush front face to the blades.

BACKGROUND ART

Conventional louvre assemblies consist of a number of louvre blades typically made from glass but which can also be made from plastic, metal, wood, and the like. The blades are usually rectangular when viewed in plan and have longitudinal top and bottom side edges and opposed end edges. The opposed end edges slot into louvre clips which are formed of metal or plastic. The louvre clips are pivotally attached to a vertical louvre channel. Inside the channel is provided a link mechanism or other type of mechanism which is attached to an external handle. The external handle can be pulled, pushed or turned to pivot the louvre clips and thereby to open or close the louvre blades. This arrangement is entirely conventional and an example of such a prior art arrangement is illustrated in Figure 1.

In order to prevent rain, dust and cold or hot air from passing between adjacent louvres, the louvres blades overlap each other when closed. The overlapping configuration means that the front face of the louvres are not flush with each other but instead have a stepped arrangement.

Timber shutters are known which have wooden louvre blades which do not overlap with each other but, when pivoted to the closed position, sit above each other with the lower longitudinal edge of one louvre blade being closely spaced from the upper longitudinal edge of an adjacent louvre blade. While this arrangement does provide a flush finish of sorts, it is not possible to properly seal the louvre blades against the weather. These timber shutters are therefore mainly used for internal partitions, or when used as external partitions, a conventional glass window is provided behind the timber shutter.

OBJECT OF THE INVENTION

The present invention is directed to a louvre blade having a particular configuration which allows it to (i) overlap with adjacent louvre blades to provide a good weather seal, and (ii) provide a flush front finish to the louvres thereby doing away with the stepped configuration.

It is an object of the invention to provide a louvre blade which may substantially overcome the abovementioned disadvantages or provide the public with a useful or commercial choice.

In one form, the invention resides in a pivotable louvre blade which can overlap with an adjacent louvre blade but still provide a flush front face between the blades, the blade having opposed longitudinal side edges, and opposed end edges, the end edges, in use being attached to pivoting louvre clips, each end edge having an extending rib which has a thickness less than the edge of the blade, the rib being substantially straight and extending from adjacent an upper end edge of the blade to a lower end edge of the blade, the rib, while being substantially straight, also extending at an angle across the edge of the blade, for instance, from the top left end edge of the blade to the bottom right edge of the blade.

In another form, the invention resides in the blade as described above wherein the opposed longitudinal edges of the blade each have a recess extending along the edge such that adjacent blades can overlap while providing a flush front face.

By having the particularly configured end edges (that is the rib which extends at an angle across the edge of the blade from the upper end to the lower end), the louvre blade can be attached to a conventional louvre clip and can adopt a flush front finish with adjacent louvre blades.

The louvre blade may have a conventional type shape which can be rectangular when viewed in plan. The blade can be of various lengths and widths. For instance, the louvre blade may be between 40 to 100cm long and have a width of between 10 to 30cm. Of course, these dimensions are not meant to be limiting to the invention. The thickness of the louvre blade will vary depending inter alia on the material the louvre blade is made of. For

instance, if the louvre blade is made of plastic or metal, the blade can be fairly thin. On the other hand, if the blade is made of wood or glass, it is usually thicker in order to provide the strength.

As the end edges of the blades and preferably the top and lower longitudinal edges of the blades are specially shaped, the blade is usually formed from a material which can be quite easily shaped. For this reason, the louvre blade according to the invention may be formed from materials other than glass, as glass is quite difficult to grind or to shape. Also, the ribs on the end edges of the louvre need to be quite thin, and if formed from ordinary glass, these ribs may be prone to snapping off the remainder of the louvre blade. However, the louvre blade may be formed from toughened glass or glass composites or other types of glass-like materials which may be shapable and may be strong enough to allow the end edges and the upper and lower longitudinal edges to be shaped.

The blade has opposed longitudinal side edges which typically comprise an upper longitudinal side edge and a lower longitudinal side edge and these edges, in use, are positioned horizontally. These edges are the edges which, in a conventional louvre blade, will overlap with an upper or lower adjacent louvre blade.

The louvre blade has end edges which are the edges which attach to the pivoting louvre clips.

Each end edge of the louvre blade has an extending rib which has a thickness less than the thickness of the remainder of the louvre blade. Figure 2 illustrates an embodiment of the invention illustrating such an extending rib. The rib has a thickness which allows it to fit within a louvre clip. In one form, the louvre clips are of conventional design and the thickness of the rib is therefore such to allow it to snugly fit within the louvre clip. Alternatively, the louvre clip can be made of non-conventional design in which case the rib can have a thickness which is non-conventional to fit into the louvre clip.

