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VENTILATOR

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My invention relates to an adjustable type of ventilating panel which permits the flow of air for ventilation purposes, but which is so formed as substantially to obstruct vision through the panel. Panels of this type are desirable for example, for use in doors in homes and hotel rooms in portions of the country where hot weather is experienced. The requirements for such a door are that it shall permit the circulation of air through the closed door when forced ventilation or air conditioning units are used, that it shall give a certain degree of privacy, and that the openings can be closed when desired. It is further important that the construction of the ventilating panel be such as to permit ready accessibility to the parts for cleaning or for painting when the room is redecorated.

It is an object of my invention to meet the above requirements in a structure which is well adapted to manufacture by production methods, and which requires a minimum of modification of regular millwork shapes.

The foregoing, other and further objects of the invention will be apparent to those skilled in the art to which this invention appertains, by reference to the following description, accompanying drawing and appended claims. Embodiments of the invention are illustrated in the accompanying drawing, in which the views thereof are as follows:

Figure 1 is an elevational view of a door incorporating my ventilator.

Figure 2 is an enlarged sectional view through the ventilator on the line 2—2 of Figure 1 showing the ventilator in open position.

Figure 3 is a view similar to Figure 2, but showing the ventilator in closed position.

Figure 4 is a fragmentary sectional view on the line 4—4 of Figure 2.

Figure 5 is an enlarged fragmentary view in elevation taken on the line 5—5 of Figure 3, certain parts being broken away to show the detent means.

Figure 6 is a view corresponding to Figure 2, but illustrating a modified form in which my invention may be embodied.

Figure 7 is a view corresponding to Figure 3, illustrating the modified form.

Figure 8 is a view corresponding to Figure 4, illustrating the modified form.

In the drawing I have used the reference numeral 10 to indicate generally a door. Although I have shown my ventilator in a door, it is equally well adaptable to a wall panel over a ventilator opening or in any other place where it is des-

sirable to control the flow of air. My ventilator is mounted in the door 10 between the stiles 12, the top rail 14 and the intermediate rail 16. The preferred form of my invention is illustrated in Figures 2 and 3 but I have designated this form as the preferred one only because it can be made with the least modification of ordinary millwork procedure in the manufacture of a door. As will be seen in Figure 2, the edge profile of the rails 14 and 16 can be the same shape as that used when the ordinary plain panel is mounted in the rabbet 18 for a regular door. Instead of a plain panel I mount in the rabbet 18 a panel 20 in which a plurality of perforations 22 have been cut. The outline form of these perforations is optional and may be adapted to any decorative or design scheme, but I have shown in the elevational view of Figure 1, elongated slots which are simple to make. The relative spacing and arrangement of the perforations is governed by requirements which will be subsequently explained. To the panel 20 are affixed louvers 24, which may be fastened to the panel 20 by nails 26 or by any other suitable fastening or adhesive means. The top and bottom edges of the louver strips are sharply inclined, as may be seen in Figures 2 and 3. These inclined edges define sloping passageways leading from the perforations 22.

Although I have described the fabrication of the inclined passages by the attachment of separate members of proper shape to a perforated panel, the desired result can be obtained by a unitary construction in which a solid panel has perforations or slots cut through it at an appropriate angle, equivalent to the spaces between the members 24.

Adjacent the outer surface of the louvers 24 I mount a sliding panel 28. The mounting is by means of a metal channel strip 34 which is clamped to the door around the edges of the panel 28 by means of a molding 30 attached by screws 32. The panel 28 will slide freely in the channel strips 34 even when subject to ordinary changes in atmospheric conditions.

Under the conditions which exist at the time of manufacture, the panel 28 is cut to such a size that there will be some clearance in the groove of the molding 30, behind the channel strip 34. This clearance space is indicated by the numeral 35. If the ventilator is installed in a more humid location, the panel will swell and increase in width, causing the channel strips to "creep" in the space 35 as much as necessary to permit free sliding of the panel.

The molding strips 30 at top and bottom of the panel 28 have wide grooves, and are mounted in such a manner as to leave a space, identified as 37 in Figure 2 and as 37, in Figure 3.

The panel 28 has perforations 36 formed in it, and these, like the perforations 22, may be adapted to any design or decorative scheme. The panel may be moved longitudinally in the channel guides 34 to the extent permitted by the spaces 37-37'. The perforations 36 must be so spaced and arranged in the panel that at one extreme of its movement they will coincide with the passageways defined by the louver strips 24, as in Figure 2, and at the other extreme of movement, as shown in Figure 3, the imperforate portions of the panel 28 overlap the openings between the louvers 24. In the latter position, of course, the passage of air through the ventilator is cut off.

