Nov. 2, 1971 V. ALTER 3,616,743

VENTILATOR STRUCTURE

Original Filed May 15, 1968 2 Sheets-Sheet 1

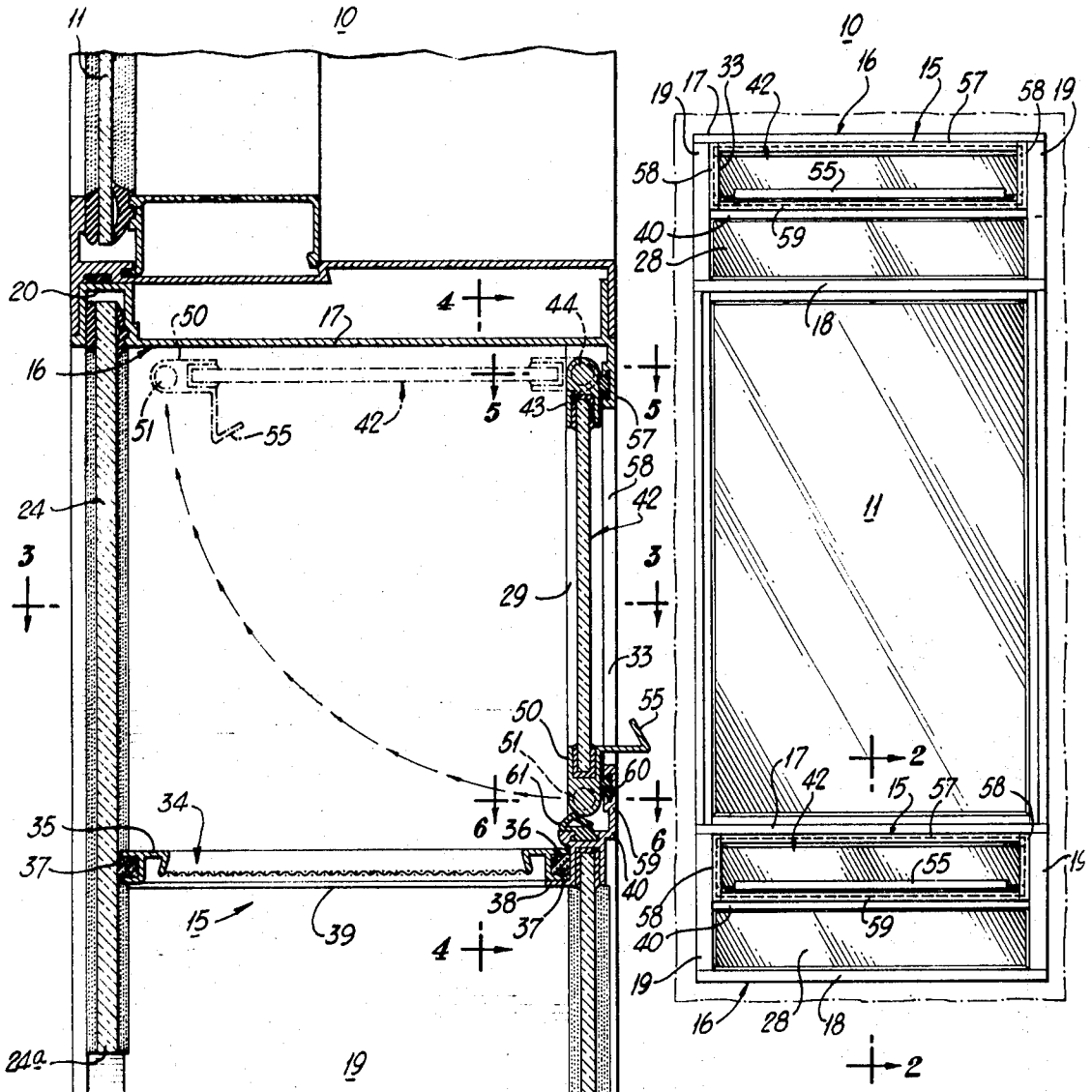


Fig. 1

Fig. 2

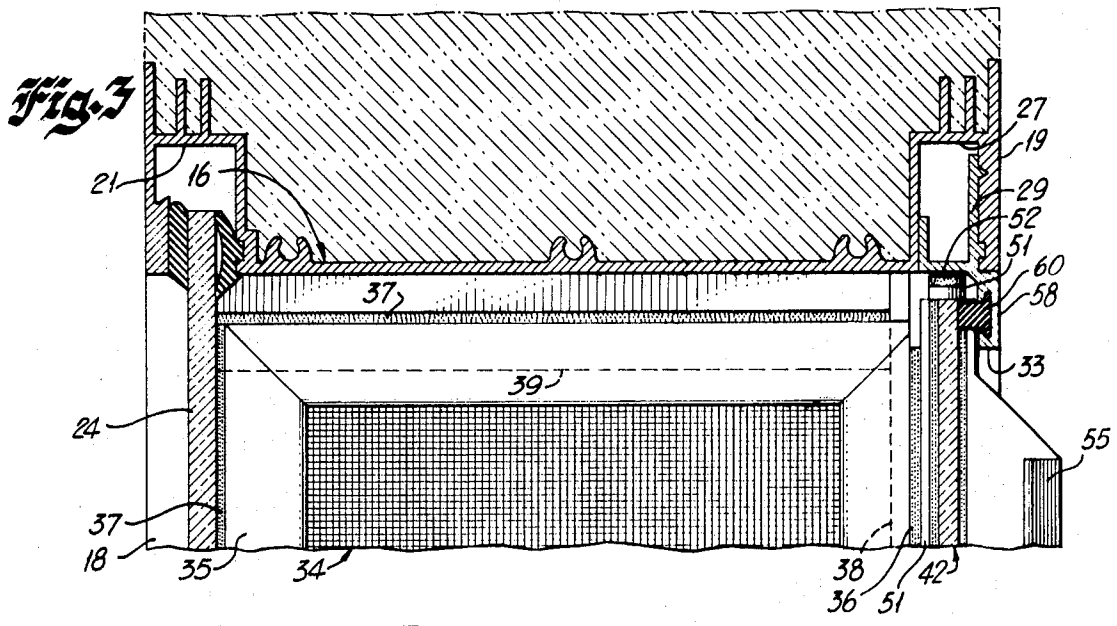