The rib is typically substantially rectangular when viewed in plan and also when viewed in section, as this configuration is suitable for insertion

into a louvre clip. The width of the rib (i.e. the distance it extends from the edge of the blade) can vary but is usually about the same as the depth of the louvre clip channel such that the louvre clip accommodates substantially all of the rib.

5 The rib is substantially straight, this being because the louvre clip channel is conventionally also substantially straight. However, it may be possible to have the rib curved or kinked or otherwise profiled but this may require the louvre clip to have a similar profile to accept the rib into the louvre clip channel.

10 The rib may be an integral extension of the end edge of the blade; that is the rib may be formed by machining or otherwise moulding the end edge of the blade. Alternatively, the rib may be formed separately and may be attached to the end edge of the blade by any suitable attachment means such as adhesive, fasteners, and the like.

15 The rib extends at an angle across the edge of the blade and this is illustrated in Figure 3. That is, the rib can extend, for instance from the top left end edge of the blade to the bottom right edge of the blade (or alternatively from the top right end edge of the blade to the bottom left end edge of the blade).

20 It is preferred that the rib extends substantially along the end edge of the blade, that is from the top of the end edge to the bottom of the end edge of the blade in order to provide a good secure connection to the louvre clip. However, the blade need not extend entirely along the end edge. For instance, if the louvre was made of steel or other strong material, the rib
25 may need to extend only across a portion of the end edge while still allowing the blade to be firmly attached to the louvre clip. The rib need not be continuous and may, for instance, comprise a number of projections which extend along the end edge of the blade and where the projections are aligned to form an angle across the edge of the blade.

30 In an inverse situation, the invention envisages situations where the louvre clip, instead of being provided with a channel, has a rib portion, or a plurality of projections, and the end edge of the louvre blade, instead of

having the rib, may be provided with a recess or a number of spaced recesses which mate with the rib or projections on the louvre clip. In this arrangement, the recess or spaced recesses on the end edge of the blade is (are) angled across the end edge such that the blades can move to a substantially flush finish. In practice however, it is envisaged that it would be more convenient for the louvre clips to be more or less of conventional design and for the louvre blades to be provided with the ribs as described above.

In one form of the invention, the top and the bottom longitudinal edges of the blade have a recess extending along the edge or slightly below the edge such that the adjacent blades can overlap while providing a flush front finish. Figure 3 illustrates an embodiment of this and shows an upper and lower blade which can overlap while still providing a flush front finish. Suitably, the upper longitudinal edge of the blade is formed with the recess in a front face while the lower longitudinal edge is formed with a recess in the rear face. The recesses suitably extend entirely along the blade from one end edge to the other end edge. The recesses may be formed with a terminal lip portion which facilitates weatherproofing between the blades. One of the recesses may be provided with a slot for a sealing or weatherproofing member again to facilitate proper sealing between adjacent blades.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention will be described with reference to the following drawings in which

Figure 1 illustrates a conventional prior art louvre window assembly which is representative of the many types of louvre window assemblies which are available in the marketplace.

Figure 2 is a section view of one end edge of the louvre blade showing the extending rib which has a thickness less than the remainder of the blade.

Figure 3 is an end view of two louvre blades which illustrate the rib extending at an angle across the edge of the blade, and also illustrates the recesses on the longitudinal edges of the blades and also illustrates how two

louvre blades can overlap while still providing a flush front finish.

BEST MODE

Referring to the drawings and initially to the conventional louvre assembly illustrated in Figure 1, the louvre assembly consists of a number of
5 louvre blades 10 which are rectangular and have a length, width and a thickness to suit. Each louvre blade has upper and lower opposed longitudinal side edges 11, 12 and opposed end edges 13, 14. In Figure 1, one end edge 14 is fitted to a louvre clip 15 which has a louvre clip channel (clearly illustrated in Figure 1) in which the end edge 14 of blade 10 is fitted.
10 Clips 15 are all pivotally attached to a vertical louvre channel 16. Inside channel 16 is a mechanism to allow all the clips to pivot (and thereby all the louvre blades to pivot) upon manipulation of a handle (not illustrated).

The louvre blades 10 overlap each other, as illustrated in Figure 1, and when in the closed position, the blades are not quite vertical and the
15 lower longitudinal side edge of one blade overlaps with the upper longitudinal side edge of an immediately below blade. While this provides a degree of weatherproofing, the front face of the louvre assembly is not flush and instead has a step-like configuration.

In contrast, the specially designed louvre blade according to the
20 invention can provide overlap between adjacent blades while providing a flush front finish.

Figures 2 and 3 illustrate the louvre blade according to an embodiment of the invention.

Referring initially to Figure 3, there is illustrated two louvre
25 blades being an upper louvre blade 17 and a lower louvre blade 18. Figure 3 shows the two louvre blades in end elevation. The louvre blades have a front face 19 which faces the exterior of the window and a rear face 20 which faces the interior of the window. Each louvre blade has upper and lower opposed longitudinal side edges 21, 22 and opposed end edges 23 (only one end
30 edge being illustrated in Figure 3).

