Aug. 15, 1961 G. SARRIA 2,995,787

LOUVRE BLINDS

Filed May 8, 1958 2 Sheets-Sheet 1

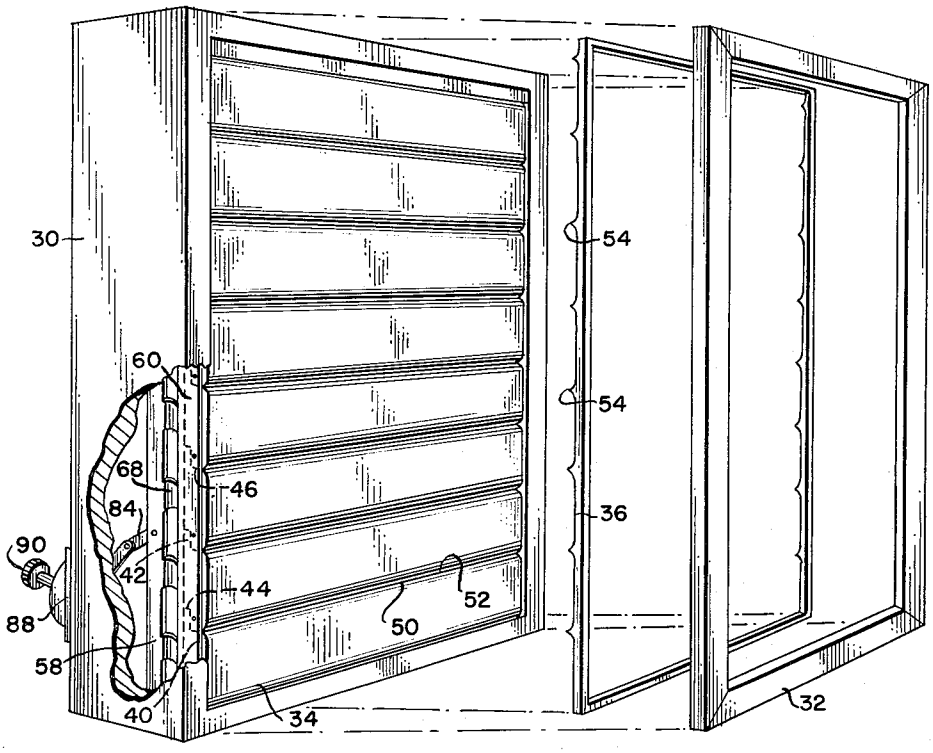
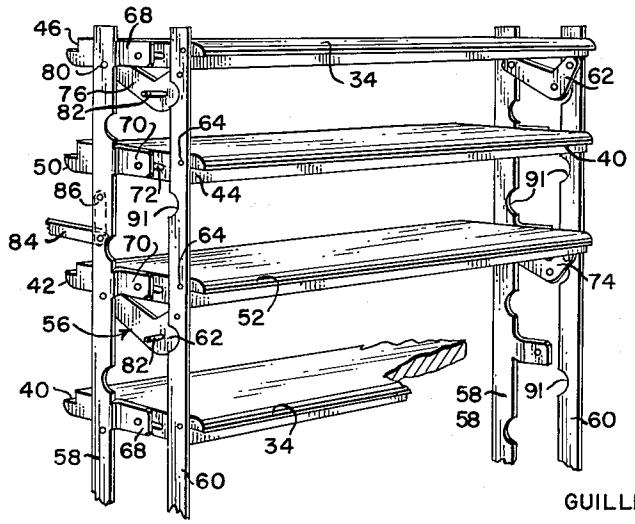


FIG. 1



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FIG. 2

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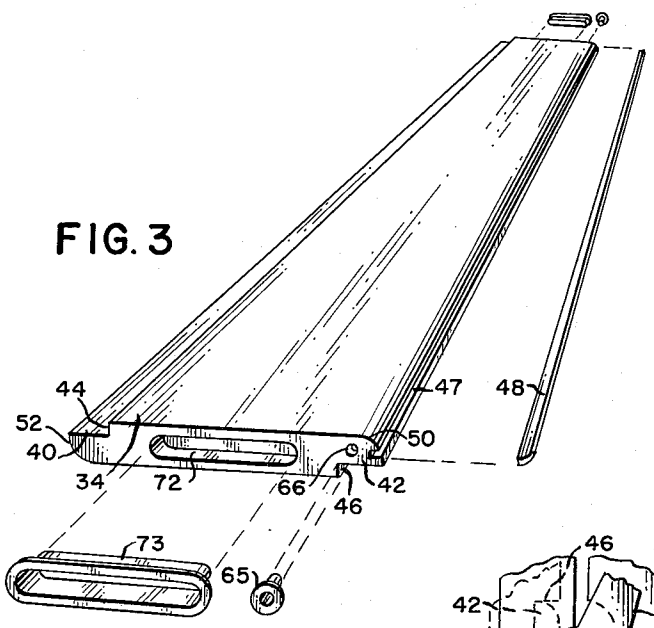
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FIG. 3



