

PATENT SPECIFICATION

DRAWINGS ATTACHED

Inventor: ARTHUR NORTON AMERY

833,410

Date of Application and filing Complete Specification: May 5, 1958.

No. 14344/58.

Complete Specification Published: April 21, 1960.



Index at acceptance:—Classes 20(3), E2, J(1T:2D:2J:2N), K, M1A; and 137, A2C2.

International Classification:—E04f. E05f. F24f.

COMPLETE SPECIFICATION

Improvements in Louvres

5 We, THE CRITALL MANUFACTURING COMPANY LIMITED, a Company organised under the laws of Great Britain, of Manor Works, Braintree, Essex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to louvres, which form either windows or shutters, and is concerned with louvres of the type in which a plurality of parallel louvres in the form of blades or slats, usually consisting of glass or other transparent material in the case of windows, and metal or other suitable non-transparent material in the case of shutters, are each pivotally supported so as to be swingable about a substantially horizontal axis, in a pair of louvre-carrying members or jambs adapted for fixing to the sides of a window or other opening in a building for adjustably opening or closing said opening in a vertical plane, means being provided for moving the louvres in unison to any position of adjustment.

25 One of the difficulties experienced in the design of louvre windows or shutters of this type is the provision of efficient weather-proofing means, whereby severe weather, and particularly rain, is prevented from entering the building by passing between the ends of the louvres and the jamb members, in which the louvres are pivotally supported, through the necessary clearance which must be provided at the ends of the louvres to permit of relative free movement between the louvres and the jamb members, whilst still preserving a simple construction, and with due regard to aesthetic considerations.

40 It is an object of the invention to provide a louvre window or shutter of the aforesaid type having simple and efficient weather-proofing means.

45 This object is achieved, according to the present invention by the provision of a louvre-carrying member, for use in a louvre window

or shutter of the type referred to, and adapted to be secured to the side of a window or other opening, said louvre-carrying member comprising a rigid bar formed to provide bearings for a number of pivot pins each of which carries a louvre clip for mounting a louvre, the bar having a continuous flange along its length extending substantially perpendicularly from one longitudinal edge to provide a weather-strip for engagement on alternate sides by each louvre clip, and a drainage channel on the inside of the flange adjacent the bar.

60 Preferably, the drainage channel is a groove formed between the weather-strip flange and the longitudinal edge of the bar.

65 Preferably, a louvre-carrying member according to claim 2, wherein the bar is flanged on both its longitudinal edges so as to be of substantially channel shape, and the weather-strip flange is carried by one of said channel flanges to extend outwardly from, and at right angles to, the base of the channel in the opposite direction to said channel flange, with the drainage groove disposed between the weather-strip and the channel flange.

70 The weather-strip flange may be partly interrupted at the region of each pivot pin bearing so as to provide a clearance for swinging movement of the louvre clip. Embossing may be provided around each pivot pin bearing so as to provide a weather-break to prevent water penetration inwardly beyond the bearing area.

80 Preferably, the centre of each pivot pin bearing is offset from the longitudinal centre line of the bar, the offset being in a direction towards the weather-strip.

85 The louvre-carrying member may include an operating rod operatively and pivotally connected to the pivot pin of each louvre clip by means of a connecting link whereby longitudinal movement of the operating rod effects simultaneous pivotal movement of each louvre clip.

90 The louvre clip for each louvre carried by

[Price 3s. 6d.]

the pivot pin rotatably mounted in each bearing in the louvre-carrying member is preferably formed with slotted projecting studs for receiving a spring louvre-retaining member.

5 It is to be understood that in each louvre window or shutter there will generally be provided one louvre-carrying member, in accordance with the invention, arranged as an operating unit, (i.e. a louvre-carrying member including the operating rod and associated linkage for effecting adjustable movement of the louvres) and one louvre-carrying member, in accordance with the invention, arranged as a free unit, (i.e. a louvre-carrying member without the operating rod and associated linkage).

10 A preferred embodiment of the invention as applied to a louvre window is illustrated, by way of example, in the accompanying diagrammatic drawings in which:—

20 Fig. 1 is a rear perspective view of a part of a louvre-carrying member constructed in accordance with the invention, showing the operating rod and associated linkage for effecting adjustable movement of the louvres;

25 Fig. 2 is a front perspective view, on a slightly larger scale than Fig. 1, of a part of a louvre-carrying member in accordance with the invention as seen from the outside of a window, and

30 Fig. 3 is a front perspective view, on a slightly larger scale than Fig. 2, of a part of the louvre-carrying member shown in Fig. 2 as seen from the inside of a window, and including part of a louvre.