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Fig. 3



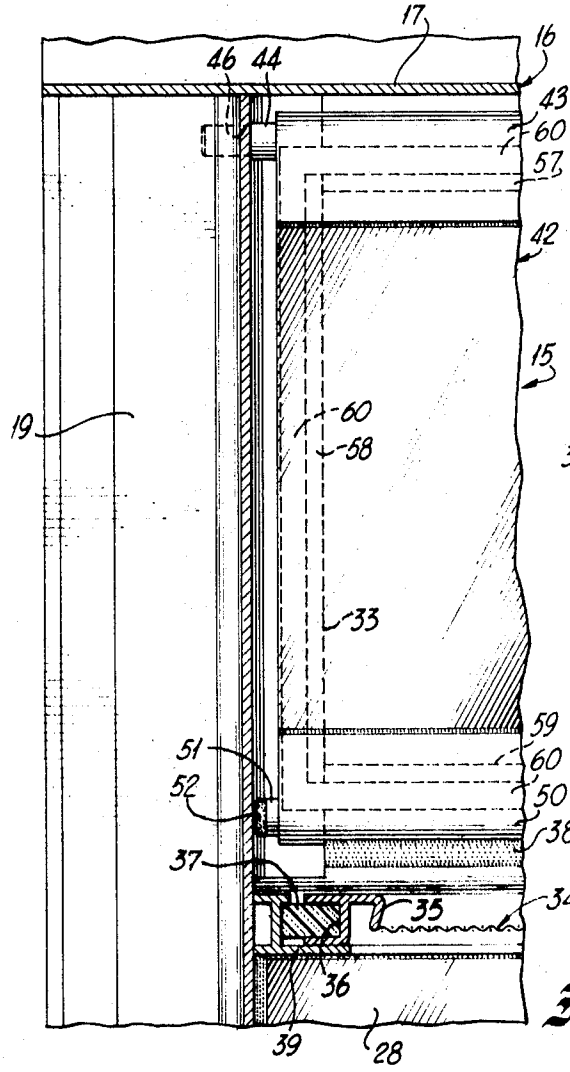


Fig. 4

Fig. 5

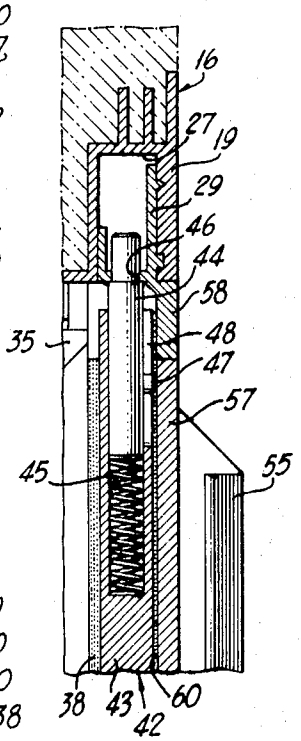
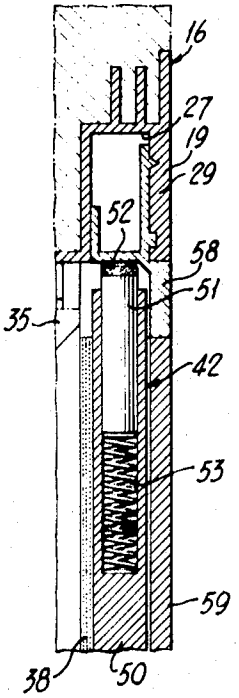