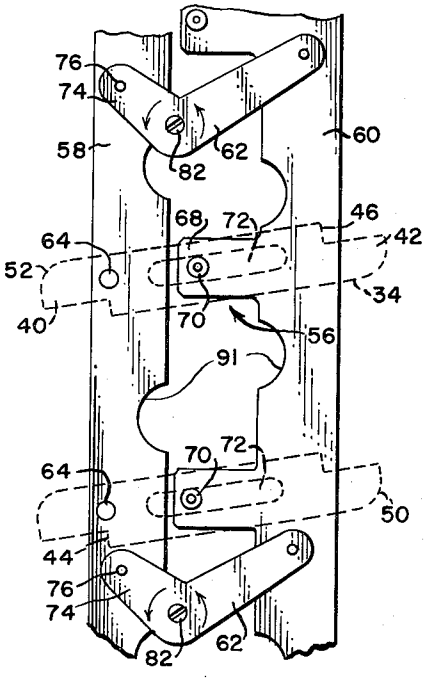


FIG. 4

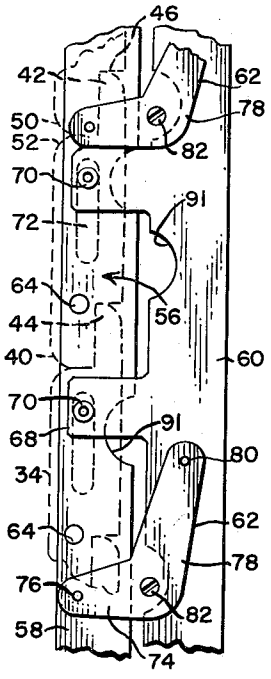


FIG. 5

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LOUVRE BLINDS

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3 Claims. (Cl. 20—62)

This invention relates to louvre type blinds and particularly to blinds that are vertically aligned when in a closed position to be weatherproof and light-proof.

Windows of the louvre type blinds are increasingly popular and are so constructed that they normally open and close by rotation about a fixed axis. These types of blinds are commonly known as "Miami blinds" and also by other names. As a result of their construction, they overlap each adjacent blind slat slightly when in the closed position and are operated to and from this position in such manner making it impossible to provide adequate sealing means to prevent rain, sunlight or air from entering the spaces between the slats at the point of overlap. These shortcomings of the prior art slat constructions and also the operating mechanism therefor, are avoided by the louvre blinds of the invention. The instant type of blinds are so constructed that the slats remain one above the other, in perfect vertical alignment to permit the addition of weather-proofing material thereto to close and seal the slats when they are closed and are actuated from movement to and from their closed position in a novel manner for cooperation with the weather-proofing material.

It is therefore an object of the invention to provide a louvre type blind that includes a unique mechanism for moving the slats between open and closed positions in a manner such that the same does not interfere with the surrounding structure.

It is another object to align the louvre slats in a vertical position when closed so that a complete sealing is effected.

It is still another object to provide a louvre type blind that is contoured to permit an insulating or sealing material to be designed to follow the contour of the blind and to thereby seal any spaces to prevent admission of water along the sides.

Yet another object is to provide a device that will provide movement of the slat members from a vertical and closed position to a substantially horizontal and open position by means of a rearward and pivoted motion. This differs from the conventional system of rotation of the slats about their axes and by this means enables the slat members to be vertically aligned.

It is yet another object to provide support means for the louvre members that are not fixed to the window frame but are actuated by a common mechanism to move in opposed directions and to pivotally move the louvre members into a horizontal and open position. The action is reversed to close the louvre members.

These and other objects will become apparent to those skilled in the art to which this invention pertains, as will be seen from the disclosures herein given. To this end the invention comprises the novel construction and arrangement of parts herein shown and described and more particularly pointed out in the claims.

FIG. 1 is an exploded perspective view, partially broken away, of a window frame containing one form of louvre blind in accordance with the instant invention, a sealing gasket and an outer closure frame.

FIG. 2 is a perspective view, partially broken away, of the louvre blind of FIG. 1 removed from its frame, and in open position.