Extending from end edge 23 is a longitudinal rib 24. Rib 24 is rectangular when viewed in plan and in section and has a thickness which is

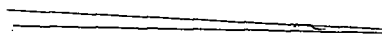
less than half of the thickness of the remainder of the louvre blade, this being illustrated in Figure 2. Rib 24 extends into the louvre clip channel (an example being 15 shown in Figure 1).

5 Better illustrated in Figure 3, rib 24 is substantially straight but extends at an angle across the end edge 23 of the louvre blade. For instance, in Figure 3, rib 24 extends from the top left end edge 25 to the bottom right end edge 26 of the louvre blade.

10 Upper longitudinal side edge 21 and lower longitudinal side edge 22 are formed with longitudinal recesses 27, 28. Recess 27 extends adjacent the longitudinal upper edge 21 and on the front face 19 of the louvre while recess 28 extends adjacent the lower longitudinal edge but on the rear face 20 of the blade. Recesses 27, 28 allow the adjacent louvre blades 17, 18 to overlap each other as illustrated in Figure 3 while still providing a flush front finish. The angled ribs 24 allow the blades to be substantially vertical,
15 as illustrated in Figure 3, while still being attached to a conventional louvre clip. Lower recess 28 can be provided with a slot 29 in which a weatherproof spline can be fitted to further seal the two louvre blades together.

It can be seen that with the particular configuration of the end edges of the louvre blades, the blades can now adopt a substantially vertical
20 closed position and have a flush front face 19 relative to each other but still enjoying an overlapping configuration.

It should be appreciated that various other changes and modifications can be made to the embodiment described without departing from the spirit and scope of the invention as claimed.



CLAIMS:

1. A pivotable louvre blade which can overlap with an adjacent louvre blade but still provide a flush front face between the blades, the blade having opposed longitudinal side edges, and opposed end edges, the end edges, in use being attached to pivoting louvre clips, each end edge having an extending rib which has a thickness less than the edge of the blade, the rib being substantially straight and extending from adjacent an upper end edge of the blade to a lower end edge of the blade, the rib, while being substantially straight, also extending at an angle across the edge of the blade, for instance, from the top left end edge of the blade to the bottom right edge of the blade.
2. The blade of claim 1, wherein the opposed longitudinal edges of the blade each have a recess extending along the edge such that adjacent blades can overlap while providing a flush front face.
3. The blade of claim 1 or claim 2, which has a length of between 40 to 100cm, a width of between 10 to 30cm, and a thickness of between 5 to 20mm.
4. The blade of any one of the preceding claims, wherein substantially rectangular when viewed in plan and also when viewed in section.
5. The blade of any one of the preceding claims, wherein the rib is an integral extension of the end edge of the blade.
6. The blade of any one of the preceding claims, wherein the rib extends substantially along the end edge of the blade.
7. The blade of any one of claims 2-6, wherein the upper longitudinal edge of the blade is formed with the recess in a front face while the lower longitudinal edge is formed with a recess in the rear face.
8. The blade of any one claims 2-7, wherein the recesses extend entirely along the blade from one end edge to the other end edge.
9. The blade of any one of claims 2-8, wherein the recesses are formed with a terminal lip portion which facilitates weatherproofing between the blades.



10. The blade of claim 9, wherein one of the recesses is provided with a slot for a sealing or weatherproofing member to facilitate proper sealing between adjacent blades.
11. A pivotable louvre blade adapted to overlap with an adjacent
5 louvre blade to provide a flush front face between the blades, the blade having opposed longitudinal side edges, and opposed end edges, the end edges having an extending rib which has a thickness less than the edge of the blade, the rib extending at least partially from adjacent an upper end edge of the blade to a lower end edge of the blade, and also extending
10 across the edge of the blade.
12. The blade of claim 11, wherein the rib comprises a plurality of projections which extend along the end edge of the blade, the projections being aligned to form an angle across the edge of the blade.
13. A pivotable louvre blade adapted to overlap with an adjacent
15 louvre blade to provide a flush front face between the blades, the blade having opposed longitudinal side edges, and opposed end edges, the end edges having an extending recess which extends at least partially from adjacent an upper end edge of the blade to a lower end edge of the blade, and also extending across the edge of the blade.
- 20 14. The blade of claim 13, wherein the recess comprises a plurality of recesses which extend along the end edge of the blade, the recesses being aligned to form an angle across the edge of the blade.
15. A window or door containing a louvre blade as claimed in any one of the previous claims.
- 25 16. A blade substantially as hereinbefore described and with reference to the drawings.



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