No. 879,119. PATENTED FEB. 11, 1908.

A. B. REDELL & J. A. PANTER.

VENTILATOR.

APPLICATION FILED JAN. 27, 1906.

Fig. 1

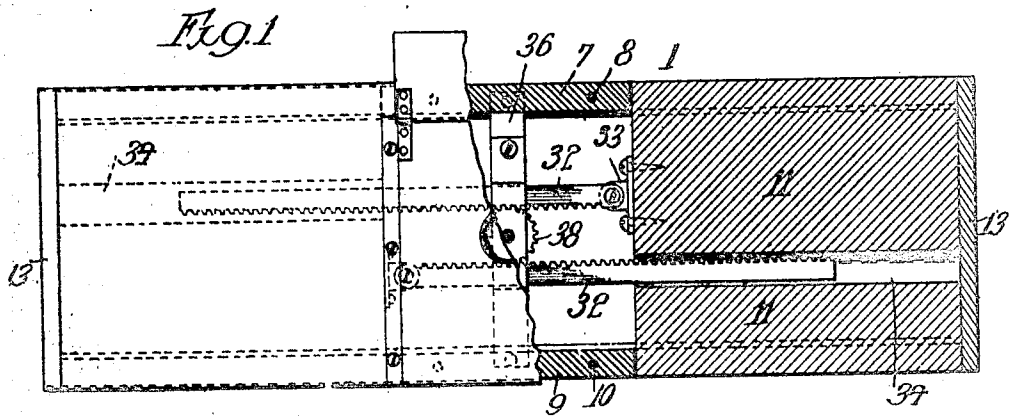


Fig. 2

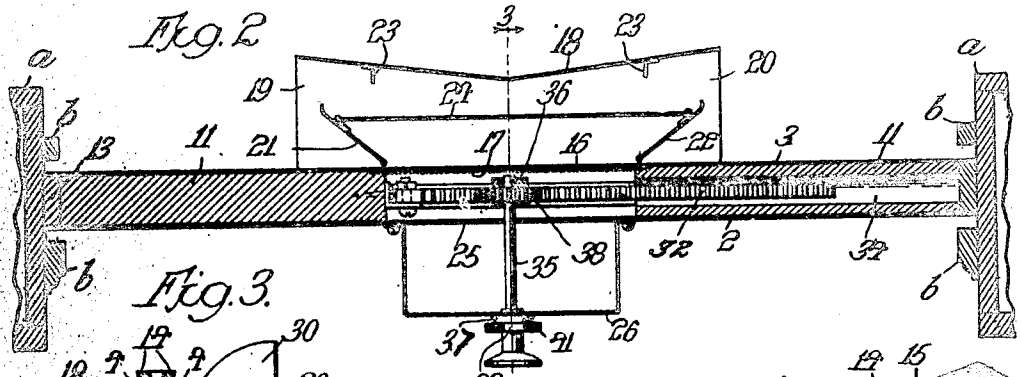


Fig. 3.

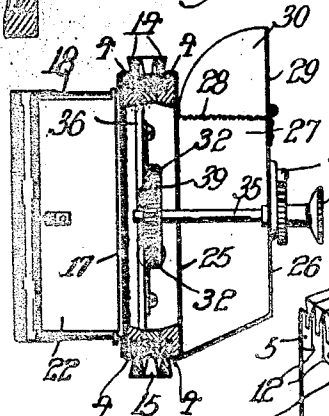
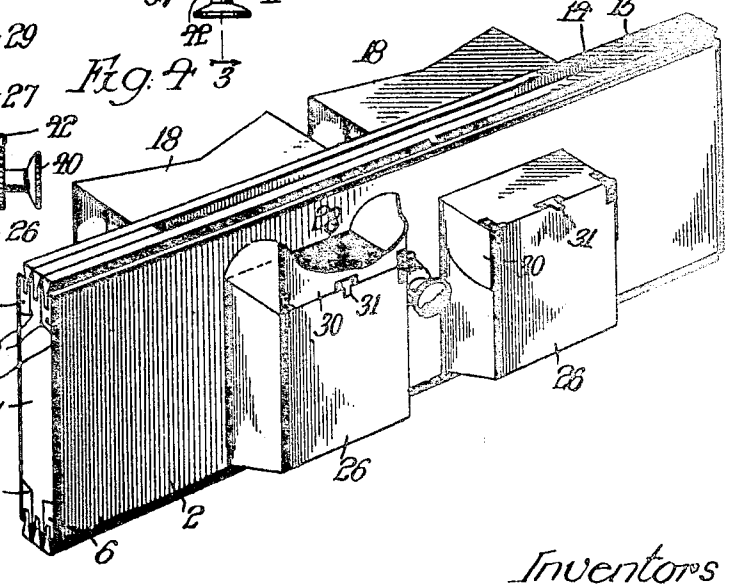


Fig. 4



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ALVIN B. REDELL AND JOHN A. PANTER, OF CHICAGO, ILLINOIS, ASSIGNORS TO NATIONAL VENTILATOR AND MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

VENTILATOR.

