Dec. 30, 1924.

1,521,243

H. JOSEF

VENTILATOR

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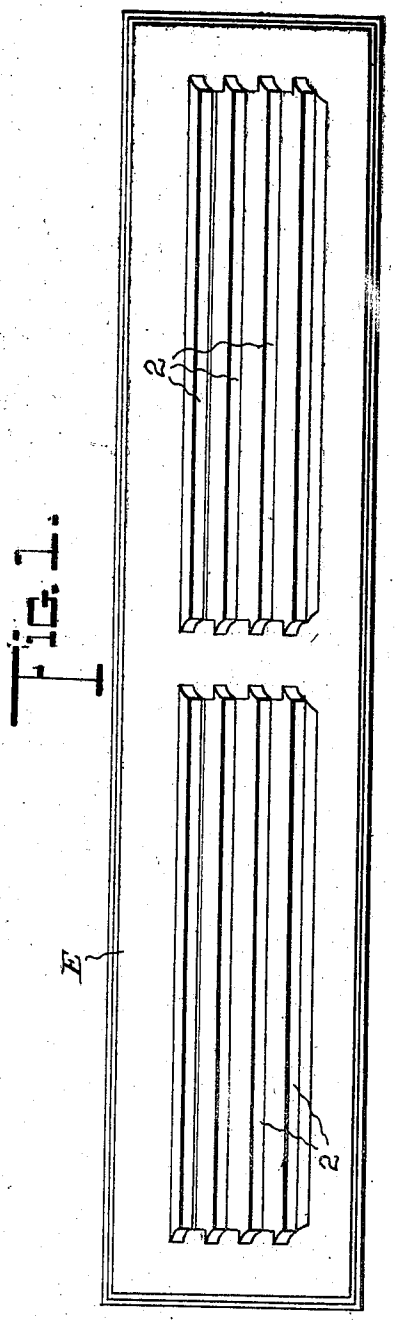


Fig. 1.

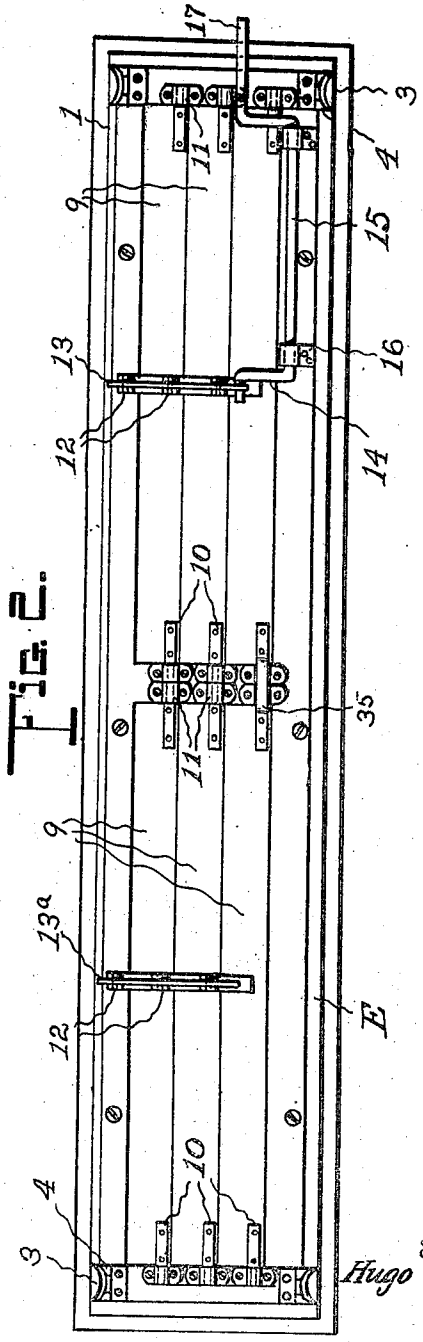


Fig. 2.

Witness:
E. H. Wagner.

Inventor
Hugo Josef

By Robb Robb & Hill
Attorneys

Dec. 30. 1924. 1,521,243

H. JOSEF

VENTILATOR

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Fig. 3.

