

E. M. DYER.
VENTILATOR AND THE LIKE.
APPLICATION FILED JUNE 1, 1920.

1,428,882.

Patented Sept. 12, 1922.

3 SHEETS—SHEET 1.

Fig. 1.

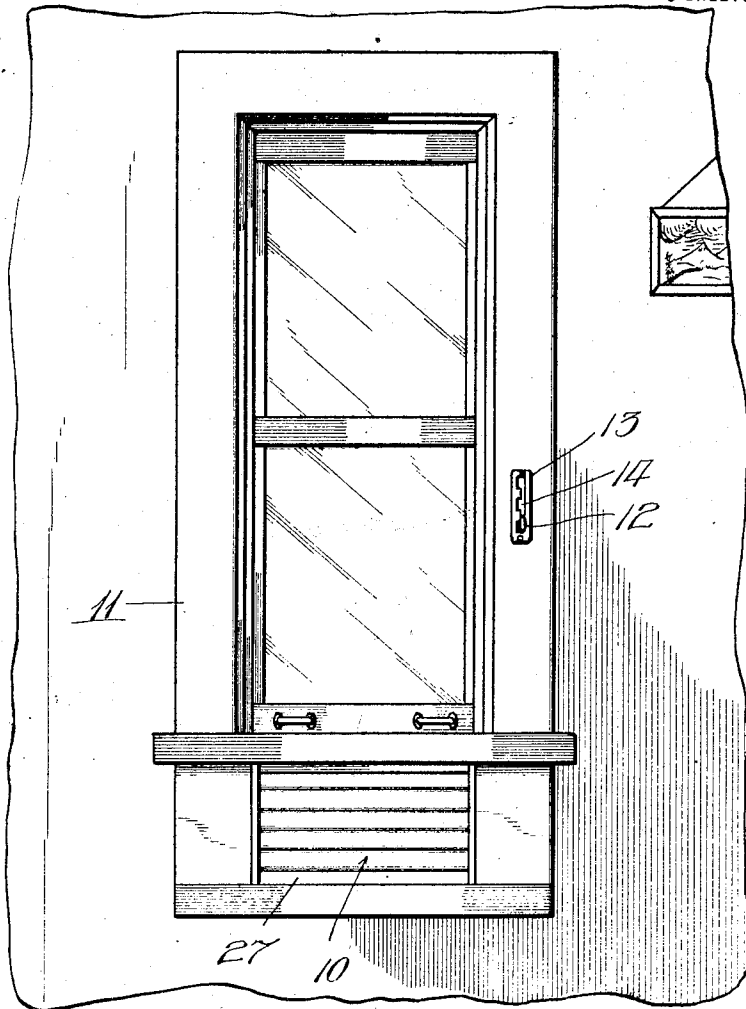


Fig. 2.

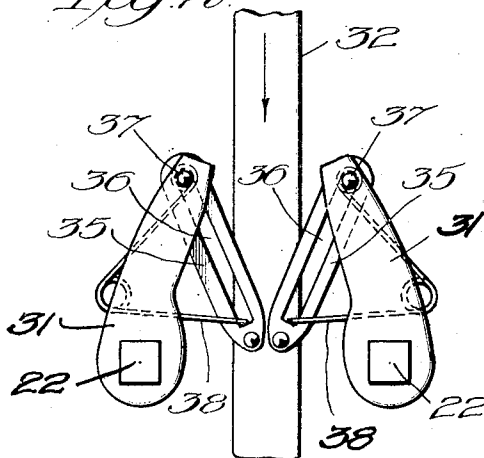
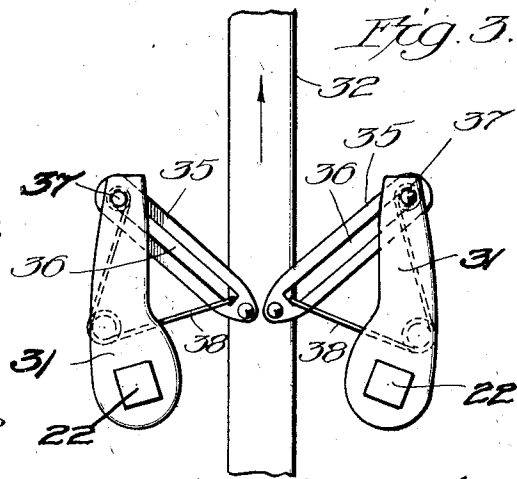


Fig. 3.



