Nov. 5, 1940. L. M. JONES 2,220,405

PIVOTED LOUVER PANEL AND LOCK

Filed July 28, 1939

FIG. 1.

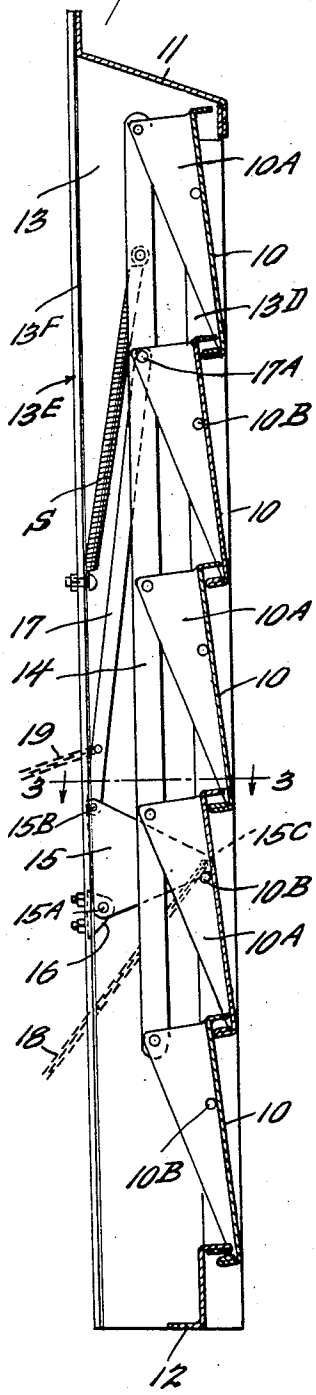
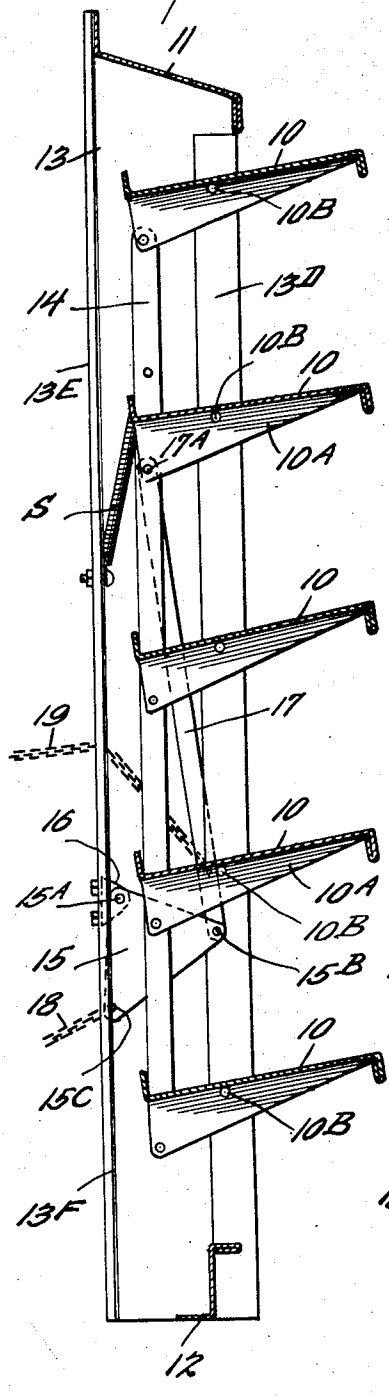


FIG. 2.



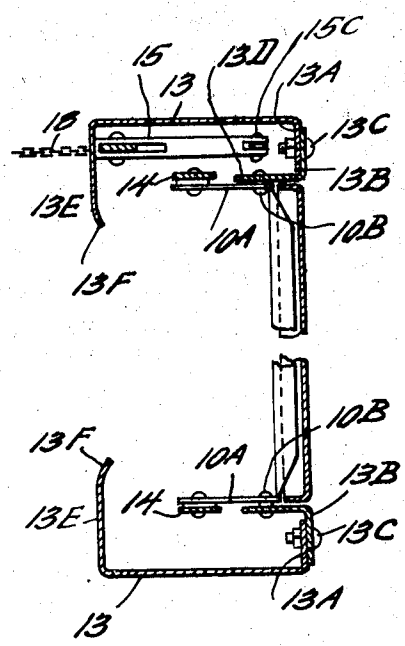


FIG. 3.