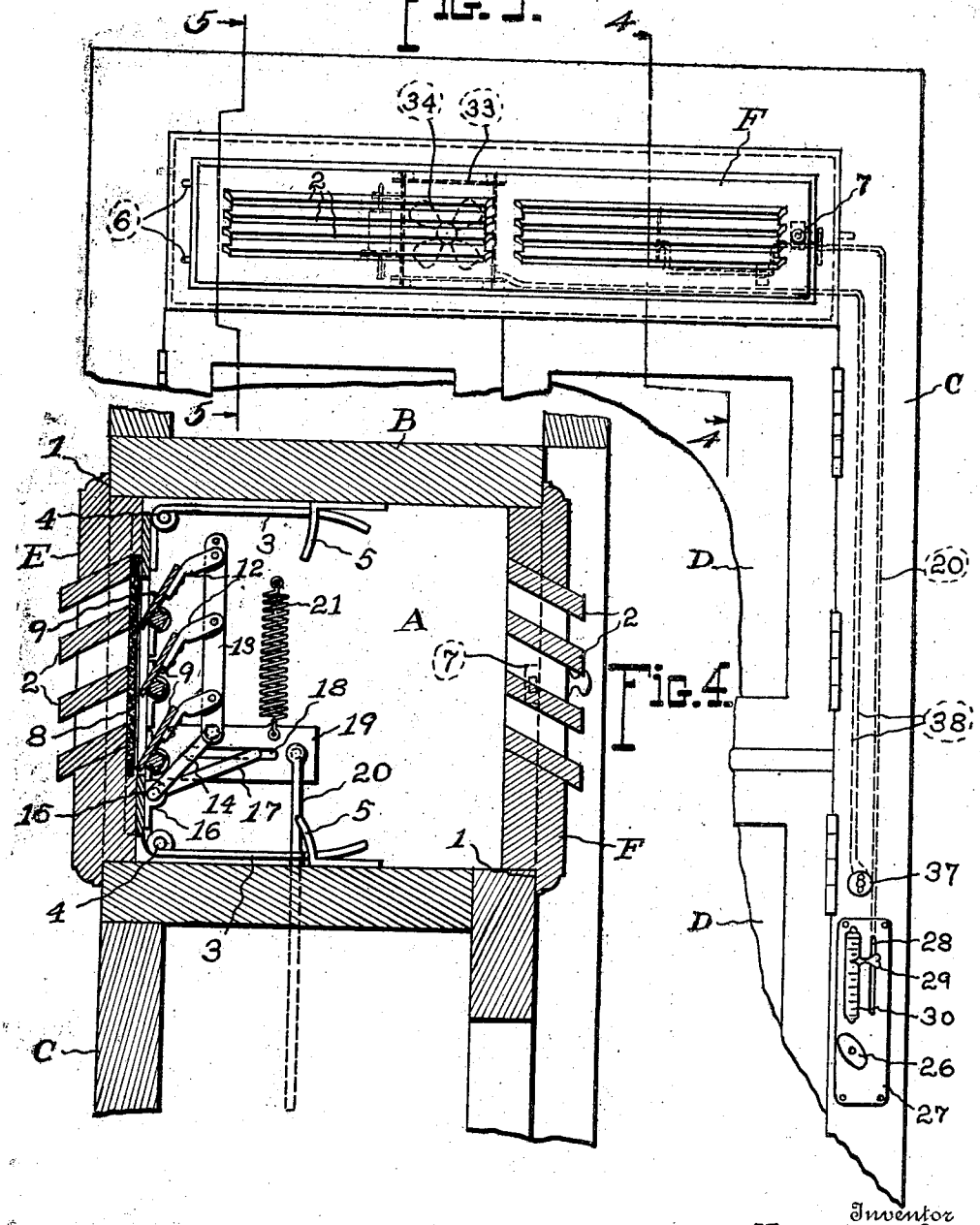


Fig. 4.

Witness:
C. H. Wagner.

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Hugo Josef

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Attorneys

Dec. 30, 1924. 1,521,243

H. JOSEF

VENTILATOR

Filed June 28, 1923 4 Sheets-Sheet 3

Fig. 5.