35 Referring to the drawings, a louvre-carrying member, generally indicated at 1, and comprising a rigid metallic bar 2, is provided with perpendicular flanges 3 and 4 respectively on its longitudinal edges to form a substantial channel shape. The bar is formed with holes 5, only one of which is shown in the drawings, at intervals throughout its length, the holes being offset from the longitudinal centre line of the bar 2 in a direction towards the flange 3 as is clearly shown in Fig. 2. Each hole provides a bearing for receiving a bearing portion 6 of a pivot pin 7, only one of each being shown in dotted lines in Fig. 3, and two pivot pins only being shown in Fig. 1, each of which pivot pins carries, and forms the pivotal support for, a louvre clip generally indicated at 8, only one of which clips is shown in the drawings. The louvre clip 8 is adapted for mounting a louvre 9 of glass or other suitable transparent material.

40 The flange 3 is turned back on itself, as shown at 10, to extend at right angles to, and beyond, the base of the channel so as to provide a projecting weather-strip portion 11. The turned back portion of flange 3 is joggled, as shown at 12, to provide a narrow longitudinally extending groove 13 between the weather-strip portion 11 and the outer side of flange 3 and forming a drainage channel

for conveying water away from the region of each pivot pin bearing.

The weather-strip portion 11 is partly interrupted at the region of each pivot pin bearing, as shown at 14, to provide a clearance so as to allow for swinging movement of the respective louvre clip. The weather-strip portion 11 situated immediately above each pivot pin bearing is engageable in weather-tight sealing relationship, on its inner side (i.e. the side facing the bar 2), by a surface 15 on the upper half of each louvre clip, the louvre clip having a flange 16 on its lower half engageable, in weather-tight sealing relationship, with the outer side of the weather-strip portion 11 situated immediately below each pivot pin bearing.

Semi-circular embossing 17 is formed around each bearing hole 5 on the side of the bar 2 which is opposite to that from which the flanges 3 and 4 project, said embossing being concentric with its associated hole and of such a diameter as to surround a substantially circular base portion 18 of the louvre clip 8, when said louvre clip is mounted in position on the louvre-carrying member as shown, which base portion 18 is rotatable within the embossing. The embossing acts as a baffle to prevent water, which may have entered the bearing area through the interrupted portion 14 of the weather-strip portion 11, from entering the building. The embossing also acts to prevent water which, when the louvre is left open, may run down the embossed side of the bar 2, from entering the bearings.

100 The bar 2 with its flanges 3 and 4, projecting weather-strip portion 11 and embossing 17, may be made, in a unit, as a cold-rolled section or as a pressing, or in any other way considered suitable.

105 When the louvre-carrying member is to be used as a free unit, as heretofore described, the end of each pivot pin 7 is spun over as a rivet onto a washer (not shown) on the pin so as to mount securely and rotatably the bearing portion 6 in the bearing hole 5. However, when the louvre-carrying member is to be used as an operating unit, as heretofore described, the end of each pivot pin 7 is squared as shown at 19 in Fig. 1, to receive a square aperture formed in a connecting link 20 so as to mount the connecting link securely on the pivot pin. The squared end of each pivot pin 7 is spun over as a rivet to secure the link thereon. Each connecting link 20 is pivotally connected to a longitudinally arranged operating rod 21 mounted for longitudinal movement in the channel of the louvre-carrying member.

125 The operating rod 21 is pivotally connected at 22 to an operating lever 23 which is connected at its end to a link 24 pivotally mounted on the bar 2 in spaced relationship therewith by an angle bracket 25 secured to the bar 2 at 26 by any suitable means, such as

welding. The operating lever 23 is movable in a slot 27, formed partly in bar 2 and partly in its projecting flange 4 as shown, and has an operating handle 28. Movement of operating lever 23 in its slot 25 causes, through link 22, a longitudinal movement of operating rod 21 which effects simultaneous pivotal movement of each louvre clip 8 about its bearing in bar 2 so as to permit of an approximate 90° movement of the louvre clip with respect to the louvre-carrying member.

The operating lever 23 and its associated link 24, together with the pivotal connections of the operating lever and link with each other and with the operating rod 21 and bracket 25, form a self-locking overcentre toggle action device for securing the louvres in closed position. Thus, when the operating lever 23 is in the closed position, as shown in Fig. 1, with each louvre clip closed onto the weather-strip portion 11 in weather-tight sealing relationship as described, the pivotal connection of link 24 with lever 23 will have been moved beyond a straight line drawn through pivotal connection 22 and the pivotal connections of link 24 with bracket 25 to an overcentre position, and this provides a self-locking overcentre toggle action.

