May 15, 1962 G. A. POWELL 3,034,416

AUTOMATIC VENTILATOR WINDOW

Filed Dec. 11, 1959

FIG. 1

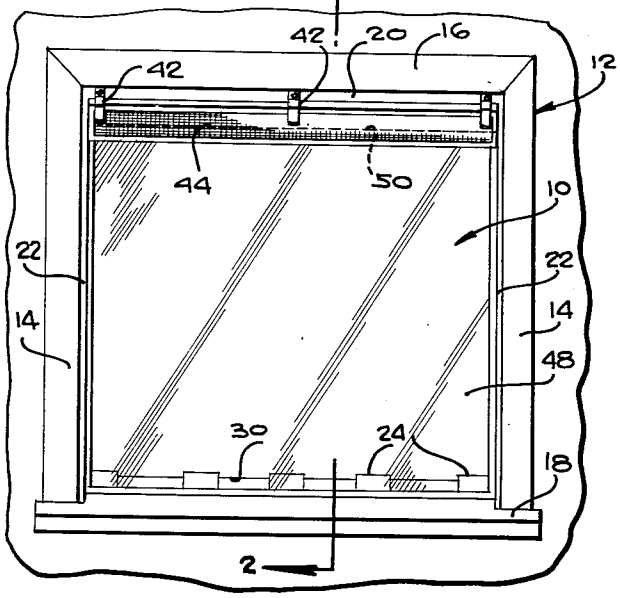


FIG. 2

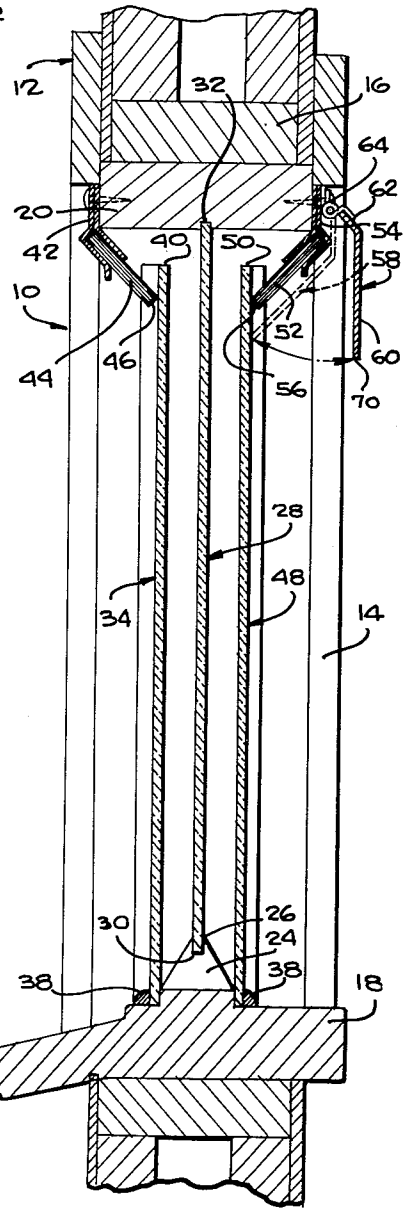
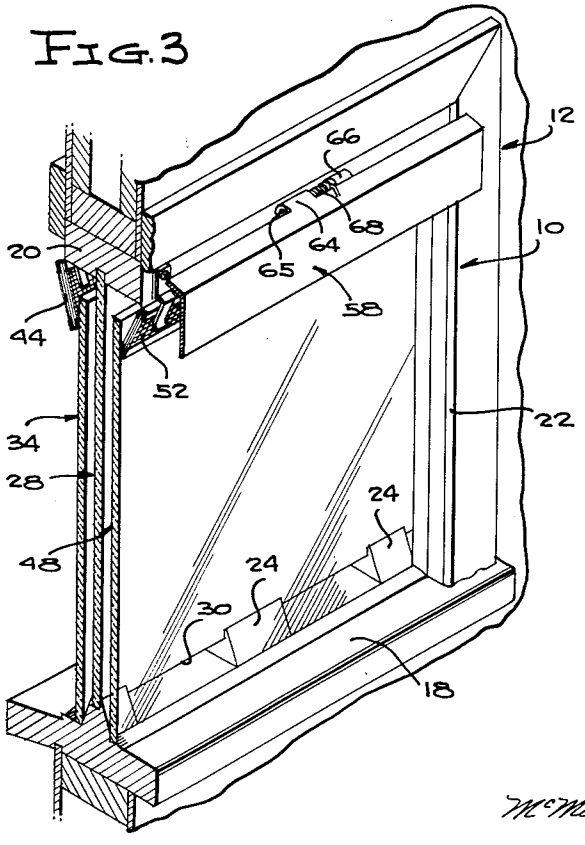