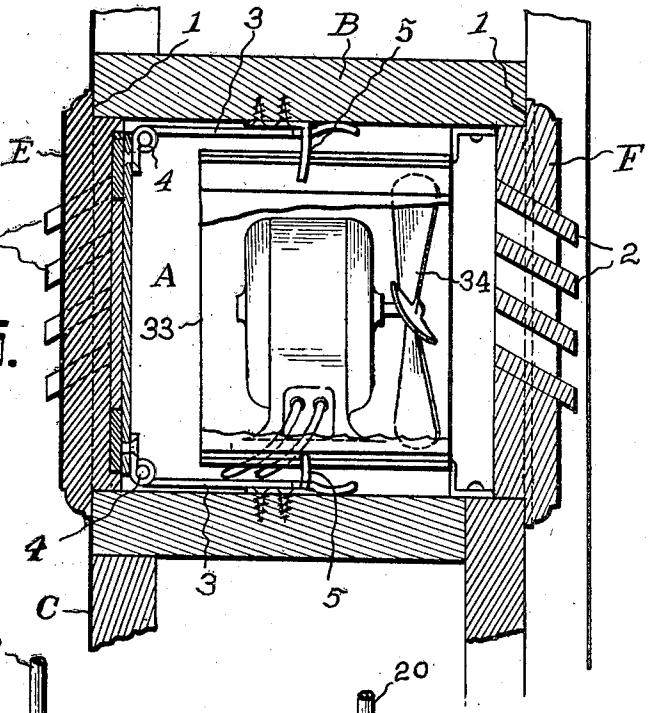


Fig. 6.

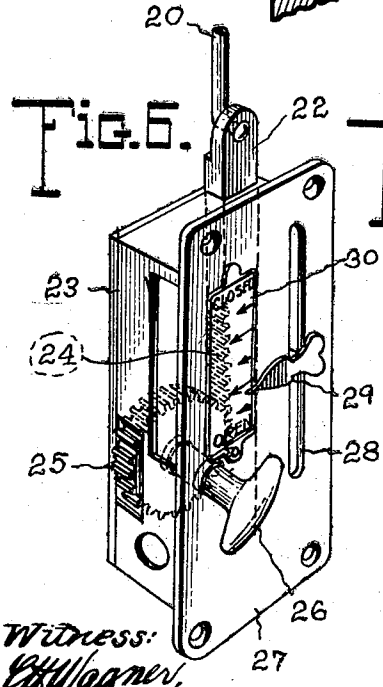


Fig. 7.

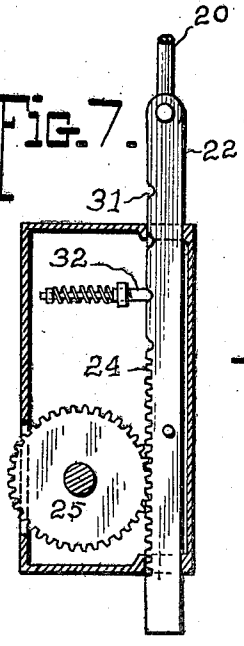


Fig. 11.

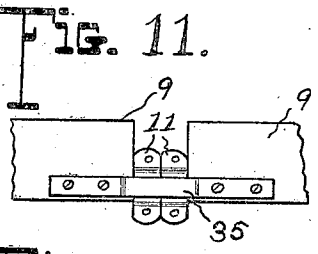
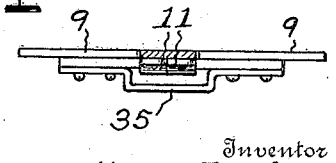


Fig. 12.



Witness:
C. H. Wagner.

Inventor
Hugo Josef

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Attorneys

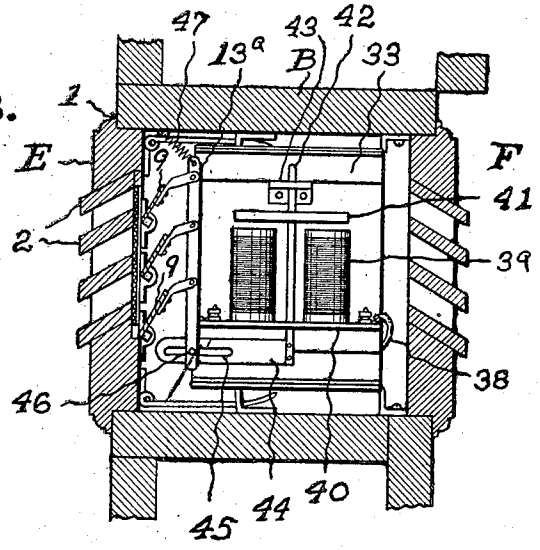
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H. JOSEF

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Fig. 8.