Referring particularly to Fig. 3, the louvre clip 8 is shown formed on its louvre-carrying side with two slotted studs 29 projecting therefrom for receiving, in the slots, a spring louvre-retaining member 30 which, when in position as shown in Fig. 3, is adapted to press the louvre into engagement with a holding flange 31 provided on the louvre clip 8. The lower edge of the louvre, when in position in the clip as shown, rests on a bar 32 formed on the back of flange 31 at the lower end thereof, and the spring louvre-retaining member 30 has a turned end 33 engageable with the upper edge of the louvre, whereby the louvre is securely held in the louvre clip. It will be appreciated that replacement of the louvre in the clip is very simple and merely entails easing the flexible parts of the spring louvre-retaining member 30 at the turned end 33 away from the louvre so that this can be removed from the louvre clip. When the spring louvre-retaining member 30 is in position in the slots of the projecting studs 29, the top of each stud is spun over to retain permanently the spring member therein.

It will be appreciated that the louvre-carrying member, whilst being shown as of channel shape, may be of any other suitable shape, provided that sufficient clearance is allowed between the surface of said member facing the window frame or opening in the building in which the frame is to be positioned and the said frame or opening, for the positioning of the louvre operating rod and associated linkage. Also, instead of the groove 13 being formed between the weather-strip portion 11 of the turned back flange, it may be

formed in the thickness of the material from which the bar 2 is formed.

WHAT WE CLAIM IS:—

1. A louvre-carrying member, for use in louvres of the type referred to, and adapted to be secured to the side of a window or other opening, said louvre-carrying member comprising a rigid bar formed to provide bearings for a number of pivot pins each of which carries a louvre clip for mounting a louvre, the bar having a continuous flange along its length extending substantially perpendicularly from one longitudinal edge to provide a weather-strip for engagement on alternate sides by each louvre clip, and a drainage channel on the inside of the flange adjacent the bar.

2. A louvre-carrying member according to claim 1, wherein the drainage channel is a groove formed between the weather-strip flange and the longitudinal edge of the bar.

3. A louvre-carrying member according to claim 2, wherein the bar is flanged on both its longitudinal edges so as to be of substantially channel shape, and the weather-strip flange is carried by one of said channel flanges to extend outwardly from, and at right angles to, the base of the channel in the opposite direction to said channel flange, with the drainage groove disposed between the weather-strip and the channel flange.

4. A louvre-carrying member according to claim 1, 2 or 3, wherein the weather-strip flange is partly interrupted at the region of each pivot pin bearing so as to provide a clearance for swinging movement of the louvre clip.

5. A louvre-carrying member according to claim 1, 2, 3 or 4 wherein embossing is provided around each pivot pin bearing so as to provide a weather-break to prevent water penetration inwardly beyond the bearing area.

6. A louvre-carrying member according to any of the preceding claims, wherein the centre of each pivot pin bearing is offset from the longitudinal centre line of the bar.

7. A louvre-carrying member according to claim 6, wherein each pivot pin bearing is offset from the longitudinal centre line of the bar in a direction towards the weather-strip.

8. A louvre-carrying member according to any of the preceding claims including an operating rod operatively and pivotally connected to the pivot pin of each louvre clip by means of a connecting link, whereby longitudinal movement of the operating rod effects simultaneous pivotal movement of each louvre clip.

9. A louvre-carrying member according to claim 8, in which movement of the operating rod is effected by a self-locking overcentre toggle action device.

10. A louvre-carrying member as set forth in any of the preceding claims, in which the louvre clip for each louvre is formed with

welding. The operating lever 23 is movable in a slot 27, formed partly in bar 2 and partly in its projecting flange 4 as shown, and has an operating handle 28. Movement of operating lever 23 in its slot 25 causes, through link 22, a longitudinal movement of operating rod 21 which effects simultaneous pivotal movement of each louvre clip 8 about its bearing in bar 2 so as to permit of an approximate 90° movement of the louvre clip with respect to the louvre-carrying member.

