April 10, 1951 W. A. SPEAR 2,548,327

WINDOW VENTILATOR

Filed July 3, 1945 2 Sheets-Sheet 1

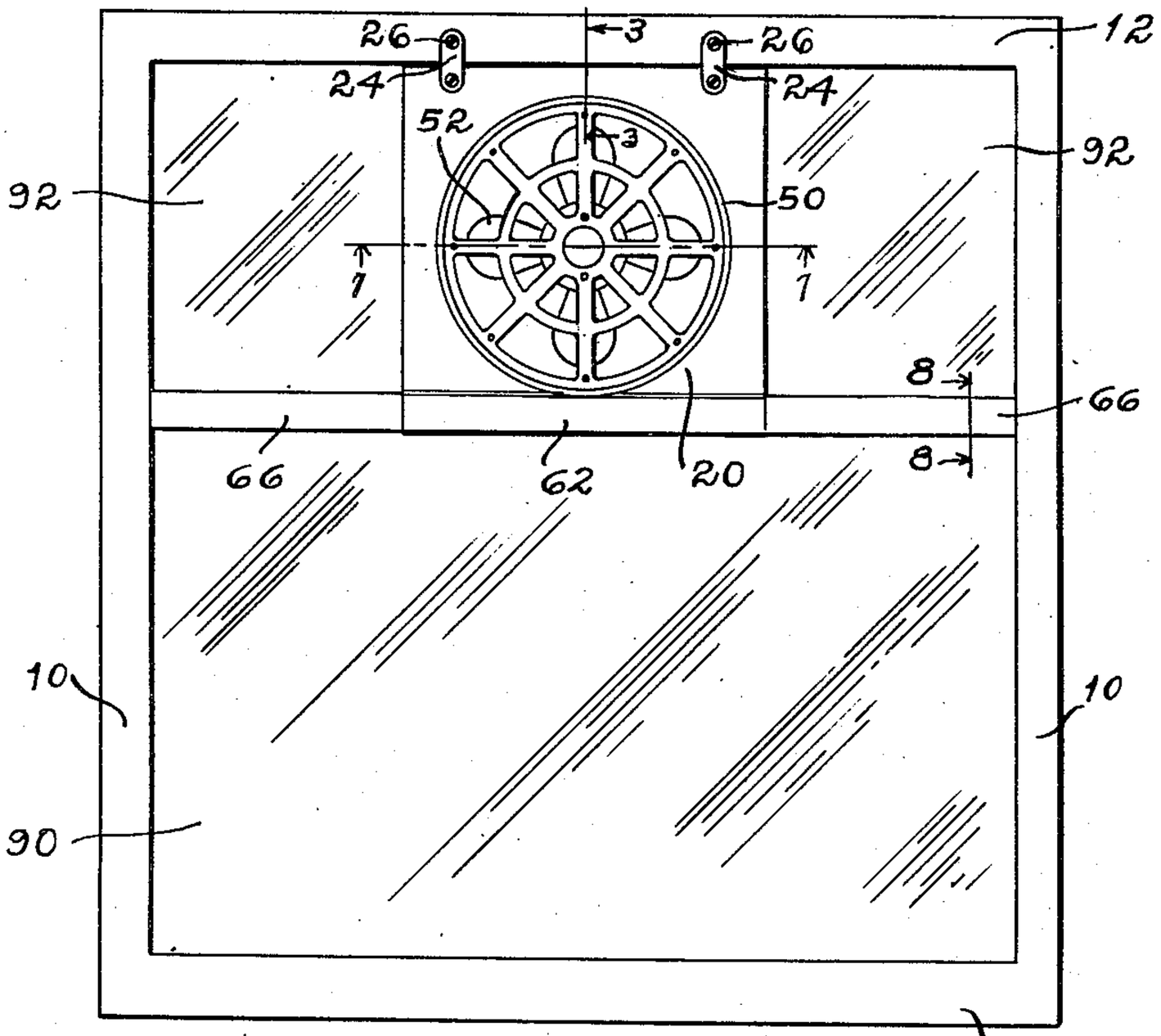

FIG. 1

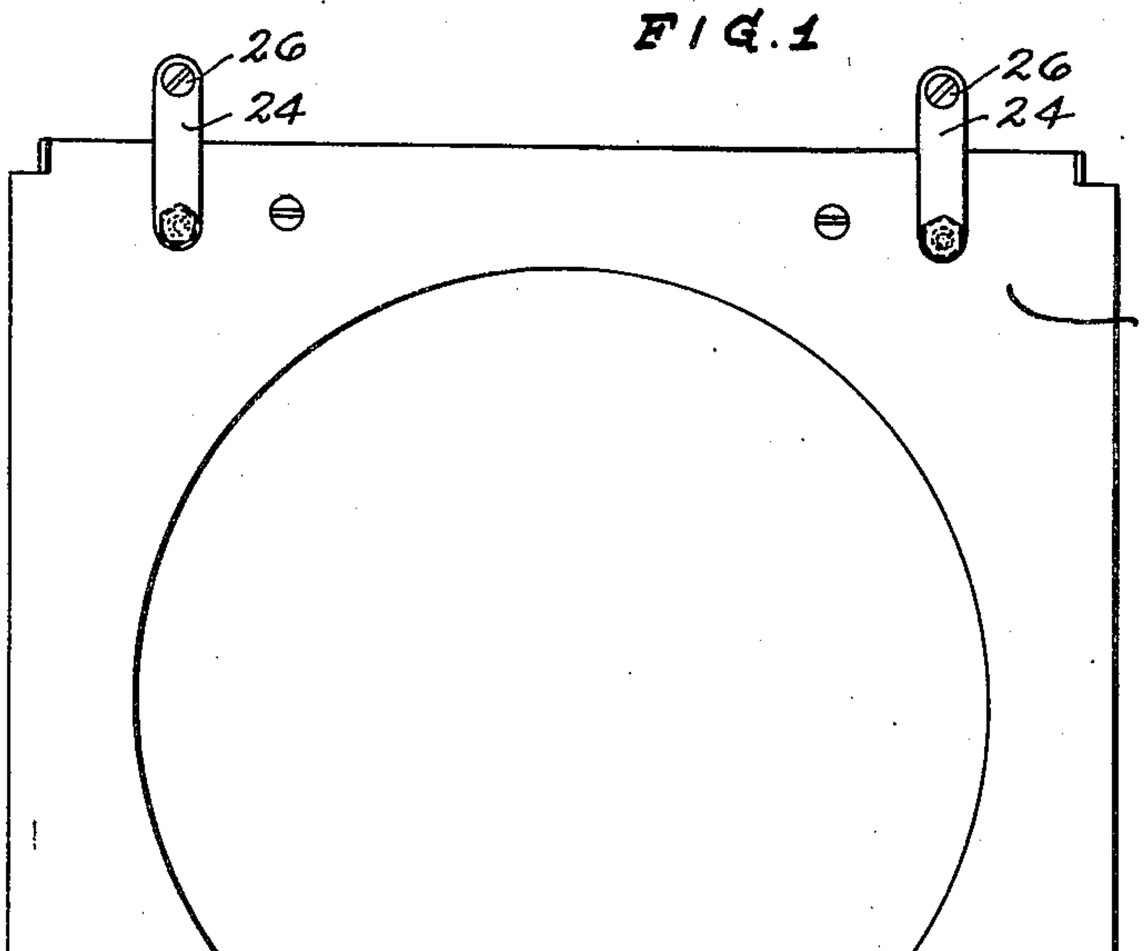

FIG. 2

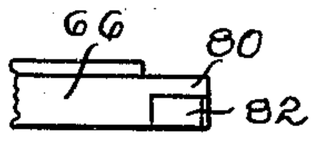

FIG. 6

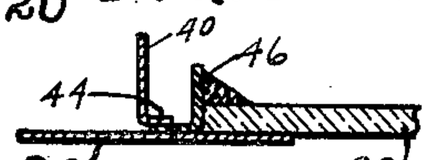

FIG. 4

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WINDOW VENTILATOR