No. 879,119. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed January 27, 1906. Serial No. 298,175.

To all whom it may concern:

Be it known that we, ALVIN B. REDELL and JOHN A. PANTER, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

This invention relates to ventilators, and it refers particularly to that class of ventilators which are adapted to be placed within a window frame or opening.

One of the objects of the invention is the production of a ventilator which may be adjusted in size to fit window frames of different widths.

Another object is the production of improved means for preventing the passage of air or moisture between the ventilator and the window casing in which it is set.

A further object of the invention is the provision of means for automatically controlling the flow of air through the ventilator.

The invention further relates to the various features of improvement hereinafter set forth.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, of a ventilator embodying the features of our invention. Fig. 2 is a horizontal sectional view through said ventilator, showing it in position in a window frame. Fig. 3 is a vertical section through said ventilator, taken on the plane of dotted line 3 3 of Fig. 2. Fig. 4 is a perspective view, partly in section, of a slightly modified form of our invention.

In the drawings *a* refers to a window frame or casing, and *b* to the guide strips for the lower window sash.

Each of the embodiments herein shown of our invention comprises a body portion 1 adapted to be set within a window casing and to rest upon the window sill beneath the lower sash. In this instance the body portion 1 comprises a front plate 2 and a rear plate 3, preferably of sheet metal, said plates having integral flanges 4 at their upper and lower edges. An upper rail 5 and a lower rail 6 are fixed in any suitable way to each of said plates at the upper and lower edges thereof. The upper rails 5 are spaced apart by a block 7 lying between the middle portions of said rails, and said rails are secured together by means of screws 8 passing through said rails and block. The lower rails 6 are spaced apart and fastened together in a similar way by means of a block 9 and screws 10.

In order to adapt the ventilator to windows of different sizes, we make the body portion 1 extensible in length by slidably mounting extension members 11 between the ends of the plates 2 and 3, said blocks being rabbeted as at 12, on both sides, at their upper and lower ends to receive the rails 5 and 6. The means for moving the extension members 11 toward and away from each other, in order to alter the length of the body portion 1, will be described later herein. Upon the outer end of each of the blocks is fixed a finishing piece 13 adapted to overlie the ends of the rails 5 and 6 and provide closed, finished ends for the body portion.

Suitable packing is provided at the upper and lower edges of the body portion 1, in order to prevent leakage of air or moisture around said body portion. In the present instance, said packing comprises strips 14 of felt or other suitable material, attached to and extending the full length of the top and bottom rails 5 and 6, and shorter strips 15, also of felt, attached to the upper and lower edges of the extension members 11 and the finishing pieces 13.

An opening 16 is formed in the rear plate 3, which opening is covered by a screen 17 attached to said rear plate. A hood 18, preferably of sheet metal and provided with oppositely-facing inlet openings 19 and 20, is rigidly mounted upon the rear plate 3 over the opening 16, the end portions of said hood extending beyond the side margins of the openings 16. A shutter 21 is pivotally mounted within the hood 18 at one side of the opening 16 in position to close the inlet opening 19, and a similar shutter 22 is provided at the other end of the hood 18 for the inlet opening 20. A stop 23 fixed upon one of the inner walls of the hood 18, is provided for each of said shutters 21 and 22, against which said shutters are adapted to lie, in order to close the inlet openings 19 and 20. As shown in Fig. 2, the shutters 21 and 22 are connected to move together in such a way that when one is closed the other shall be open. The means herein shown for thus connecting said shutters comprises a link 24 pivotally connected at its opposite ends to said shutters.

In the front plate 2, opposite the opening 16, is formed an opening 25 which is covered

by a hood 26 mounted upon said front plate. The hood 26 has an air outlet 27 covered by a screen 28. A closure 29 is pivotally mounted upon the hood 26 in position to close the outlet opening 27, said closure having side wings 30 adapted to slide upon and frictionally engage the outer side of the ends of said hood, in order to hold said closure in adjusted position. The pivotal opening movement of the closure 29 is limited by a stop projection 31 on said closure adapted to engage the front wall of the hood 26. The means for moving the extension members 11 toward and away from each other, between the front and rear plates 2 and 3, comprises in the present embodiment a rack bar 32 pivotally mounted upon a bracket 33 fixed to the inner edge of each member 11, the free end of said rack bar lying within a horizontal opening 34 formed in the opposite extension member. A shaft 35 has a rotative bearing at one end in a bar 36 fixed to a pair of the upper and lower rails 5 and 6. At its other end said shaft is supported within a bearing bushing 37 secured in the front wall of the hood 26. Upon the shaft 35 is fixed a pinion 38 adapted to mesh with the rack bars 32, a keeper loop 39 fixed to the bar 36 preventing lateral displacement of said rack bars and holding them in mesh with the pinion 38. One end of the shaft 35 projects outwardly through the hood 26 and has fixed thereto a turn-button 40. Rotating the shaft 35 by means of the turn-button 40 will move the extension members 11 toward or away from each other, depending upon the direction of rotation. Any suitable means may be provided for locking the extension members 11 in adjusted position; that herein shown comprises a ratchet wheel 41 fixed upon the shaft 35 outside the hood 26, and a pawl 42 pivotally mounted upon the bearing bushing 37 and adapted to engage the teeth of said ratchet wheel.