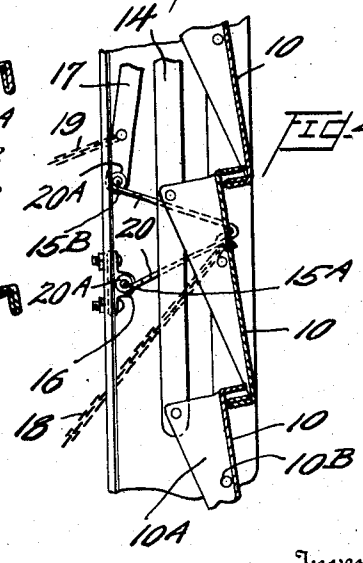


FIG. 4.

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PIVOTED LOUVER PANEL AND LOCK

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4 Claims. (Cl. 189—62)

This invention relates to a panel having pivoted louvers and mechanism mounted in the panel for operating the louvers and automatically locking the same in closed position. The invention aims to provide a rigid panel with pivoted louvers which can be mounted in an opening in a building or in any other suitable structure and which also includes mechanism concealed in the panel itself for operating the louvers and automatically locking the same in position when closed and firmly holding them against vibration or rattling when open. The invention is illustrated in the accompanying drawing in which:

Figure 1 is a vertical section of a panel and louvers pivotally mounted therein, the louvers being shown in closed position and some of the operating mechanism in elevation;

Figure 2 is a view similar to Figure 1 showing the louvers in open position;

Figure 3 is a horizontal section, partly broken away, taken substantially on the line 3—3 of Figure 1; and

Figure 4 is a partial vertical section similar to Figure 1 and showing a modified form of locking means.

Referring to the drawing in detail, the louvers indicated at 10 are pivotally supported at each end in a panel which comprises a transverse top member 11, a transverse bottom member 12 and vertical side members 13, said side members and transverse members being firmly secured together at their ends in any suitable manner to form a rigid frame or panel.

The side members 13 are preferably made up of two parts. One of these parts is bent or shaped to form a hollow channel bar provided with a front flange 13A. The other part of said member is shaped to form a triangular bar having a flange 13B which overlaps the flange 13A. The flanges 13A and 13B are detachably secured together by means of short bolts 13C. Said triangular bar is also provided with a flange 13D which extends inwardly and rearwardly, and to this flange the end flanges 10A of the louvers are pivoted as by rivets 10B. Along its rear or inner edge each side member 13 is provided with a wide lateral flange 13E, the edge of which is bent outwardly or forwardly as indicated at 13F. The flanges 13E are positioned rearwardly of the ends of the louvers 10 and they act as troughs to carry downwardly any water that may be driven inwardly past the ends of the louvers.

Each of the louvers 10 is pivotally connected adjacent its inner edge to an operating bar 14, whereby the louvers are caused to open and close in unison. The operating bars 14 are arranged within the hollow side members 13 of the panel and extend longitudinally thereof. A coiled spring S is also arranged in one of the hollow side members 13 and this spring is connected at one end to one of the bars 14 and at the other end to a convenient point on the flange 13E of one of said side members 13. The spring S is under tension and exerts a constant downward pull on the bar 14.

Mounted within one of the hollow side members 13 is a locking device or plate 15 which is preferably made triangular in form as shown. One corner of said locking plate 15 is pivotally connected at a fixed point 15A to a lug 16 rigidly secured to the flange 13E of said side member 13 so that the plate may swing in a vertical plane about its fixed pivot. One end of a thrust bar 17 is pivotally connected at 15B to another corner of said locking plate 15, the other end of said thrust bar being pivotally connected at any suitable point 17A to said operating bar 14. Movement of the locking plate 15 and the thrust bar 17 will thus cause opening or closing of the louvers 10.

A flexible operating device such as a chain or cable 18 is also connected to the plate 15, preferably adjacent the third corner thereof, indicated at 15C. A similar chain or cable 19 is operatively connected to the plate 15 adjacent the pivot 15B, preferably being attached to the thrust bar 17 adjacent said pivot. The chains or cables 18 and 19 extend through suitable openings in the flange 13E of the side member 13 and to any convenient point for manipulation, and they constitute means by which the locking plate 15 may be moved about its pivot into the position shown in Figure 1 or Figure 2, thus causing the louvers 10 to be closed or opened.

In the modified arrangement of Figure 4 a different form of locking device is employed which consists of a flat metal bar or strap 20 which is bent into V-shape and which has substantially the same size and contour as the plate 15. The ends of the bar 20 are preferably slotted and bent into loops 20A, one end being pivotally connected at 15A to the lug 16 and the other end at 15B to the thrust arm 17. The bar 20 is made of flexible or spring stock so that it will yield to some extent under pressure, which facilitates manipulation of the device and tends to make its operation smooth and even.