To retain the sliding panel in the closed position illustrated in Figure 3, I countersink into one of the louvers 24 a spring pressed detent button 38, and in an adjacent portion of the panel 28 I recess a strike plate 40 having slots 42 and 44 cut through it. When the panel is in the position of Figure 2, the detent button 38 drops into the slot 42 in the plate 40 and thus retains the panel in open position. Sufficient upward pressure on the panel 28, however, will cause the button to ride up out of the slot 42 and permit vertical upward movement of the panel, guided in the metal channels 34, until the upward limit of its movement is reached in the Figure 3 position, at which point the detent button will drop into the slot 44, thus assuring that the ventilator will not open accidentally due to vibration or jarring of the door. Additional slots, between the slots 42 and 44, may be provided to retain the sliding panel in intermediate or partly open position. The horizontal elongation of the slots 42 and 44 assures that the detent will function properly even if the panel is displaced horizontally by uneven adjustment of the channels 34 in the spaces 35.

As above indicated, the construction of Figures 2 and 3 is preferred because it can be made with stiles and rails having standard edge profiles, as intended for the mounting of a panel substantially along the center line. It is entirely practical, however, to embody my invention in a construction where both panels 20 and 28 are received in rabbets in the rails and stiles. Such a construction is shown in Figures 6 and 7. The panel 20 is received in a rabbet 18 and the panel 28 is received in a rabbet 46, metal channels 34 being provided just as in the construction previously described.

A molding 30a which may be relatively narrow and hence somewhat neater than the molding 30, is applied to retain the channel member 34 and the panel 28 in position. Detent means entirely similar to that previously described may be employed, as shown.

In both the constructions described, it will be seen that by taking out the screws 32, and removing the molding strips 30 or 30a as the case may be, the channels 34 and the panel 28 slidably carried in them can be removed. It is thus possible to reach the spaces between the louver members 24 for painting or cleaning when desired.

The inclined louver members 24, by requiring an offset of the perforations 22 and 36 when the ventilator is in open position, result in a substantial obstruction of vision through the ventilator, so that a degree of privacy is obtained.

I have thus defined a structure which can be economically assembled, conveniently operated,

readily adjusted and easily maintained in clean and attractive condition.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure, or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a ventilating door construction, a panel mounted in the regular panel rabbet of the door, said panel having horizontally elongated slots therein, horizontally extending strips attached to said panel between said slots, of such thickness that their outer surfaces lie substantially in the plane of the surface of the rails and stiles of the door, a second panel mounted adjacent said outer surface of said strips, and grooved moldings detachably fastened to said door, the edges of said second panel being slidably retained in the grooves of said moldings.

2. In a door frame, a ventilator consisting of a perforated panel fixed in said frame, members attached to said panel and defining sloping passages from the perforations therein, a second perforated panel adjacent said members, means for detachably retaining said second panel in slidable relation to said members, said means comprising channel strips embracing the side edges of said second panel, and side moldings overlapping said strips and clamping said strips with respect to said frame; and end moldings overlapping the second panel along the ends thereof to such an extent that the panel may have substantial longitudinal movement and still have its ends concealed by said end moldings, said second panel having the perforations formed therein so spaced that when the second panel is at one extreme of its sliding movement the perforations in it will coincide with the sloping passages, and when the panel is at the other extreme its imperforate portions will cover the passages.

3. In a door having rails and stiles forming a frame with two parallel rabbets in the inner faces thereof, a ventilator consisting of a panel mounted in one of said rabbets, said panel having horizontally elongated vertically spaced slots formed therein, horizontally extending strips attached to said panel between said slots and on the side of said panel adjacent said second rabbet, said strips being of parallelogram cross section, having inclined faces defining sloping passages from the slots in said panel, and being of such thickness that their outer surfaces lie substantially in the plane of the near edge of the second rabbet, a second panel mounted in the second rabbet, moldings detachably fastened to said door frame and retaining said second panel in its rabbet, said moldings at the ends of the panel overlying the second rabbet and forming therewith a groove of such depth that the panel may have substantial movement in a longitudinal direction without moving out of the groove, and detent means adapted to retain said second panel at either extreme of its sliding movement, said second panel having perforations formed therein so spaced that when the second panel is at one extreme of its sliding movement the perforations in it will coincide with the sloping passages, and when the panel is at the other extreme its imperforate portions will cover the passages.