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2 Sheets-Sheet 2

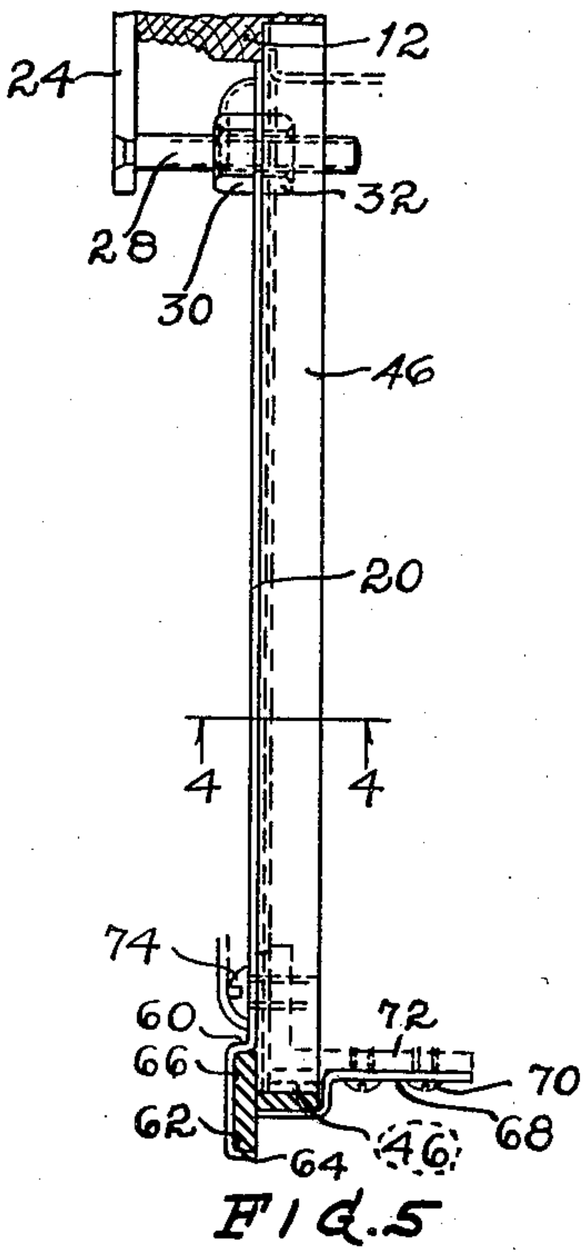

FIG. 5

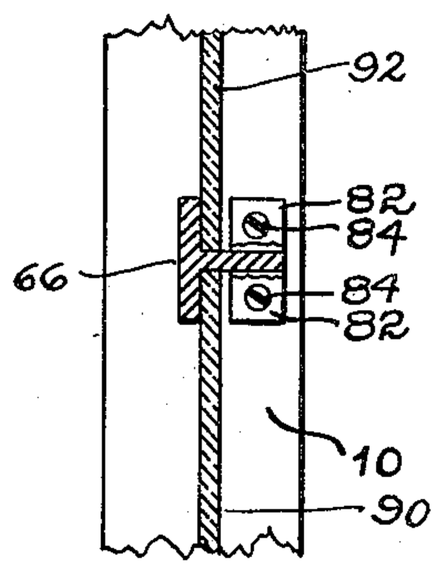

FIG. 8

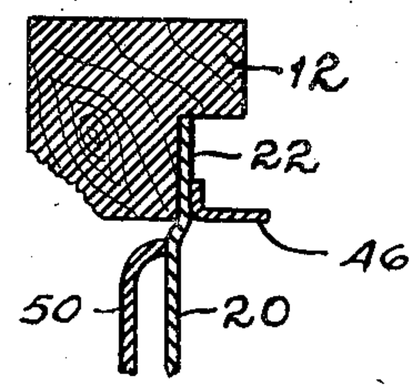

FIG. 3

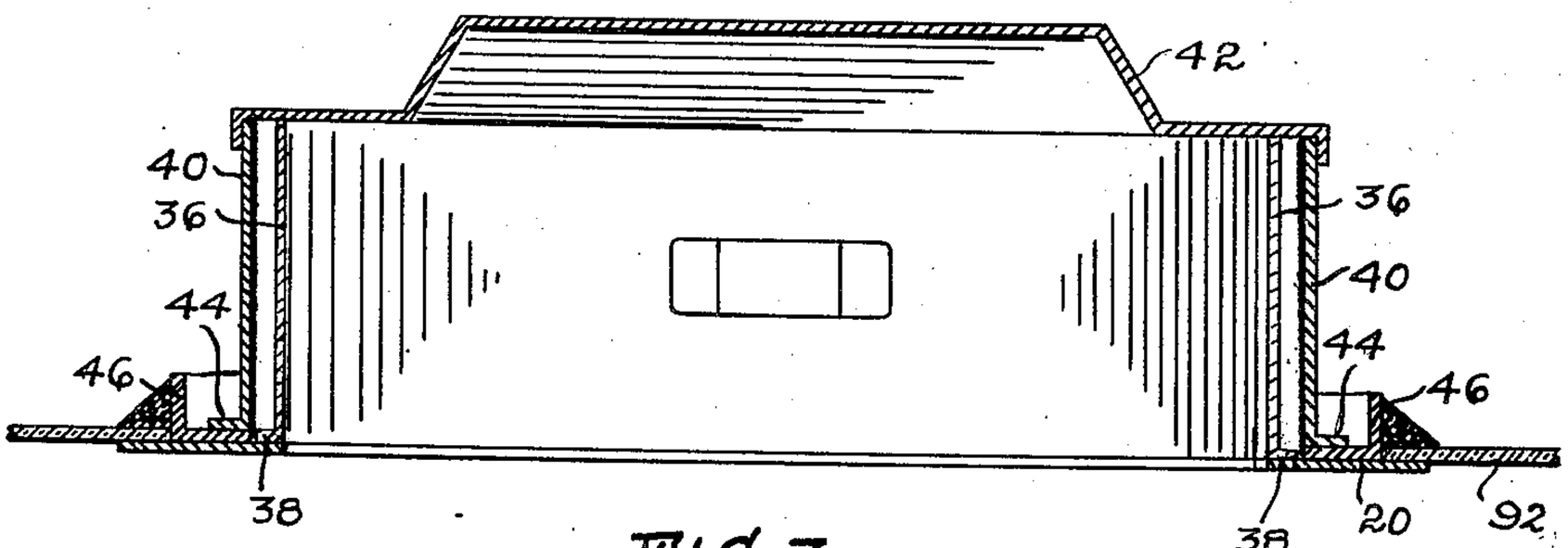

FIG. 7

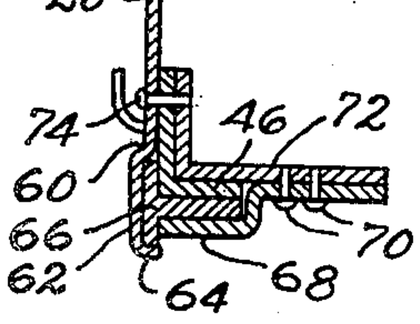

FIG. 9

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WINDOW VENTILATOR

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Application July 3, 1945, Serial No. 603,064

5 Claims. (Cl. 98—94)

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This invention relates to a window ventilator and more particularly to a window ventilator that may be mounted in a window that is already installed.

Numerous types of window ventilators and in-built ventilators have been used, some of which are adapted to be mounted in a section of a window formerly closed by a window pane, illustrative of which is the device disclosed in my Patent No. 2,316,634 granted April 13, 1943, for Ventilating Fan.