FIG. 3 is an exploded perspective view of one of the louvred slats and its associated elements.

FIG. 4 is an end view of one form of operating mechanism for the slats of the louvre blind, partially broken away; and

FIG. 5 is a view similar to FIG. 4, but showing the parts in a different position of adjustment.

Referring to the figures, wherein like numerals identify like parts, a window **30** of conventional design is provided with a frame member **32** (see FIG. 1). A plurality of vertically arranged louvre slats **34** are positioned within the sides of the window **30** and are adapted to be movable into open and closed positions, as will presently appear. The louvre slats are preferably of the "Miami blinds" type, although other types may be utilized, and may be of any suitable material, such as glass, metal or wood.

The drawings illustrate in detail one form of the invention whereby the louvre members **34** are mounted to align vertically when in a closed position and whereby a sealing means **36** is secured in suitable grooves to the frame member **32** and is adapted to closely engage the louvre members.

Each louvre slat **34** extends across the width of the window **30** and is provided with a lower extension portion **40** and an upper flange extension **42**. As is readily apparent from FIG. 2, the extension portion **40** is on the opposite side of the flange member so that the slats **34** interlock when the blind is closed. The shoulders **44** and **46** of the slats are closely adjacent in the closed position to further aid in preventing air and light from seeping through the blinds.

Generally this construction is adequate to provide a sealed blind along the horizontal length thereof. However, where desired, an elongated groove **47** is provided, as is shown in FIG. 3 and a gasket **48** is seated therein to insure a weatherproof seal. Thus, when the blind is closed, the gasket **48**, seated in the shoulder **46**, frictionally engages the shoulder **44**. Obviously, the gasket **48** could be mounted in the shoulder **44** if desired.

It should be noted that the upper edge **50** of the louvre slat **34** and the edge **52** of the extension portion **40** are rounded adjacent the sealing means **36** so that the peaked portion **54** of the sealing means fits into the space provided by the rounded edges **50** and **52** when the blind is closed.

The louvre members are supported and actuated by the actuating means designated generally at **56** (FIGS. 3 to 5) and comprise the vertical rail or rod members **58** and **60** and the operating levers **62**. The rail members **58** and **60** extend substantially the length of the window at each end thereof and retain the transversely extending louvre members **34**. The straight rail member **58** contains a plurality of uniformly spaced and inwardly extending bolts or pins **64**. The pins **64** extend into the complementary holes **66** provided with bushings **65** provided in each louvre slat in the extension portion **40**. The rail member **60** is comb-like in construction with the tooth members **68** extending across the rail member **58**. The tooth members **68** are slightly offset intermediate their length, as is shown in FIG. 2, in order for the rail members **58** and **60** to maintain a planar relationship. Otherwise, a binding or twisting motion would be obtained as the blinds are opened and closed. Each tooth member **68** contains a pin **70** that is adapted to extend into a lost-motion slot **72** provided in each louvre member **34** intermediate its length each slat **72** being provided with a bushing **73**. It is readily apparent from the figures that each pin member **70** is staggered in relation to the pin member **64**.

The rail members **58** and **60** are mounted for movement relative to each other by the bell-crank levers **62**. Each lever **62** contains a short arm **74** which is secured to the rail member **58** by the pins **76** and a long arm **78** which is secured to the comb rail member **60** at **80**.

The bell-crank lever **62** is pivotally mounted at **82** to the inner frame of the window **30**. It thus becomes clear that the blind of the invention is freely suspended within the window **30** by means of the lever **82**. Each slat member **34** is secured to the rail members **58** and **60** only, while each rail member is supported by the bell-crank lever **62** which itself is pivotally mounted on the window frame at **82**.

The movement of the rail members is clearly illustrated in the drawings and the movement of louvre members is best shown in FIGS. 4 and 5. A link arrangement **84** in FIG. 1, is secured at **86** to the rail member **60** and is mounted on the window at **88**. A handle **90** is provided. When the handle **90** is in the position shown in FIG. 1, the blind is closed. The interlocking arrangement of each louvre member **34** at **40** and **42** allows the louvres to align vertically in a single plane. Air cannot enter the room. The corners of the louvres ordinarily would leak air from outside. Because of the above described construction, the sealing means **36** is secured on the frame member **32** and is completely effective by virtue of the cooperative relation between the peak portions of the seal means **54** and the rounded surfaces on the louvre edges.