4. In a door having conventional rails and stiles forming a frame with panel rabbets in the inner faces thereof, a ventilator consisting of a panel

mounted in said panel rabbets, said panel having horizontally elongated, vertically spaced slots formed therein, horizontally extending strips attached to said panel between said slots, said strips being of parallelogram cross section, having inclined faces defining sloping passages from the slots in said panel, and being of such thickness that their outer surfaces lie substantially in the plane of the surface of the rails and stiles, a second panel mounted adjacent said outer surfaces of said strips and overlapping the rails and stiles, slide channel members embracing the side edges of said second panel, grooved moldings detachably fastened to said door frame along said side edges of said second panel, said channel members being retained in the grooves of said moldings, and grooved end moldings along the ends of said second panel, the grooves in said end moldings being of such depth that the panel may have substantial movement in a longitudinal direction without moving out of the grooves, and detent means adapted to retain said second panel at either extreme of its sliding movement, said second panel having perforations formed therein and so spaced that when the second panel is at one extreme of its sliding movement the perforations in it will coincide with the sloping passages, and when the panel is at the other extreme its imperforate portions will cover the passages.

5. In a door having rails and stiles forming a frame with two parallel rabbets in the inner faces thereof, a ventilator consisting of a panel mounted in one of said rabbets, said panel having slots formed therein, strips attached to said panel between said slots and on the side of said panel adjacent said second rabbet, said strips being of parallelogram cross section, having inclined faces defining sloping passages from the slots in said panel, and being of such thickness that their outer surfaces lie substantially in the plane of the near edge of the second rabbet, a second panel, channels slidably receiving the two side edges of said second panel, said channels being received in said second rabbet, side moldings detachably fastened to said door frame and retaining said channels in said rabbet, said rabbet being of such depth that said channels may be adjusted transversely therein when said moldings are loosened, and end moldings, forming with said second rabbet at the ends of said second panel a groove of such depth that the panel may have substantial movement in a longitudinal direction without moving out of the groove, said second panel having perforations formed therein so spaced that when the second panel is at one extreme of its sliding movement the perforations in it will coincide with the sloping passages, and when the panel is at the other extreme its imperforate portions will cover the passages.

6. In a ventilator, a mounting frame, a perforated panel fixed therein, louvers attached to said panel and defining inclined passages from the perforations in said panels, a second perforated panel, channels, the sides of said second panel being slidably received therein, and means for mounting said second panel in said frame adjacent said louvers consisting of moldings detachably fastened to said frame, said channels being clamped between said moldings and said frame.

7. In a door having rails and stiles forming a frame with panel rabbets in the inner faces thereof, a ventilator consisting of a panel mounted in said panel rabbets, said panel having slots formed therein, strips attached to said panel between said slots, said strips having inclined faces defining sloping passages from the slots in said panel, and being of such thickness that their outer surfaces lie substantially in the plane of the surface of the rails and stiles, channel members, a second panel slidably mounted in said channel members adjacent said outer surfaces of said strips and overlapping the rails and stiles, grooved moldings detachably fastened to said door frame, said channel members being retained in the grooves of said moldings, grooved members attached to said frame and overlapping the ends of said second panel, the grooves in said members being of such depth that the panel may have substantial movement in longitudinal direction without moving out of the grooves, and detent means adapted to retain said second panel at either extreme of its sliding movement, said second panel having perforations formed therein and so spaced that when the second panel is at one extreme of its sliding movement the perforations in it will coincide with the sloping passages, and when the panel is at the other extreme its imperforate portions will cover the passages.

8. In a door frame, a ventilator consisting of louver members fixed in said frame and defining sloping passages therethrough, a perforated panel adjacent said members, means for detachably retaining said panel in slidable relation to said members, said means comprising channel strips embracing the side edges of said panel, and side moldings overlapping said strips and clamping said strips with respect to said frame; and end molding overlapping the panel along the ends thereof to such an extent that the panel may have substantial longitudinal movement and still have its ends concealed by said end moldings, said panel having the perforations formed therein so spaced that when it is at one extreme of its sliding movement, the perforations in it will coincide with the sloping passages and when the panel is at the other extreme, its imperforate portions will cover the passages.

9. In a door frame, a ventilator consisting of louver members fixed in said frame and defining sloping passages therethrough, a perforated panel adjacent said members, means for detachably retaining said panel in slidable relation to said members, said means comprising side molding overlapping the sides of said panel; and end molding overlapping the panel along the ends thereof to such an extent that the panel may have substantial longitudinal movement and still have its ends concealed by said end moldings, said panel having the perforations formed therein so spaced that when it is at one extreme of its sliding movement, the perforations in it will coincide with the sloping passages and when the panel is at the other extreme, its imperforate portions will cover the passages.

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