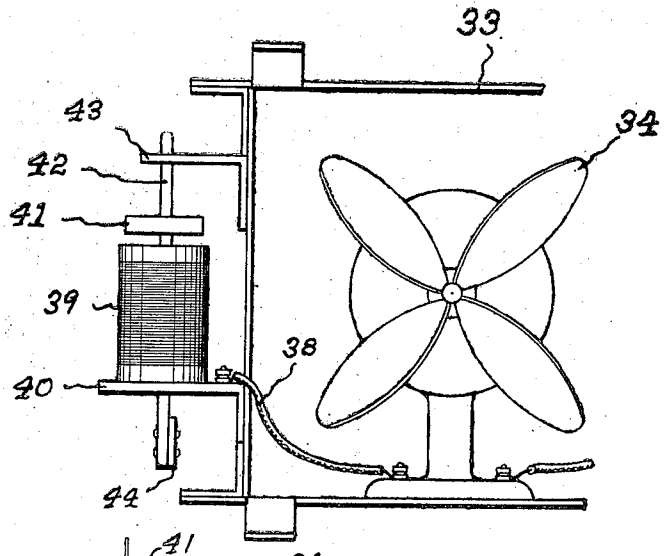


Fig. 9.

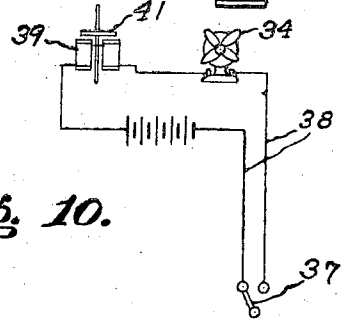


Fig. 10.

INVENTOR.
Hugo Josef
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ATTORNEYS.

Patented Dec. 30, 1924. 1,521,243

UNITED STATES PATENT OFFICE.

HUGO JOSEF, OF CLEVELAND, OHIO.

VENTILATOR.

Application filed June 28, 1923. Serial No. 648,188.

To all whom it may concern:

Be it known that I, HUGO JOSEF, a citizen of Austria, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Ventilators, of which the following is a specification:

The present invention relates to certain new and useful improvements in ventilators for buildings and like structures and has for its object to provide a device of this character which embodies novel features of construction, whereby a supply of fresh air can be obtained within a building without the necessity of opening any of the usual doors or windows.

The invention also aims to provide a ventilating device which can be regulated by the occupant of the building to control the quantity of fresh air entering the building, and which will supply fresh air without letting in rain or snow in stormy weather.

Further objects of the invention are to provide a ventilating device which is comparatively simple and inexpensive in its construction, which can be readily installed in a building, and which is at all times under the perfect control of the occupant of the building.

With the above and other objects in view, the invention consists in certain combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a front elevation of a removable panel which normally closes the outer end of the ventilator opening.

Figure 2 is a rear elevation of the same panel showing the manner in which the two sets of shutters are mounted thereon.

Figure 3 is a view of the ventilator and control devices showing the same as they appear upon the interior of the building, the lower portion of the main casing in which the ventilator is mounted being broken away.

Figure 4 is an enlarged transverse sectional view on the line 4—4 of Figure 3, looking in the direction of the arrows.

Figure 5 is a similar view on the line 5—5 of Figure 3, showing the fan which is associated with one set of the shutters for obtaining a forced draft, a portion of the frame in which the fan is mounted being broken away.

Figure 6 is a perspective view of the control and indicating device which is operatively connected with one set of the shutters.

Figure 7 is a sectional view through the same.

Figure 8 is is a transverse sectional view through the ventilator illustrating the automatic electric shutter opening device at one side of the fan housing.

Figure 9 is a front elevation of a portion of the fan housing, showing the shutter operating mechanism at the side thereof.

Figure 10 is a wiring diagram for the electric fan and shutter opening device.

Figures 11 and 12 are detail views of the connecting bar for causing the two sets of shutters to operate in unison when the electric fan is not in use.

Corresponding and like parts are referred to throughout the following description and on all of the views of the drawings by like reference characters.

The ventilator is adapted to be installed in the wall of a building or like structure and provides an effective means for permitting fresh air to enter the building without the necessity of leaving any doors or windows open. This makes it possible to properly ventilate the building in stormy weather without permitting the entrance of rain or snow into the building, and the building can also be properly ventilated with all of the doors and windows closed and locked, so that unauthorized entry into the building is difficult and can only be accomplished by breaking open some part of the building.