It will be understood that the pivot 15A is so located that when the locking device is moved

or rotated to the position shown in Figure 1, the point of connection 15B between the locking plate 15 or the locking device 20 and the thrust arm 17 will lie beyond or to the rear of a straight line connecting the pivots 15A and 17A. In other words, point 15B will be in an over-center position with the result that the plate 15 or device 20 will be locked or firmly held in such position by the tension of the spring S, and the louvers 10 will be locked in closed position. When the plate 15 or the locking device 20 is moved to the position shown in Figure 2, the louvers will be in open position and the spring S will tend to hold them firmly in that position and prevent vibration or rattling.

It will be further understood that the panel as heretofore described may be mounted in any suitable supporting structure. For example, it may be secured in an opening in a building during construction or afterwards. The panel may be fastened in position by nails driven through the side members 13 and top and bottom members 11 and 12 or in any other desired manner. The louvers may be removed from the panel when desired for painting or other purposes merely by removing the bolts 13C. Also the louvers and the parts connected thereto may be assembled and riveted together before the louvers are assembled with the panel, which simplifies the work of construction. All parts of the louver operating and locking mechanism are mounted within the side members of the panel and are thus concealed against accidental injury or displacement.

Various changes in details of the construction may be made within the scope of the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a construction of the kind described, in combination, a panel having upper and lower transverse members and hollow side members, a plurality of louvers extending between and pivotally connected to said side members, louver operating and locking mechanism arranged within and concealed by said hollow side members, said mechanism comprising an operating bar pivotally connected to each of said louvers, a coiled spring operatively connected to said operating bar and arranged to exert a downward tension on said bar at all times, a thrust bar pivotally connected at one end to said operating bar for moving the latter upwardly or downwardly to thereby close or open said louvers, a locking device pivotally connected at a fixed point to one of said side members and arranged to swing in a vertical plane, said thrust bar at its other end having pivotal connection with said locking device at a point spaced from the fixed pivot of said device, whereby swinging of said locking device about its fixed pivot will open or close said louvers, the point of connection between said locking device and said thrust bar being movable into an over-center position when said device is swung upwardly to thereby lock the louvers in closed position, and means for swinging said locking device upwardly or downwardly.

2. In a construction of the kind described, a panel having hollow side members, a plurality of louvers extending between and pivotally connected to said side members, louver operating and locking mechanism arranged within and concealed by said side members, said mechanism comprising an operating bar pivotally connected to each of said louvers, a coiled spring operatively connected to said operating bar and arranged to exert downward tension on said bar at all times, a thrust bar pivotally connected at one end to said operating bar for moving the latter upwardly or downwardly to thereby close or open said louvers, a locking device including a bar of resilient metal bent into V-shape with the ends thereof spaced apart, one end of said locking device being pivotally connected at a fixed point to one of said side members and arranged to swing in a vertical plane, said thrust bar at its other end being pivotally connected to the other end of said locking device, whereby swinging of said locking device about its fixed pivot will move said thrust bar to open or close said louvers, the point of connection between said locking device and said thrust bar being movable into an over-center position when said device is swung upwardly to thereby yieldingly lock the louvers in closed position, and means for swinging said locking device upwardly or downwardly.

3. In a construction of the kind described, in combination, a plurality of pivoted louvers mounted in a frame, a vertically movable thrust bar for simultaneously opening or closing said louvers, a spring for drawing said thrust bar downwardly, a locking device for locking said louvers in closed position comprising a bar of resilient metal bent into V-shape with the ends thereof spaced apart, one end of said locking device being pivotally connected to the frame at a fixed point and arranged to swing in a vertical plane, said locking bar having the other end thereof pivotally connected to said thrust bar, whereby swinging of said locking device about its fixed pivot will move said thrust bar to open or close said louvers, the point of connection between said locking device and said thrust bar being movable into an over-center position when said device is swung upwardly to thereby lock the louvers in closed position, and manually operable means for swinging said locking device upwardly or downwardly.

4. In a construction of the kind described, in combination, a panel having upper and lower transverse members and at least one hollow side member, a plurality of louvers extending horizontally between and pivotally connected to said side members, louver operating and locking mechanism arranged within and concealed by said hollow side member, said mechanism comprising an operating bar pivotally connected to each of said louvers, a coiled spring arranged to exert downward tension on said bar at all times, a thrust bar pivotally connected at its upper end to said operating bar for moving the latter upwardly or downwardly to thereby close or open said louvers, a locking plate pivotally connected at a fixed point to said hollow side member and arranged to swing in a vertical plane, said thrust bar at its lower end having pivotal connection with said plate at a point spaced from said fixed pivotal point, whereby swinging of said locking plate about its fixed pivot will open or close said louvers, the point of connection between said locking plate and thrust bar being movable into an over-center position when said plate is swung upwardly, to thereby lock the louvers in closed position, and flexible operating means connected to said locking plate for swinging the same upwardly or downwardly.

LLOYD M. JONES.