An object of this invention is to provide a window ventilator utilizing air propelling means that may be mounted in a portion of a double hung window.

Another object of this invention is to provide air circulating means that is mounted in an opening adapted to receive a window pane, the air circulating means being provided with muntin means for supporting glazing in the portion of the window opening that is not covered by the air circulating means.

Another object of this invention is to provide air circulating means having incorporated therein adjustable muntin sections adapted to support at least a portion of the air circulating means.

Another object of this invention is to provide air circulating means that utilizes standard parts adapted to accommodate various sizes of window openings, resulting in a structure that is inexpensive, lends itself to mass production and at the same time has sufficient flexibility to accommodate various sizes and types of window openings.

Another object of this invention is to provide air circulating means adapted for use with a selected set of muntin sections selected from a plurality of various sizes of sets of muntin sections, the sets being selected to fit the particular window in which the air circulating means is being mounted.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

Referring to the drawings, Figure 1 is a front elevational view of one section of a double hung window, having mounted therein an air circulating unit and adjustable muntin bars associated therewith.

Figure 2 is an enlarged view of the panel and the associated mounting means without showing the grill and the ventilating means.

Figure 3 is a fragmentary, cross sectional view, taken substantially on the line 3—3 of Figure 1.

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Figure 4 is a fragmentary, cross sectional view, taken substantially on the line 4—4 of Figure 5.

Figure 5 is a fragmentary, cross sectional view, taken substantially on the line 5—5 of Figure 2.

Figure 6 is a fragmentary, end view of a muntin bar.

Figure 7 is a fragmentary cross sectional view taken substantially on the line 7—7 of Figure 1, having removed therefrom the ventilating unit and the guard.

Figure 8 is another fragmentary cross sectional view, taken substantially on the line 8—8 of Figure 1.

Figure 9 is a cross sectional view taken substantially on the line 9—9 of Figure 2.

Figure 1 is drawn to a smaller scale than the remaining figures.

The ventilating unit disclosed herein is adapted for use in windows normally having a glazing space much larger than the ventilating unit. It has been shown as used in connection with a conventional wooden sash, wherein the installation of the glazing unit has been accomplished by removing a window pane, suspending the panel of the ventilating unit from the top rail member extending across the top of the window pane and supporting the bottom of the ventilating unit by adjustably mounted muntin sections having the ends attached to the sash stiles of the window. After the ventilating unit has been mounted in position, the space below the ventilating unit is glazed by utilizing the adjustable muntins and the bottom of the ventilating unit as the top muntin for the glazing. The spaces located on either side of the ventilating unit are also glazed by using the glazing seats or rabbets of the ventilating unit and the muntin sections as glass supports for two sides of each glass-receiving space. The other two sides of the glazing is supported by the top rail member and the side stiles of the window, as will appear more fully from the description that follows.

Referring to the drawings, the reference numeral 10 indicates the vertical side stiles of a conventional wood sash. The reference numeral 12 indicates the top rail member and 14 indicates the bottom rail member. The window frame or window sash may be any conventional window. In inserting the ventilating unit, the glazing is removed.

A ventilating unit panel 20, which may be made from suitable sheet metal, is suspended from the top rail member 12. The panel 20 has an offset flange 22 extending along the top, adapted to be seated in the conventional glazing

seat of the top rail member 12. A pair of links 24 are fixedly attached to the top rail member 12 by suitable screws 26. The lower ends of the links 24 each support a screw 28 passing through the panel 20 and held in adjusted position by a pair of nuts 30 and 32. This permits alignment of the panel with respect to the glazing seat, to thereby accommodate various thicknesses of mullion bars.

The panel 20 is provided with a large circular opening. A cylindrical shell 36 surrounds the circular opening and is provided with a flange 38 welded or otherwise secured to the panel 20. The cylindrical shell 36 is enclosed by a housing 40 mounted on the outside of the opening. The housing 40 is provided with a closure 42 that may be opened in a manner similar to the ventilating fan assembly described in my Patent No. 2,316,634 granted April 13, 1943.

