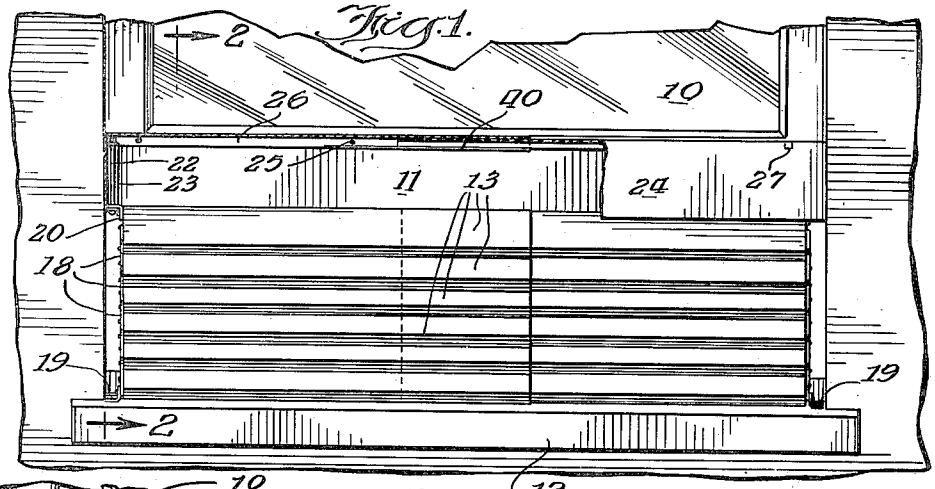
April 30, 1935. A. F. PETRIS 1,999,421

WINDOW VENTILATOR

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Fig. 1.



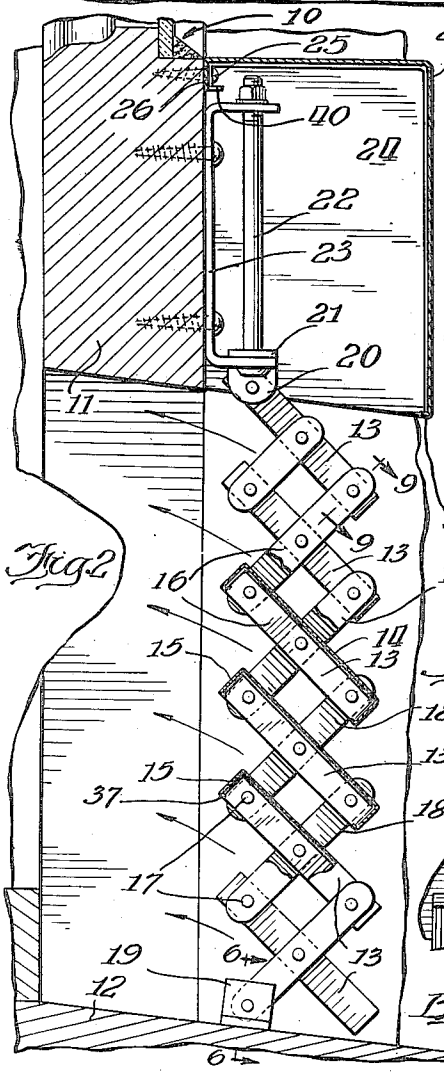


Fig. 2

Fig. 3.

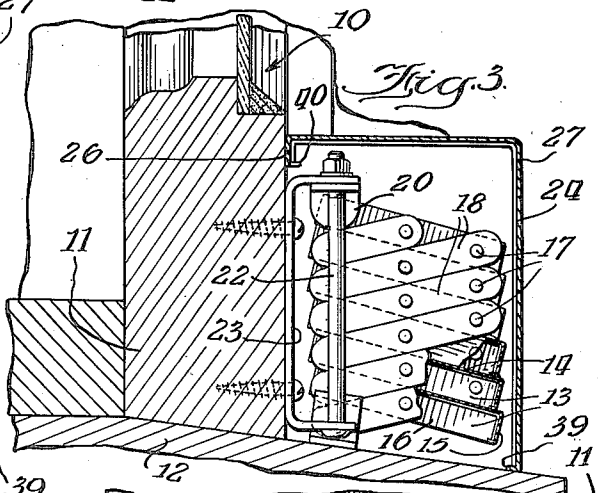
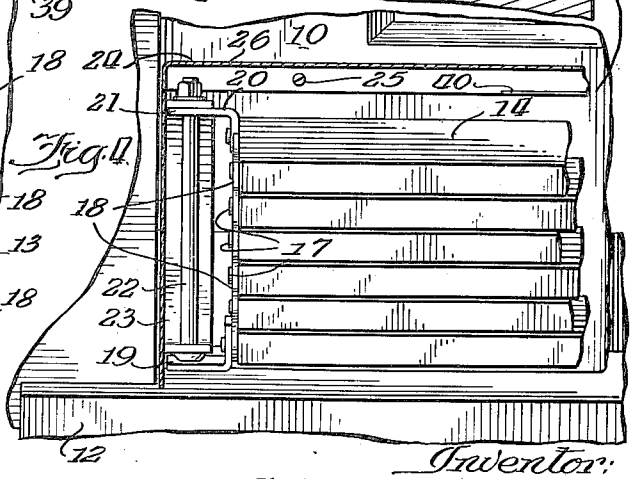


Fig. 4.