The operating lever 23 and its associated link 24, together with the pivotal connections of the operating lever and link with each other and with the operating rod 21 and bracket 25, form a self-locking overcentre toggle action device for securing the louvres in closed position. Thus, when the operating lever 23 is in the closed position, as shown in Fig. 1, with each louvre clip closed onto the weather-strip portion 11 in weather-tight sealing relationship as described, the pivotal connection of link 24 with lever 23 will have been moved beyond a straight line drawn through pivotal connection 22 and the pivotal connections of link 24 with bracket 25 to an overcentre position, and this provides a self-locking overcentre toggle action.

Referring particularly to Fig. 3, the louvre clip 8 is shown formed on its louvre-carrying side with two slotted studs 29 projecting therefrom for receiving, in the slots, a spring louvre-retaining member 30 which, when in position as shown in Fig. 3, is adapted to press the louvre into engagement with a holding flange 31 provided on the louvre clip 8. The lower edge of the louvre, when in position in the clip as shown, rests on a bar 32 formed on the back of flange 31 at the lower end thereof, and the spring louvre-retaining member 30 has a turned end 33 engageable with the upper edge of the louvre, whereby the louvre is securely held in the louvre clip. It will be appreciated that replacement of the louvre in the clip is very simple and merely entails easing the flexible parts of the spring louvre-retaining member 30 at the turned end 33 away from the louvre so that this can be removed from the louvre clip. When the spring louvre-retaining member 30 is in position in the slots of the projecting studs 29, the top of each stud is spun over to retain permanently the spring member therein.

It will be appreciated that the louvre-carrying member, whilst being shown as of channel shape, may be of any other suitable shape, provided that sufficient clearance is allowed between the surface of said member facing the window frame or opening in the building in which the frame is to be positioned and the said frame or opening, for the positioning of the louvre operating rod and associated linkage. Also, instead of the groove 13 being formed between the weather-strip portion 11 of the turned back flange, it may be

formed in the thickness of the material from which the bar 2 is formed.

WHAT WE CLAIM IS:—

1. A louvre-carrying member, for use in louvres of the type referred to, and adapted to be secured to the side of a window or other opening, said louvre-carrying member comprising a rigid bar formed to provide bearings for a number of pivot pins each of which carries a louvre clip for mounting a louvre, the bar having a continuous flange along its length extending substantially perpendicularly from one longitudinal edge to provide a weather-strip for engagement on alternate sides by each louvre clip, and a drainage channel on the inside of the flange adjacent the bar.

2. A louvre-carrying member according to claim 1, wherein the drainage channel is a groove formed between the weather-strip flange and the longitudinal edge of the bar.

3. A louvre-carrying member according to claim 2, wherein the bar is flanged on both its longitudinal edges so as to be of substantially channel shape, and the weather-strip flange is carried by one of said channel flanges to extend outwardly from, and at right angles to, the base of the channel in the opposite direction to said channel flange, with the drainage groove disposed between the weather-strip and the channel flange.

4. A louvre-carrying member according to claim 1, 2 or 3, wherein the weather-strip flange is partly interrupted at the region of each pivot pin bearing so as to provide a clearance for swinging movement of the louvre clip.

5. A louvre-carrying member according to claim 1, 2, 3 or 4 wherein embossing is provided around each pivot pin bearing so as to provide a weather-break to prevent water penetration inwardly beyond the bearing area.

6. A louvre-carrying member according to any of the preceding claims, wherein the centre of each pivot pin bearing is offset from the longitudinal centre line of the bar.

7. A louvre-carrying member according to claim 6, wherein each pivot pin bearing is offset from the longitudinal centre line of the bar in a direction towards the weather-strip.

8. A louvre-carrying member according to any of the preceding claims including an operating rod operatively and pivotally connected to the pivot pin of each louvre clip by means of a connecting link, whereby longitudinal movement of the operating rod effects simultaneous pivotal movement of each louvre clip.

9. A louvre-carrying member according to claim 8, in which movement of the operating rod is effected by a self-locking overcentre toggle action device.

10. A louvre-carrying member as set forth in any of the preceding claims, in which the louvre clip for each louvre is formed with



slotted projecting studs for receiving a spring louvre-retaining member. with reference to and as shown in the accompanying drawings.

5. 11. A louvre window or shutter having the louvre-carrying member as set forth in any of the preceding claims.

12. A louvre-carrying member constructed, and arranged substantially as described herein

CARPMAELS & RANSFORD,
Agents for Applicants,
24 Southampton Buildings,
Chancery Lane, London, W.C.2.

Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1960.
Published by The Patent Office, 25, Southampton Buildings, London, W.C.2, from which
copies may be obtained.