Fig. 6



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United States Patent Office

3,616,743

Patented Nov. 2, 1971

3,616,743

VENTILATOR STRUCTURE

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Continuation of application Ser. No. 729,269, May 15, 1968. This application Mar. 5, 1970, Ser. No. 15,315

Int. Cl. E06b 7/02

U.S. Cl. 98—99 18 Claims

ABSTRACT OF THE DISCLOSURE

There is provided a ventilator structure including a frame that defines an opening. An outer panel extends downwardly from the top of the opening, terminating above the bottom of the opening. An inner panel extends upwardly from the bottom of the opening, terminating below the top of the opening and above the bottom edge of the outer panel. A transverse, generally horizontally positioned screen extends between the two panels.

This application is a continuation of application No. 729,269 filed May 15, 1968.

The present invention relates to a ventilating structure, and particularly to a window type ventilator.

Heretofore commercial types of operating windows generally exposed the seam joint between the operating sash and the frame to wind, rain and other weather elements. Even the best of weathering spline applications will leave this joint a relatively weak point of the window, in terms of sealing against the weather. When subjected to high wind pressures, accompanied by rain, such window structures frequently leak.

It is an object of the present invention to provide a new and improved ventilator which overcomes the above mentioned difficulties.

Another object of the present invention is to provide a new and improved window type ventilator.

Yet another object of the present invention is the provision of a new and improved ventilator wherein the seam joint of the operating ventilator and the frame is not exposed to the elements of the weather.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

In accordance with these and other objects, there is provided an improved ventilating structure such as a window ventilator, including a frame assembly that defines a panel opening. An outer panel is positioned within the opening extending from the top thereof and terminating above the bottom thereof to define an outer ventilating opening. An inner panel is also provided in the opening, the panel extending from the bottom thereof and terminating below the top thereof and above the bottom of the outer panel to define an inner ventilating opening. A screen assembly is provided transverse of the opening between the panels.

The improved window ventilator exploits the principle of rainscreen fully by providing a true rainscreen in front and over the ventilator within one frame unit, so that the seam joint of the operating ventilator and the frame is not exposed to the weather. Thus the new window ventilator gives very high performance in terms in keeping the weather out. Advantageously it is possible to open the ventilator during rainy weather. Additionally there are no projections inward or outward of the ventilator while open which could interfere with blinds, curtains or otherwise present a safety hazard. The screen is invisible to provide a desirable architectural and esthetic result and to protect the screen. High wind pressure presses the operating ventilator harder against the weatherstripping to better seal the ventilator seam. No exposed operating hardware is required. In the illustrated embodiment the ventilator may be held open at an infinite number of positions. The ventilator may be easily removed for cleaning and access to the rainscreen panel. Moreover the window ventilator automatically generates a deflected air flow, preventing an objectionable direct draft.

For a better understanding of the present invention, reference may be had to the accompanying drawings wherein:

FIG. 1 is an elevational view of a window employing the improved ventilator structure;

FIG. 2 is a cross sectional view of the improved ventilator structure, taken along line **2—2** of FIG. 1;

FIG. 3 is a fragmentary cross sectional view of the ventilator structure of FIG. 1, taken along line **3—3** of FIG. 2;

FIG. 4 is a fragmentary sectional view of the window structure of FIG. 1, taken along line **4—4** of FIG. 2;

FIG. 5 is a cross sectional view illustrating the hinge pin in detail, taken along line **5—5** of FIG. 2; and

FIG. 6 is a cross sectional view illustrating the holding arrangement, taken along line **6—6** of FIG. 2.

Referring now to the drawings, there is illustrated a window assembly **10** that includes a fixed panel **11** and upper and lower ventilator structures **15** according to the present invention.