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Fig. 5.

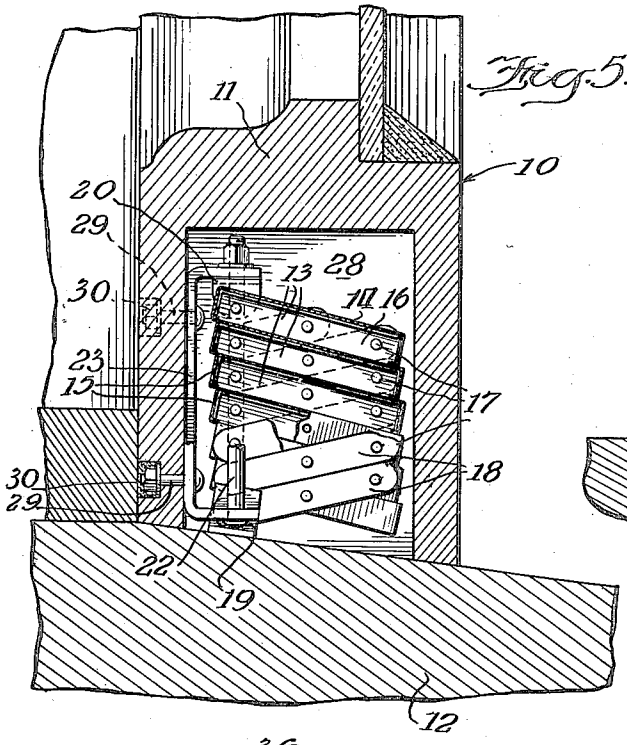
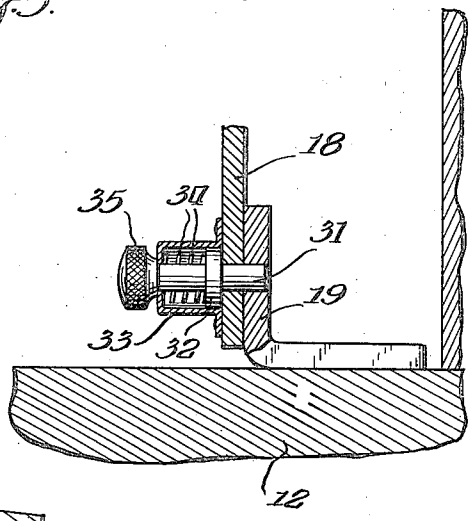


Fig. 6.



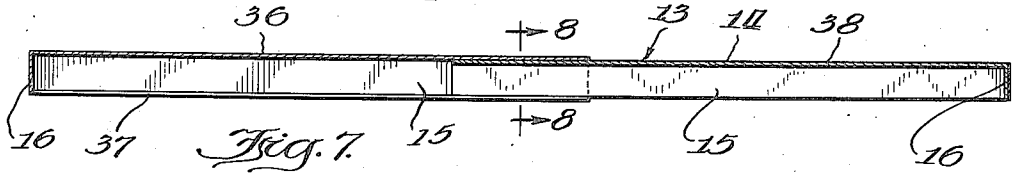


Fig. 7.

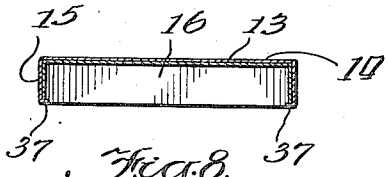


Fig. 8.

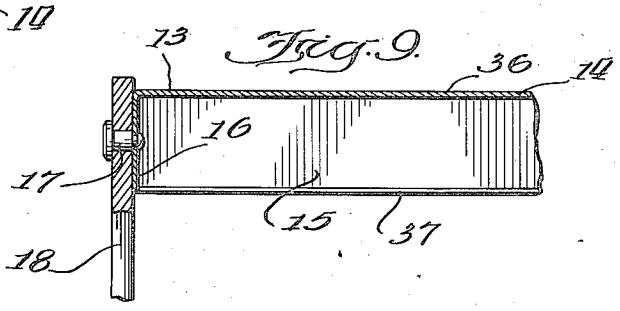


Fig. 9.

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UNITED STATES PATENT OFFICE

1,999,421

WINDOW VENTILATOR

Anthony F. Petris, South Chicago, Ill.