The flange 44, surrounding the housing 40, rests upon an angle iron 46, extending along three sides of the panel. The angle iron 46 cooperates with the margin of the panel 20 to form glazing seats, as will be described more fully later. The panel 20, the angle bar 46 and the flange 44 are welded together, or otherwise secured together, to form a unitary structure. The panel and the angle irons, together with the housing 40, constitute a fixed assembly that may be used in various window openings and suspended from the top mullion bar as disclosed. The inside of the opening is covered by a suitable grill 50. The fan 52 is mounted in the housing and may be identical to the fan disclosed in my Patent No. 2,316,634.

As may best be seen by referring to Figure 5, the panel 20 is provided with a deflected portion 60 supporting a downwardly projecting flange 62 terminating in a reentrant flange 64, providing a housing for the face of the T-shaped muntin segments 66, there being one of these segments adjustably mounted on either end of the panel 20. The segments 66 are selected to fit the particular width of window from a plurality of segments of various lengths. The stem of the T-bar 66 is positioned between the flange of the angle bar 46 extending across the panel 20 near its bottom and a plurality of clips 68 are held in position by suitable screws 70 engaging L-shaped angle brackets 72. The brackets 72 are secured to the side of the upwardly directed flange of the angle bar 46 and held in position by screws 74. The screws 74 pass through the panel 20, the flange of the angle bar 46, and threadedly engage the L-shaped angle brackets 72. The outer end of each of the muntin segments 66 has the cross bar severed to permit the portion 80 of the stem of the T-shaped bar to project beyond the cross bar, as best seen in Figures 2 and 6. A pair of L-shaped brackets 82 are spot-welded or otherwise secured to the portion 80 of the T-bar. The brackets 82 are provided with apertures for receiving screws 84, securing the muntin segments to the sash stiles 10.

In assembling the ventilating assembly in the window opening, the glazing, if the window is glazed, is first removed. The panel 20 is projected into the glazing seat found in the top rail member 12. The links 24 are then secured in position by the screws 26 entering the top rail member 12. The nuts 30 and 32 are then adjusted, so as to properly position the panel 20 with respect to the rabbet or glazing seat in the top rail member 12. After the top of the panel 20 has been secured in position and properly

aligned, the muntin segments 66 are then adjusted in position by loosening the screws 70, permitting a sliding movement of the muntin bars with respect to the panel 20 to cause the L-shaped brackets 82 to engage the sash stiles 10. The screws 84 are then screwed into position, so as to hold the muntin sections in the proper position. The screws 70 are then tightened, so as to rigidly clamp the bottom portion of the ventilating unit to the muntin segments 66. As soon as this has been done, a suitable window pane 90 is cut to fit the opening below the ventilating unit. It is held in position by suitable glazing points engaging the sash stiles 10 and the bottom rail member 14 and puttied in position throughout the entire margin of the window pane 90. A pair of window panes 92 are then cut to fit the openings between the ventilating unit and the sash stiles 10 and the muntin sections 66 and the top rail member 12. After these window panes are secured in position by suitable points and putty, the assembly of the panel with respect to the sash is then complete.

The panel 20 and its housing are preferably assembled without the motor, the fan and the grill being secured in position. After the panel and the parts associated therewith have been inserted and secured in position, either before or after the glazing is completed, the fan, the motor and the parts associated therewith may be secured in position, together with the grill or guard extending across the opening.