FIG. 3



INVENTOR.
GEORGE A. POWELL
BY

McMorrow, Berman + Davidson
ATTORNEYS

United States Patent Office 3,034,416 Patented May 15, 1962

3,034,416

AUTOMATIC VENTILATOR WINDOW

George A. Powell, Box 4510 SRB, Spenard, Alaska

Filed Dec. 11, 1959, Ser. No. 858,892
3 Claims. (Cl. 98—88)

This invention relates to a novel automatic ventilator window providing thermal circulation of outdoor and indoor air therethrough.

The primary object of the invention is to provide a window structure of the kind indicated, which is suitable for installation in ordinary window frames of various sizes, and for installation in picture window frames, and which operates without adjustment or manipulation, in cold weather to automatically circulate fresh cold outside air therethrough into a warm room, and in warm weather, to circulate warmer room air therethrough to the cooler outside, and which can eliminate frosting and steaming in moderate climates.

Another object of the invention is to provide a relatively inexpensive window structure of the character indicated, which is of simple and uncomplex construction, and can be easily installed without greater trouble or more special provisions than presently available thermopanes and other multiple panel window structures.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is an inside elevation showing a window of the present invention installed in a window frame;

FIGURE 2 is an enlarged fragmentary vertical transverse section taken on the line 2—2 of FIGURE 1, and showing the inside door in open position in full lines and in closed position in phantom lines;

FIGURE 3 is an enlarged fragmentary inside perspective view partly broken away and in vertical section, and showing the door in open position.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated window, generally designated **10**, is shown as installed in a window frame **12** having vertical side members **14**, a top cross member **16**, and a sill **18**.

The window **10** comprises a frame having a top cross member **20**, set securably in the top frame cross member **16**, from whose ends depend vertical side members **22** which are secured to the frame side members **14**. The window frame thus partially constituted, has a bottom cross member which is either the existent sill **18**, or another suitable bottom cross member, upon which are fixed upstanding longitudinally spaced pylons **24**. The pylons **24** are preferably wedge-shaped, with longitudinal grooves **26** formed in their smaller upper ends.

A middle pane **28**, which is preferably of clear plastic, in order to avoid complete uncovering of the window opening in the event of breakage of either the outer or inner pane, has its lower edge **30** supportably engaged in the pylon grooves **26**, so that a horizontal air slot or passage is defined between the lower edge **30** and the bottom cross member of the window, between the pylons **24**. The side edges of the middle pane **28** are suitably inset in the window side members **22**, and the upper edge thereof is suitably inset in the top cross member **20**, as indicated at **32**.

The window **10** further comprises a preferably glass outer pane **34** which is spaced outwardly from and is parallel to the middle pane **28**, and is inset at its side edges in the side members **22** and is supported at its lower edge on the sill **18**, at the outer sides of the pylons **24**, and held in place by a seal **38** which extends along the lower edge

and the side edges of the pane **34**. The upper edge **40** of the pane **34** is spaced downwardly from the top cross member **20**, so as to define a horizontal air passage or slot. Fixed, as indicated at **42**, to the top cross member **20**, is a filter plate **44**, preferably of fiberglass, which is angled downwardly and inwardly toward and has a lower edge **46** which bears against the outer side of the outer pane **34**, below its upper edge **40**, so as to bridge the air slot above the outer pane **34**, for filtering air passing through this slot.

The window **10** further comprises an inner, preferably glass pane **48**, similar to the outer pane **34** and similarly spaced parallel from the inward side of the middle pane **28**, and similarly mounted and sealed, and having an upper edge **50** which is simlarly spaced downwardly from the top cross member **20**, to define a horizontal air slot or passage.

A filter plate **52**, like the filter plate **44**, but reversed in position to engage the inner side of the inner pane **48**, is similarly mounted, as indicated at **54**, on the top cross member **20** and has a lower edge **56** occupying the inner pane below its air pane. For stopping air circulation through the window **10** into a room at the inward side of the window, as in windy weather, a door **58** is provided at the inner side of the window.