Application March 11, 1933, Serial No. 660,339

5 Claims. (Cl. 98—99)

This invention relates to window ventilators which comprise deflecting means adapted to deflect air entering through an open window.

Among the objects of the invention are to provide a window ventilator of this type which is adapted to fold up when the window is closed and extend when the window is opened so as to occupy the opening, to provide such a ventilator which is easy and inexpensive to construct and which is compact and serviceable in use, to provide a housing for concealing and protecting the ventilator when the window is closed, to provide means whereby the ventilator may be readily detached so as to permit more complete movement of the sash to which it is attached, and to provide a ventilator which is extensible and contractable so that it may be adapted to be mounted on windows of different widths.

Other objects, advantages and capabilities of the invention will readily be understood by the following description of a preferred embodiment thereof taken in conjunction with the accompanying drawings, in which:

Figure 1 is a fragmentary elevational view showing the lower part of a double hung sash window provided with the ventilator embodying my invention, part of the housing being broken away;

Fig. 2 is a sectional view on a larger scale taken on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view similar to Fig. 2 showing the window shut and the ventilator folded;

Fig. 4 is a front sectional detail view corresponding to Fig. 3, the housing being cut away to show the folded ventilator;

Fig. 5 is a fragmentary sectional view showing a further embodiment of the invention in which the ventilator is adapted to be housed in a transverse recess in the lower cross bar of the window sash;

Fig. 6 is a sectional detail on an enlarged scale taken on the line 6—6 of Fig. 2;

Fig. 7 is a longitudinal section of a deflector element employed in the ventilator;

Fig. 8 is a transverse sectional view therethrough taken on the line 8—8 of Fig. 7; and

Fig. 9 is a sectional view of one end of the deflector element taken on the line 9—9 of Fig. 2, showing the manner in which it is pivotally secured to a link element.

Referring to the drawings, the reference numeral 10 designates the lower sash of a double hung sash window slidably mounted in its frame. The bottom cross bar is designated by the reference numeral 11, and the window sill by the reference numeral 12.

The ventilator comprises a plurality of deflectors 13, six of these being shown in the embodiments of the invention illustrated. The deflectors are preferably in the form of inverted pans and are preferably pressed from sheet metal. Each deflector element comprises a principal web 14, longitudinal flanges 15, and end flanges 16. Upon each end flange 16 are mounted three pivots 17. The center pivot 17 provides a pivotal bearing for the center point of a link 18, which link 18 is pivotally mounted at each end on the end pins 17 of the next above and next below deflector element, so that the end flanges 16 of the deflector elements 13 and the links 18 are pivotally connected together so as to provide a lazy tongs linkage at each end of the ventilator. The principal webs 14 of the deflector elements 13 slope inwardly and upwardly with respect to the window. The innermost end of the lowermost link 18 is pivotally mounted on a bracket 19 which is rigidly mounted on the sill 12, for example by means of screws. The innermost pivot of the top deflector 13 is connected to a bracket 20 which has a horizontal flange 21 through which freely extends a bolt 22, mounted vertically upon the lower cross bar 11. The bolt 22 extends through openings in out-turned ends of a bracket 23 suitably formed from a strip of metal. In the embodiment of the invention illustrated in Figs. 1 to 4, the brackets 23 are mounted on the outer face of the lower cross bar 11 of the window sash 10 and the brackets 19 are mounted on the sill 12 in substantial alignment with the bolts 22.

In Fig. 2 the window is shown opened, the deflectors 13 are in a condition of considerable obliquity so that air passages are provided between adjacent deflectors to permit air to enter in the manner indicated by the arrows. Owing to the inward and upward slope of the deflectors, the incoming air is directed upwardly so as to prevent discomfort due to direct drafts striking the occupants of the room. When the sash 10 is lowered the lazy tong linkage constituted by the end member 16 and the links 18 collapses until the relative position shown in Fig. 3 is attained. During the first part of the closing movement said linkages collapse and the horizontal flange 21 of the bracket 20 is still at the lower end of the bolt 22. Continued closing movement causes the bolt 22 to pass downwardly through the opening in the flange 21 until the window is completely closed and the flange 21 has moved toward the

upper end of the bolt 22. In this embodiment of the invention a housing 24 is provided which completely covers the ventilator in its folded condition as shown in Fig. 3. This housing is rigidly mounted on the lower cross bar 11, being preferably secured thereto by means of screws 25. These screws preferably pass through openings in an inturned flange 26 provided along the inner edge at the top of the housing. In order to provide for the attachment of these screws I provide partially cut out tabs 27 in alignment therewith so that they may be opened up for the insertion of a screwdriver and subsequently returned to their initial position. Being thus attached to the lower cross bar the housing 24 moves therewith and provides no obstruction to the outlook of the occupant or to ventilation, the window being opened.