The ventilating opening A is formed in a frame B which is built into a wall of the building and which may be of any suitable construction. As indicated in a general

way by Figure 3, the frame B may be at the upper portion of a casing C within which the windows D are mounted, although this is not material or essential to the invention and the ventilating opening can be formed in the wall of the building in any suitable manner.

The ventilating opening in the present instance is horizontally disposed and of an elongated formation, and the outer end of the opening is closed by a removable panel E, while the inner end of the opening is closed by a removable panel F. Both of the panels are rabbeted, as indicated at 1, so that they will closely engage the corners of the frame at the ends of the ventilating opening and obtain a tight joint. The panels are formed with openings and a series of horizontally disposed slats 2 extends across each of the openings, said slats being inclined downwardly and outwardly from the frame B. The slats in the outer panel thus tend to prevent rain or snow from entering the opening with the supply of fresh air, while the slats of the inner panel serve to direct the fresh air downwardly as it enters the building.

The outer panel E is provided at the four corners thereof with swinging arms 3 which are hinged to the panel at 4. The swinging ends of the arms have notched portions which are adapted to engage lugs 5 secured to the top and bottom walls respectively of the ventilating opening for the purpose of securing the panel in position. It will be obvious, however, that when the arms 3 are swung inwardly and disengaged from the lugs 5 the panel can be bodily removed from position. The inner panel F may be locked in position in any suitable manner, although for illustrative purposes one end thereof is shown as provided with longitudinally extending pins 6 which are adapted to enter corresponding openings in the frame, while the other end of the panel is provided with a conventional key controlled lock 7. When the bolt of the lock is retracted the corresponding end of the panel can be pulled out of the frame after which the panel can be given a longitudinal movement to disengage the pins 6 from the sockets or openings. After the inner panel F is removed access is obtainable to the arms 3 for releasing the outer panel E.

The outer panel E is provided with a piece of screening or woven wire fabric 8 which extends across the openings thereof, so that the entrance of insects or large particles of foreign matter into the ventilating opening is prevented. The back of the outer panel E is also provided with a series of shutters 9. As shown on the drawing, there are two sets of the shutters 9, each set containing three shutters and the shutters being arranged in an end to end relation. Each of the shutters is provided at the ends thereof with pivot studs 10 which engage bearings 11, and by swinging the shutters into an open or a closed position the ventilation can be controlled. The swinging edges of the shutters are provided with arms 12, and the arms of the two sets of shutters are connected by the bars 13 and 13ª so that the shutters of each set can be operated in unison.

The control bar 13 for one set of the shutters is connected at its lower end to a crank arm 14 on a rock shaft 15 which is journaled in suitable bearings 16 on the lower edge of the panel. The end of the rock shaft is provided with a crank portion 17 which engages a slot 18 in a plate 19 which is secured to the upper end of a reciprocating rod 20. A coil spring 21 is connected to the plate 19 and normally tends to draw it upwardly and close the shutters. It will be obvious, however, that by moving the rod 20 and plate 19 downwardly the rock shaft 15 will be rotated to open the shutters and the amount of ventilation which is obtained is controlled by the degree to which the shutters are opened. The shutters may be either partially or completely opened and the ventilation of the building is thus entirely under the control of the occupant.

The control rod 20 extends downwardly through a suitable passage in one side of the casing C, and has the lower end thereof connected to a slide 22 which is mounted in a frame 23. One side of the slide is provided with a rack 24 which meshes with a pinion 25, said pinion being operable by a handle 26 which projects through a plate 27 at the front of the frame 23. The said frame 23 is adapted to be let into the woodwork of the casing C with the plate 27 secured to the outer face of the wood-work, and by manipulating the handle 26 the rack bar or slide 22 can be moved to open or close one set of the shutters of the ventilator, as may be desired. A pin projects forwardly from the rack bar and operates in a slot 28 in the plate 27, said pin being provided with a pointer 29 which cooperates with the graduations of a scale 30 on the plate 27 to indicate the position of the shutters. The operator thus knows whether the shutters are completely closed or completely open, or only partially open.

The slide bar 22, as indicated by Figure 7, may be provided with a series of notches 31, and a spring actuated plunger or pawl 32 is provided for cooperation with these notches to hold the slide bar against accidental movement after it has been adjusted to regulate the position of the shutters. The rounded nose of the spring actuated pawl interlocks with the notches to prevent ac-

cidental movement of the slide bar, although the slide bar can be forcibly moved when it is desired to change the adjustment thereof.