Referring to the ventilator structure **15**, as best illustrated in FIG. 2, each of the ventilator structures **15** includes a frame assembly **16** formed of a head rail **17**, a jamb rail **18**, and sill rails **19**. The frame assembly **16** defines a ventilating opening of sufficient depth so as to result in the required free air passage dimension. The head rail **17** and sill rails **19** have aligned integral grooves **20** and **21** to form an outer panel plane for installation of a rainscreen or panel **24**, which may be of glass or other desired material. The jamb rail **18** and sill rails **19** are provided with an additional set of aligned grooves **26** and **27**, respectively, that define an inner panel plane for receiving an inner panel **28** of glass or other suitable material. In addition the grooves **27** in the sill rails **19** are closed by fillers **29** above the inner panel **28**. A lower edge **24***a* of the rainscreen **24** extends downwardly below the level of the upper edge of the inner panel **28** as best seen in FIG. 2.

An outer ventilating opening **32** is defined below the rainscreen **24** and an inner ventilating opening **33** is defined above the inner panel **28** to provide a passage for ventilating air through the ventilating structure **15**. In the illustrated embodiment the ventilating passage is protected by an insect screen assembly **34** that extends transversely between the rainscreen **24** and the inner panel **28**, substantially horizontally, from the upper edge of the inner panel **28**. The insect screen assembly **34** includes a frame **35** having an outwardly opening peripheral channel **36** that contains a resilient sealing gasket **37** to close off the edges to insects and the like. The screen assembly **34** is supported by suitable flange members **38** and **39** formed on a horizontal frame rail **40** at the top of the inner panel **28** and in the sill rails **19**.

To provide for controlling the flow of air through the ventilating passage, the inner ventilating opening **33** is closed by a suitable ventilating panel or operable sash assembly **42**. The ventilating panel assembly **42** in the illustrated embodiment is hinged at the top so as to swing outwardly to the position illustrated in phantom in FIG. 2. Specifically the ventilating panel assembly **42** includes an upper frame member **43** carrying a pair of hinge pins **44** biased outwardly by a compression spring **45**, FIG. 5, so as to project normally into respective hinge openings

46. The hinge pins 45 may be retracted by suitable means such as hinge handles 47 that extend through slots 48 in the upper frame member to provide for removal of the ventilating panel assembly 42 for cleaning and the like.

To provide for holding the ventilating panel assembly 42 in any desired position of its outward travel, the ventilating panel assembly 42 is provided with a lower frame member 50 that carries an outwardly biased plunger 51 having a tip of friction material 52. A compression spring 53 biases the plunger 51 outwardly so that the friction tip 52 thereof engages against the inner surface of the sill rails 19 to frictionally hold the ventilating panel assembly 42 into any open position.

A pull handle 55 formed on the lower frame member 50 facilitates the closing of the ventilating panel assembly 42.

The head rail 17, sill rails 19, and the horizontal frame rail 40 are all provided with inwardly extending flange portions 57, 58 and 59 having suitable means on their inner surface to carry a continuous length of weatherstripping 60 to completely seal around the periphery of the ventilating panel assembly 42 when it is closed. Any pressure against the outside of the ventilating panel assembly 42 will tend to seal the seam tighter.

For holding the ventilating panel assembly 42 closed, the horizontal frame rail 40 carries a locking spline 61, FIG. 2, of generally hollow triangular tubular cross section formed of resilient material such that the lower ledge of the ventilating panel assembly 42 snaps overcenter, locking the ventilating panel assembly 42 in its closed position.

From the foregoing detailed description, it will be seen that the advantages previously set forth are readily realized by the improved ventilator structure. The weatherstrip 60 in the operating panel is protected from the weather to provide an improved seal. Moreover the panel assembly 42 may be opened any amount from its closed to its full open position to provide the desired amount of ventilation.

Although the present invention has been described by reference to only a single embodiment thereof, it will be apparent that numerous other modifications and embodiments may be devised by those skilled in the art, and it is intended by the appended claims to cover all modifications and embodiments which will fall within the true spirit and scope of the present invention.

What is claimed is:

1. A ventilating structure comprised of a frame assembly defining an opening to provide inner and outer panel planes; an outer panel in said outer panel plane extending from the top of said opening and terminating remotely spaced above the bottom thereof that defines an outer ventilating opening; an inner panel in said inner panel plane extending from the bottom of said opening and terminating remotely spaced below the top thereof to define an inner ventilating opening; an operable sash panel in said inner ventilating opening, said panel swinging outwardly from a closed to an open position; a screen assembly transversely of said opening between said panels; said frame assembly including a horizontal frame rail along the upper edge of said inner panel; and a continuous weatherseal provided around said sash panel when said sash panel is closed.