In the embodiment of the invention illustrated in Fig. 5, the housing 24 is omitted and the lower cross bar 11 of the sash 10 is provided with a large transverse recess 28 in which the ventilator is located when the window is closed. The elements of the ventilator as shown in this figure are exactly the same as shown in Figs. 1 to 4 inclusive, and similar reference numerals are employed. The bracket 23 may be secured to the rear wall of the recess 28 in any suitable way, for example by means of bolts 29 and nuts 30, the latter being located within holes bored in the rear face of the cross bar 11.

In order to enable the ventilator to be disconnected so as to permit the sash 10 to be opened to a greater extent, for example to facilitate window cleaning, I prefer to provide removable pivot members 31 to connect the lowermost links 18 to the brackets 19. As shown in Fig. 6 this may be conveniently done by means of a pin or pivot member 31 which is adapted to extend through aligned openings in said link 18 and bracket 19. The pin 31 carries rigidly a flange or collar 32 which is adapted to bear against the link 18. The collar 32 and the portion of the pin therebeyond extends through a housing 33 rigidly mounted on said link 18. The housing 33 includes a spring 34 which bears against the outer end of the housing and against the collar 32 so as to force the pin 31 into the aligned openings of the links 18 and brackets 19. The other end of the pin 31 projects out of the housing 33 and is provided with a knob 35 whereby the pin may be moved against the action of the spring 34 so as to separate the lower links 18 from the brackets 19 when desired. It will be noted that the lower deflector 13 lies in front of the pins 31 so that it is difficult or impossible to disengage the ventilator from the brackets 19 from the outside. The ventilator consequently provides security against burglary and theft even in the embodiments where this easily operated disconnecting means is applied.

It is preferred to make the ventilator extensible and contractible so that it may readily be adjusted to fit windows of considerably different widths. For this purpose the transverse elements which extend across the window opening, that is the deflectors 13 and the housing 27, where such is employed, are all made of two parts in telescopic relation. Thus referring to Fig. 7 it will readily be seen that the deflector 13 comprises a larger left hand portion 36, the side flanges 15 of which are turned inwardly to provide guides 37, best shown in Fig. 8. The right hand portion 38 of the deflector 13 has flanges 15 adapted to permit the portion 38 to slide into the portion 36 with its side flanges 15 abutting against the guides 37. The housing 24 also comprises two telescoped portions, the larger portion being provided along its bottom front edge with a guide 39 adapted to serve as an abutment for the bottom edge of the front wall of the other housing. The larger housing element is also provided at the bottom of the flange 26 with an inturned guide 40 which is adapted to serve as an abutment for the flange 26 of the other housing element. It will be readily understood that this construction of the deflector elements 13 and the housing 24 enables the effective length of the ventilator to be adjusted within wide limits by merely pulling the two ends apart or forcing them together.

Although the invention has been described in connection with the specific details of preferred embodiments thereof, it must be understood that such details are not intended to be limitative of the invention except insofar as set forth in the accompanying claims.

Having thus described my invention I declare that what I claim is:

1. A window ventilator comprising a lazy tongs linkage, deflectors carried by said linkage, means adapted pivotally to connect the lower end of said linkage to a window sill, and means mounted on the window sash having a limited free slidable connection, in the direction of movement of the sash, with the other end of said linkage, whereby the sash moves for a predetermined distance from closed position before the linkage moves.

2. A window ventilator comprising an expansible linkage, means adapted to secure the linkage to a window sill, a vertical bar on the window sash on which the upper end of the linkage is slidably mounted, and a housing secured to the window sash adapted to enclose said bar and to enclose the linkage in its collapsed position when the window is shut.

3. A window ventilator comprising a series of deflectors having downturned flanges at each end, link elements pivotally connected to the flanges so as to constitute therewith lazy tong linkages at each side of the ventilator, means pivotally connecting the lower end of said linkages to a window sill, bars carried by said sash adjacent the upper ends of said linkages, and means carried by the upper ends of said linkages having a slidable connection with said bars.

4. In combination, a window having a sliding sash adapted to be moved to open position, an expansible ventilator comprising a series of deflectors connected to the window sill, the lower cross bar of said sash being provided with a longitudinal recess open at the bottom, and bars mounted on the cross bar within said recess, upon which bars the upper end of the ventilator is slidably mounted said recess being adapted to enclose the ventilator in its collapsed condition when the window is closed.

5. A window ventilator comprising an expansible linkage, means securing one end of the linkage to a stationary window element, connecting means at the other end of the linkage, and means on a movable sash of the window having a limited free sliding connection with said connecting means, whereby the linkage is secured to the sash so that a limited free relative movement is permitted between the sash and the adjacent end of the linkage in the direction of the movement of the sash.

ANTHONY F. PETRIS.