To open the "Miami" blind, the lever **90** is moved and comb rail member **60** is moved downwardly progressively. This causes the bell-crank lever **62** to pivot about the fixed window pivot shaft **82** in a clockwise direction, thereby urging the rail member **58** to move upwardly and slightly inwardly away from frame **32**. Because of the different lengths of the arms **74** and **78** of lever **62**, the rail members **58** and **60** move at a different rate of speed to increase the distance between the two. As the rail member **58** moves upwardly, the louvre slats **34** begin to pivot about the pins or bolts **64**. As the comb rail member **60** moves away from frame **32** and downwardly, the rail member **58** moves away from frame **32** and upward (FIGS. 2 and 4). The transverse bolts or pins **70**, riding in the slots **72** of the louvre slats, aid in rotating the slats clockwise into the horizontal open positions of FIG. 4 by moving them upward and away from frame **32** as shown. Stress on the bolts is prevented because of the planar alignment of the rail members and the straight line movement of all of the bolts or pins. Since the pin **82** of each bell-crank lever **62** is fixed to the inner sides of the window, the recesses **91** are provided in the rail members so that when the blinds are closed, the pin **82** is received in the comb-like member and, when the blinds are open, the pin is received in the recess **91** of the vertical rail member **58**. As many bell-crank levers **62** are mounted along the vertical length of the blind as are necessary for support and efficiency in operation. Auxiliary gaskets **48** are provided where desired. To close the blinds, the lever **90** is lowered and the rail members reverse their movement and the louvres **62** rotate counterclockwise to engage each other in vertical alignment.

Referring to FIGS. 4 and 5, it is to be noted that the members **58** and **60** each are provided with a duplication of recesses **91**, only certain of which receive and accommodate the fixed pivots **82** during the opening and closing operation of the louvre slats previously described. In addition, the members **58** and **60** are also shown as having a plurality of holes **120** that appear to perform no function in the operation of the instant invention. It is noted at this time that when the members **58** and **60** are formed as by stamping, they must be adaptable for universal use on opposite sides of the louvre apparatus and frame **30**. Hence, by initially providing the member **58** with a duplication of recesses **91**, the same member may be utilized on either side of the frame **30** for use in the operation of the instant invention.

From the description of the invention and by virtue of its manner of operation, it will be recognized that the framing, including the sealing structure, may be positioned in overlying relationship with the louvre slats while a protective insert screen may be mounted outside the window. These features distinguish over prior known arrangements that require the placement of the screens inside the window and the positioning of the framework about the border of the window opening both out of the path of movement of the slats.

Having thus described the invention, it is obvious that various immaterial modifications may be made without departing from the scope of the invention and that the invention will not be limited to the exact exemplary forms described except as limited by the boundaries of the claims hereunto appended.

I claim:

1. A louvre blind construction comprising in combination a frame, a plurality of louvre slats, each of said slats having an elongated slot and an adjacent hole in the end thereof, a pair of vertical substantially parallel rail members in said frame adjacent the ends of said slats, a plurality of transverse projections carried by one of said rails, one adjacent the end of each slat, a pin carried by each of said projections and extending into the elongated slot of the adjacent slat, a plurality of bellcrank members pivotally secured to said frame between said rails, each of said members having a long arm and a short arm, a pivot pin extending from each long arm secured to said one of said rails adjacent each projection, a second pivot pin extending from each said short arm pivotally secured to the other of said rails, a plurality of vertically aligned pins carried by said other rail, one of said pins extending into the hole in the end of the adjacent slat, and lever means secured to one of said rails for moving the same vertically, to move said slats.

2. A louvre blind construction comprising in combination a frame, a plurality of louvre slats, each of said slats having an elongated slot and an adjacent hole in the end thereof, a pair of vertical substantially parallel rail members in said frame adjacent the ends of said slats, a plurality of transverse projections carried by one of said rails, one adjacent the end of each slat, a pin carried by each of said projections and extending into the elongated slot of the adjacent slat, a plurality of bellcrank members pivotally secured to said frame between said rails, each of said members having a long arm and a short arm, a pivot pin extending from each long arm secured to said one of said rails adjacent each projection, a second pivot pin extending from each said short arm pivotally secured to the other of said rails, a plurality of vertically aligned pins carried by said other rail, one of said pins extending into the hole in the end of the adjacent slat, a link pivotally secured to said one of said rails, and an operating lever pivotally secured to said frame and extending outwardly thereof for moving said one of said rails vertically relative to said other of said rails, to move said slats to open and closed position.

3. The structure of claim 1 wherein the elongated slot and the hole in the end of each slat are provided with a bushing.

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