When so desired the two sets of shutters can be connected so that they operate in unison, and are both controlled by the handle 26. For this purpose two of the shutters 9 which have an end to end relation are connected by a bar 35, such as is shown by Figure 11. This connecting bar 35 may have the middle portion thereof arched, so that it will straddle the bearings 11, and the ends thereof are detachably secured to the respective shutters so that the shutters will operate in unison. The shutters of each set are operatively connected by the arms 12 and control bars 13 and 13ª, so that when the connecting bar 35 is in place the two sets of shutters will move in unison and be both controlled by the single handle 26. The connecting bar 35, however, can be readily removed when it is desired to provide a separate control device for each set of the shutters.

Under some conditions it may be found desirable to associate an electric fan with one set of the shutters so that a forced circulation of air can be obtained. For this purpose a fan housing 33 may be suitably positioned within the ventilating opening and a suitable electric fan 34 mounted therein. The fan may be controlled by a conventional electric switch 37, which is shown on Figure 3 of the drawings as mounted upon one side of the casing C, just above the plate 27 of the mechanical control device for the shutters. The wires 38 for the electric fan lead to this switch 37, and a pair of solenoids are interposed in the fan circuit, so that they will be energized when the fan is running. These solenoids are mounted upon a shelf 40 which projects upon one side of the fan housing 33, and an armature 41, is arranged above the solenoids so as to be drawn downwardly thereby when the solenoids are energized. A stem 42, which is rigid with the armature 41, is slidably mounted within the shalf 40 and a guide member 43 which projects from a side of the fan housing at a point above the solenoids. The lower end of the stem 42 is provided with a forwardly projecting plate 44 which has a slot 45 therein, said slot receiving a pin 46 on the control bar 13ª of one set of the shutters. A coil spring 47 which is connected to the upper end of the said control bar normally tends to hold the shutters in a closed position.

The connecting bar 35 for causing the two sets of shutters to operate in unison is, of course, removed when the fan device is used. The fan device can be readily installed in the casing, and it will be obvious that when the switch 37 is open and the fan at rest the shutters will be held in a closed position by the coil spring 47. When the switch is closed to put the fan into operation the solenoids 39 are energized and the armature 41 drawn downwardly thereby. This moves the stem 42 and the slotted plate 44 downwardly, with the result that the control bar 13ª is moved downwardly and inwardly to open the shutters. The shutters are thus automatically opened as an incident to putting the fan into operation, and in a like manner the shutters are automatically closed when the fan is stopped.

A ventilator of this character enables an abundant supply of fresh air to be introduced into a building, and at the same time dust, insects and particles of foreign matter are excluded. Proper ventilation is also possible without leaving the doors or windows open, thereby enabling fresh air to be admitted to the house when all of the doors and windows are locked to prevent entry by an unauthorized person.

While certain preferred forms and embodiments of the invention have been shown on the drawings and described for illustrative purposes, it will be understood that many modifications and changes can be made in the details of construction without departing from the spirit of the invention and all within the scope of the claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A ventilator including an open ended casing, a removable panel fitting across the opening of the casing, a set of shutters mounted upon the inner face of the panel, lugs projecting from opposed interior walls of the casing, swinging arms carried by the panel and adapted to extend into the casing so as to be swung into and out of engagement with the said lugs, and means for controlling the shutters.

2. A ventilator including an open ended casing, removable panels fitting across opposite ends of the casing, lugs projecting from opposed interior walls of the casing, swinging arms carried by one of the panels and projecting into the casing so as to be swung into and out of engagement with the lugs, means controlled from the outside of the casing for securing the other panel in position, a set of shutters upon one of the panels, and means for controlling the shutters.

3. A ventilator including a pair of swinging shutters arranged in an end to end relation, pivot members at the ends of the swinging shutters, and a detachable connecting bar extending between the adjacent ends of the shutters and formed with an arched intermediate portion spanning the pivot members and providing a clearance space therefor.

4. A ventilator including a plurality of

sets of swinging shutters, the shutters of each set being arranged in a parallel relation and the corresponding shutters of the two sets being in an end to end relation, pivot members at the ends of the shutters, means for connecting the shutters of each set to operate in unison, means for operating one set of the shutters, and a detachable bar connecting adjacent ends of corresponding shutters of the two sets, said bar having an arched intermediate portion spanning the pivot members and providing a clearance space therefor.

In testimony whereof I affix my signature.

HUGO JOSEF.