The panel, the fan housing, the fan and the grill shown herein constitute a standard assembly that may be used in various sizes of openings. The muntin sections 66 permit limited adjustment in width. These sections are selected for the particular window from a plurality of muntin sections of various lengths, so that a dealer or a contractor may stock the panels and the fan assemblies in readiness for use. The dealer may also carry a suitable stock of various lengths of muntin sections, thereby providing ventilating units that may be used in various sizes of windows without the dealer carrying a stock of complete units for each size of window, which would mean an excessively heavy inventory and undoubedly result in an over supply of some dimensions and a scarcity of others, depending upon the requirements of a particular community. By providing a standard assembly that may be used in various sizes of windows, the inventory is greatly reduced.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. A ventilating unit adapted to be inserted into a conventional wood sash having top and bottom rail members and side stiles, said ventilating unit including a standard panel member provided with an opening, a fan mounted in registry with the opening for circulating air therethrough, means for suspending the panel from the top rail member of the sash, said means including a pair of screw threaded studs and a pair of links, one for each of the studs, said links being aligned upon the studs so as to contact the inside of the top rail member of the sash, means for fixedly

securing the links to the top rail member, a pair of adjustably mounted muntin sections selected from a plurality of various lengths of muntin sections for supporting the bottom of the panel, means for adjustably holding the muntin sections in fixed position with respect to the lower margin of the panel, and means for securing the ends of the muntin sections to the side stiles of the sash so as to permit glazing of the space below the muntins and so as to permit glazing on either side of the panel.

2. A ventilating unit adapted to be inserted into a conventional wood sash window, said sash being provided with top and bottom rail members and side stiles, said ventilating unit including a standard panel member having a width less than the distance between the side stiles, said panel member being provided with an opening, means for circulating air through the opening, the panel member being provided with a deflected portion supporting a downwardly projecting flange extending along the bottom of the panel member, means for suspending the panel from the top rail member of the sash, a pair of adjustably mounted muntin sections selected from a plurality of various lengths of muntin sections, said muntin sections being positioned against the flange, clips for clamping the muntin sections to the panel member so that the selected muntin sections support the lower portion of the panel in fixed relation with respect to said sash, and means for securing the ends of said muntin sections to the sash.

3. A ventilating unit adapted to be inserted into a conventional wood sash having top and bottom rail members and side stiles, said ventilating unit including a standard panel member provided with an opening, a fan mounted in registry with the opening for circulating air therethrough, means for suspending the panel from the top rail member of the sash, said means including a pair of screw threaded studs and a pair of links adjustably mounted on the studs, said links being aligned upon the studs so as to contact the inside of the top rail member of the sash, screws for securing the links to said top rail member, a pair of adjustably mounted muntin sections selected from a plurality of various lengths of muntin sections for supporting the bottom of the panel, said muntin sections extending from the panel to the sash, and means for securing the ends of the muntin sections to the sash.

4. A ventilating unit adapted to be inserted into a conventional wood sash having top and bottom rail members and side stiles, said ventilating unit including a standard panel member provided with an opening, a fan mounted in registry with the opening for circulating air therethrough, means for suspending the panel from the top rail member of the sash, said means including a pair of screw threaded studs and a pair of links one for each of the studs, said links being aligned upon the studs so as to contact the inside of the top rail member of the sash, screws for fixedly securing the links to said top rail member, a pair of adjustably mounted muntin sections selected from a plurality of various lengths of muntin sections for supporting the bottom of the panel, means for adjustably holding the muntin sections in fixed position with respect to the lower portion of the panel, and means for securing the ends of the muntin sections to the sash so as to permit glazing on both sides of the muntin sections and along three sides of the panel.

5. A ventilating unit for use in a window opening provided with a sash having top and bottom rail members and a pair of parallel sash stiles, said opening having portions glazed, said ventilating unit including a standard panel member provided with an opening, a fan mounted in registry with the opening circulating air through the opening, means for suspending the panel member from the top rail member of the sash, a pair of adjustably mounted muntin sections for supporting the bottom of the panel member, means for adjustably holding the muntin sections in fixed position with respect to the lower margin of the panel member, said means providing longitudinal adjustment of the muntin sections for accommodating various widths of sashes, means for securing the ends of the muntin sections to the sash stiles, the space below the panel member and the space to either side of the panel member being glazed.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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2,021,684	Faber	Nov. 19, 1935
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2,316,634	Spear	Apr. 13, 1943