2. A ventilating structure as set forth in claim 1 including a locking spline of resilient material carried by said frame rail to hold the sash panel in closed position.

3. A ventilating structure comprised of a frame assembly defining an opening to provide inner and outer panel planes; an outer panel in said outer panel plane extending from the top of said opening and terminating remotely spaced above the bottom thereof that defins an outer ventilating opening; an inner panel in said inner panel plane extending from the bottom of said opening and terminating remotely spaced below the top thereof to define an inner ventilating opening; an operable sash panel in said inner ventilating opening, said panel swinging outwardly from a closed to an open position; a screen assembly transverse of said opening between said panels; said sash panel including frictional means for maintaining said sash panel in any open position.

4. A ventilating structure comprised of a frame assembly defining an opening to provide inner and outer panel planes; an outer panel in said outer panel plane extending from the top of said opening and terminating remotely spaced above the bottom thereof that defines an outer ventilating opening; an inner panel in said inner panel plane spaced apart from and parallel to said outer panel and extending from the bottom of said opening and terminating remotely spaced below the top thereof to define an inner ventilating opening; a screen assembly transverse of said opening between said panels; and an operable sash panel in one of said ventilating openings mounted for swinging movement about a longitudinal axis between a closed and open position.

5. A ventilating structure comprised of a frame assembly defining an opening to provide inner and outer panel planes; an outer panel in said outer panel plane extending from the top of said opening and terminating remotely spaced above the bottom thereof that defines an outer ventilating opening; an inner panel in said inner panel plane spaced apart from and parallel to said outer panel and extending from the bottom of said opening and terminating remotely spaced below the top thereof to define an inner ventilating opening; a screen assembly transverse of said opening between said panels; and an operable sash panel in one of said ventilating openings; said operable sash panel being connected by horizontal hinge means adjacent one of the first mentioned panels and swinging from a closed to an open position.

6. A ventilating structure as set forth in claim 5 wherein said operable sash panel opens toward the other of the first mentioned panels.

7. A ventilating structure comprised of a frame assembly defining inner and outer panel planes; outer panel means having a lower portion terminating in said outer panel plane and defining an outer ventilating opening; inner panel means remotely spaced relative to said outer panel means in said inner panel plane and defining an inner ventilating opening; and a screen assembly extending between said panel means; said inner panel means including an operable sash panel in said inner ventilating opening mounted for swinging movement about a longitudinal axis between a closed and open position.

8. A ventilating structure as set forth in claim 7 wherein said operable sash is pivotally mounted for movement about a horizontal hinge axis along one edge of said inner opening for swinging movement between said open and said closed positions.

9. A ventilating structure comprising opening framing means forming parallel, vertically disposed inside and outside ventilating openings offset vertically and horizontally from one another, said framing means including wall surfaces defining a passageway for the movement of air between said inside and outside openings; horizontal screen means extending across said passageway between said inside and outside openings; and closure means pivotally supported for movement between a first position closing against the periphery around one of said ventilating openings and a second, open position away from said periphery permitting ventilating air flow between said openings through said passageway.

10. The ventilating structure of claim 9 wherein said inside and outside openings are defined in spaced apart vertical planes, said outside opening positioned vertically below said inside opening.

11. The ventilating structure of claim 9 including upstanding inside panel means having an upper edge spaced above said outside opening.

12. The ventilating structure of claim 9 including a de-

pending panel structure having a lower edge defining an upper edge of said outside opening.

13. The ventilating structure of claim **12** including an upstanding inside panel means parallel and spaced inwardly of said depending panel structure, said panel means having an upper edge spaced above said outside opening, and wherein said screen means extends between said panel structure and said panel means.

14. The ventilating structure of claim **9** wherein said closure means comprises an operable sash panel supported for swinging movement about a pivot axis adjacent one edge and movable to open and close said inside opening defined by said framing means.

15. The ventilating structure of claim **9** including outside panel means having a lower edge defining an upper edge of said outside opening and inside panel means spaced inwardly of said outside panel and having an upper edge defining a lower edge of said inside opening, said lower edge of said inside opening spaced above said upper edge of said outside opening and said screen means extended between said inside and outside panel means.

16. The ventilating structure of claim **15** wherein said

closure means comprises an operable sash panel above said screen means supported for swinging movement between open and closed positions relative to said inside opening.

17. The ventilating structure of claim **16** including a continuous elongated weatherseal around said inside opening for sealing against said sash panel in said closed position.

18. The ventilating structure of claim **16** including retractable pin means for pivotally supporting said sash panel in said framing means and retractable for permitting the removal of said sash panel from said framing means.

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