The door **58** preferably comprises a flat horizontally elongated plate **60** to extend across the window **10** and wider than the air slot of the inner pane **48**, having an outwardly angled flange **62** on its upper edge, on whose upper edge is a short centered hinge barrel **64** which is engaged on a hinge pin **65** carried by a bracket **66** which is fixed to the top member **20**, above the filter plate **52**. A spring **68**, encircling the hinge pin **66**, can be provided, to engage the flange **62** and the top member **20** for holding the door **58** in outwardly swung air slot closing position, as shown in phantom lines in FIGURE 2, with its lower edge **70** engaged with the inner pane **48**, at a point below the filter plate **52**. The door **58** is adapted to be swung inwardly to the full line open position shown in FIGURES 2 and 3, to provide normal air circulation through the window **10**, wherein the door is secured by suitable means (not shown).

While the door **58** is in its open position and the outside temperature is below the indoor temperature of the room into which the window **10** opens, outside fresh air passes through the outer pane slot and passes downwardly in the space between the outer pane **34** and the middle pane **28**, through the slot at the lower end of the middle pane, and upwardly in the space between the middle pane and the inner pane **48**, and into the room through the inner pane air slot. The relatively low temperature existing in the space between the outer pane **34** and the middle pane **28**, due to the exposure of the outer pane to the cold outside air, and the relatively higher temperature existing in the space between the room-warmed inner pane **48** and the middle pane **28** produces this air circulation thermally and automatically in a well-known manner. When the outside temperature is above the inside room temperature, reverse thermal circulation of air through the window is automatically produced.

While there has been shown and described herein a preferred form of the invention, it is to be understood that the invention is not necessarily confined thereto, and that any change or changes in the structure of and in the relative arrangements of components thereof are contemplated as being within the scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. An automatic ventilator comprising a frame having vertical side members and top and bottom members extending between the side members, said frame having outer and inner surfaces, an outer pane positioned in the

frame and spaced inwardly from the outer surface of the frame and securably engaged at its lower edge and side edges with the frame bottom member and side members, said outer pane having an upper edge located close to and spaced from the underside of the top member of the frame so as to define a transverse slot, said slot having a height only a small fraction of the height of the outer pane, an inner pane spaced outwardly from the inner surface of the frame and securably engaged at its lower and side edges with the bottom member and side members of the frame, said inner pane having an upper edge close to and spaced from the underside of the top member to define a transverse slot, the height of the inner pane slot being only a small fraction of the height of the inner pane, said outer and inner panes being spaced from each other at a distance less than half the width of the frame, a middle pane located between and spaced from the outer and inner panes and secured at its upper edge and side edges to the top member and side members of the frame, the lower edge of the middle pane being spaced from the bottom frame member to define a slot only a small fraction of the height of the middle pane in height, means on the upper surface of the frame bottom member to which the lower end of the middle pane is secured, said means providing for transfer of air under the lower edge of the middle pane from the spaces between the outer pane and the middle pane and the middle pane and the inner pane.

2. The ventilator according to claim 1 which includes in addition outer and inner screens severally mounted on

the outer and inner surfaces of the top member of the frame, said screens being as long as the outer pane and inner pane slots and being angled downwardly toward and in contact with the outer and inner panes at points below the slots.

3. The ventilator according to claim 2 which includes in addition an imperforate door hinged on the frame top member and extending downwardly therefrom at the outer side of a screen for closing a pane slot, said door being adapted to occupy a perpendicular open position relative to a screen and a closed position wherein the door covers and is spaced below the screen and is engaged with the surface of the pane at a point below the screen.

References Cited in the file of this patent

UNITED STATES PATENTS

763,106	Myrick	June 21, 1904
1,007,675	Crane	Nov. 7, 1911
1,119,288	Kurz	Dec. 1, 1914
1,165,990	MacDowney	Dec. 28, 1915
1,211,191	Levey	Jan. 2, 1917
1,363,735	Hester	Dec. 28, 1920
1,862,967	Parker	June 14, 1932
2,125,669	Fisk	Aug. 2, 1938
2,384,240	Dumaw	Sept. 4, 1945

FOREIGN PATENTS

540,802	Great Britain	Oct. 30, 1941