When the ventilator is to be used in a comparatively wide window, it is desirable to provide such ventilator with a plurality of air-inlet means; thus in Fig. 4 is shown an embodiment of the invention which comprises two sets of hoods 18 and 26, instead of one as in the form first described. In the form shown in Fig. 4 the shaft for actuating the adjusting means is journaled at one end in the front plate 2.

In use, the ventilator is placed in the window frame *a* in a vertical position, with its ends lying between the guide strips *b* for the lower sash, and said sash lowered upon the ventilator. The ventilator is adjusted in length to fit the window by rotating the shaft 35 in the appropriate direction, the shaft being locked, when the proper adjustment is obtained, by the pawl 42 engaging the ratchet wheel 41. Air enters the hood 18 through the inlet openings 19 and 20 thereof and passes through the screen 17, the space between the adjacent ends of the extension members 11, and the opening 25 in the front plates 2, into the hood 26, leaving said hood 26 through the screened opening 27. The passage of air through the opening 27 may be cut off to a greater or less extent, as desired, by means of the pivoted closure 29. A sudden gust of wind is automatically prevented from passing through the ventilator by means of the shutters 21 and 22. Assuming said shutters to occupy the positions shown in Fig. 2, a strong breeze entering the hood 18 through the opening 19 would strike the shutter 21 and throw it against its stop 23, closing the opening 19 and preventing the wind from causing a strong draft through the ventilator. The shutter 22, being connected with the shutter 21, would be opened to its fullest extent, allowing a gentle circulation through the ventilator by way of the opening 20. If the wind should change in direction and enter the hood 18 through the inlet opening 20, it would strike against the inner face of the shutter 21 and force it open, thereby closing the shutter 22.

While we have described our invention as applied to a panel intended to be placed within a window casing and to be readily removable therefrom, it is obvious that various features of the invention are applicable to ventilators which are permanently installed in window openings and elsewhere. It is also clear that our invention may be modified and adapted in various other ways without departing from the spirit and scope of the invention, wherefore we desire not to limit ourselves to the precise details hereinbefore set forth.

We claim as our invention:

1. In a ventilator, in combination, a body portion comprising two plates spaced apart; extension members slidably mounted between and guided and supported by said plates; packing members carried by said extension members and extending through the space between said plates; and a ventilator device carried by said body portion.

2. In a ventilator, in combination, a body portion comprising two plates spaced apart, open spaces being provided between the upper and lower edges of said plates; extension members slidably mounted between and guided and supported by said plates; parts on said extension members extending through said open spaces; and a ventilator device carried by said body portion.

3. A ventilator structure comprising two metal plates secured together near their middle portions, open spaces being provided between the upper and lower edges of the outer portions of said plates; guiding means on said plates; extension members slidably mounted upon said guiding means; and parts

on said extension members extending through said open spaces.

4. A ventilator structure comprising two metal plates secured together near their middle portions; packing strips at the edges of said plates; extension members slidably mounted between and guided and supported by said plates; and packing strips carried by said extension members.

5. In a ventilator, in combination, a body portion comprising two side plates; extension members slidable between said side plates; a rack bar pivoted at one end to each of said extension members; a pinion adapted to mesh with each of said racks; and means for rotating said pinion.

6. In a ventilator, in combination, a body portion comprising two side plates, rails secured to the inner sides of said plates; extension members slidable between said plates and adapted to be guided by said rails; and means for moving said extension members toward and away from each other.

7. In a ventilator, in combination, a body portion comprising two side plates, rails secured to the edges of said side plates, extension members slidable between the ends of said plates and guided and supported by said rails; and packing material attached to said rails and extension members.

8. In a ventilator, in combination, a body portion comprising two side plates; upper and lower rails fixed to said side plates; extension members lying between said plates and being rabbeted to receive said rails; finishing pieces on said extension members closing the ends of said body portion; and means for moving said extension members.

9. In a ventilator, in combination, a body portion comprising two side plates; two extension members slidable between said side plates; a rack bar pivoted at one end to the inner end of each of said extension members, an opening being formed in each extension member to receive the rack bar upon the opposite extension member; a pinion adapted to mesh with both of said rack bars; and means for rotating said pinion.

10. In a ventilator, in combination, a body portion; two extension members slidably mounted in said body portion; a shaft; supporting means in said body portion for said shaft; a pinion on said shaft; a rack bar attached to each extension member and meshing with said pinion; and a keeper loop for preventing lateral displacement of said rack bars, and for holding them in mesh with said pinion.

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