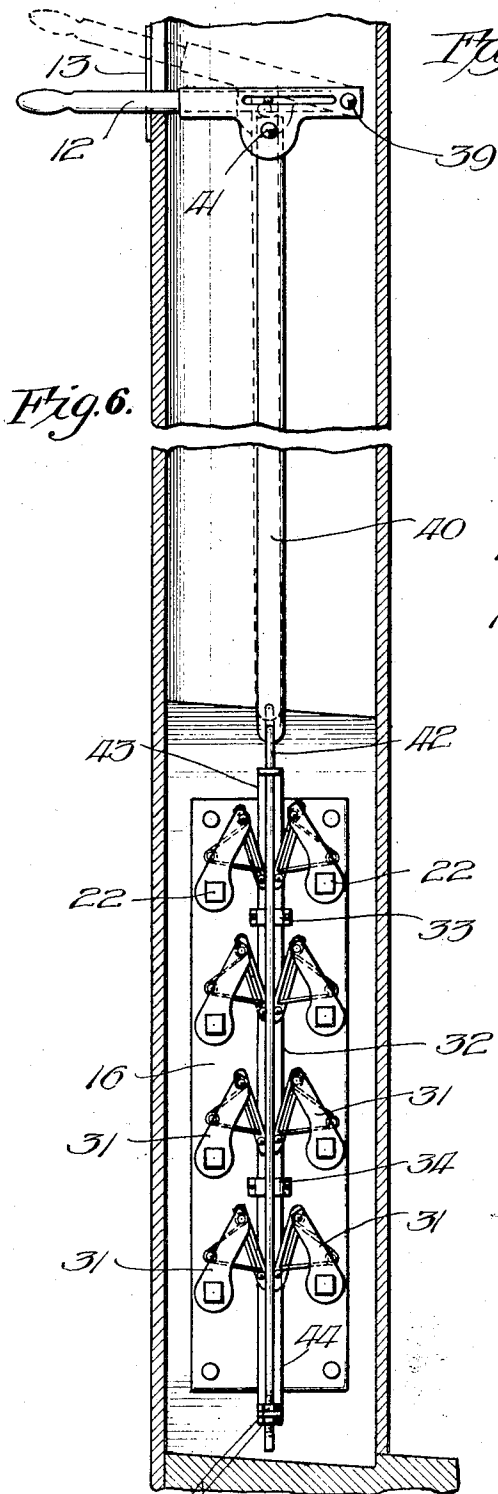
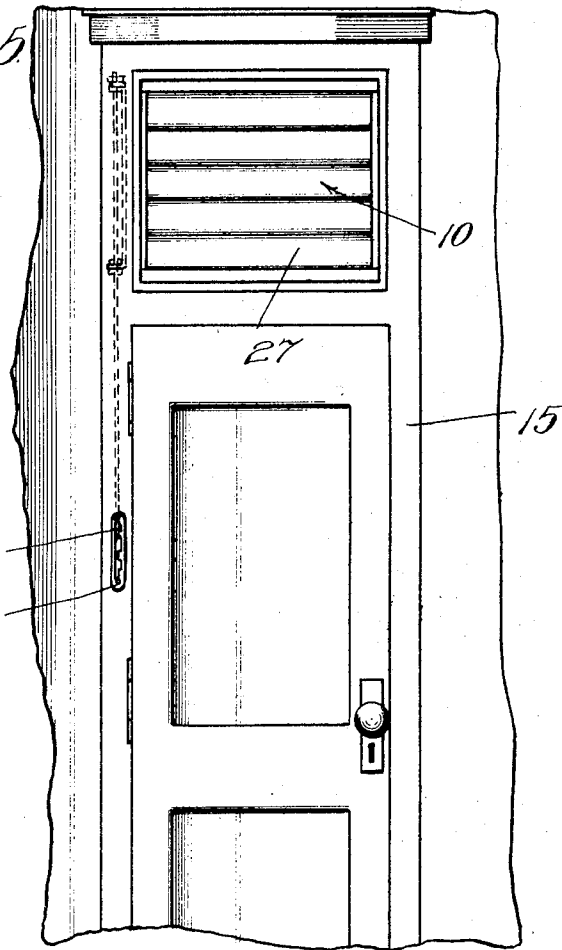
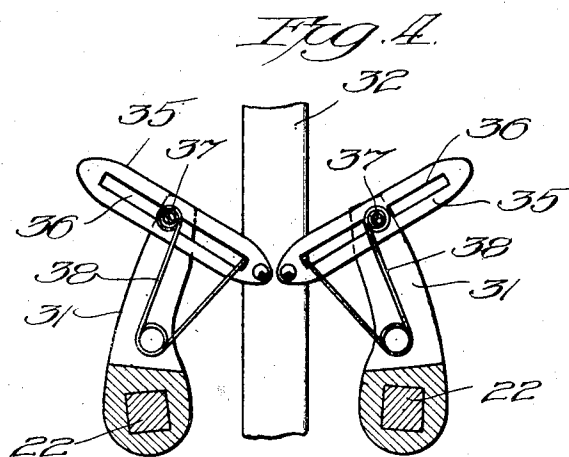
Witness
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Patented Sept. 12, 1922.

3 SHEETS—SHEET 2.

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3 SHEETS—SHEET 3.

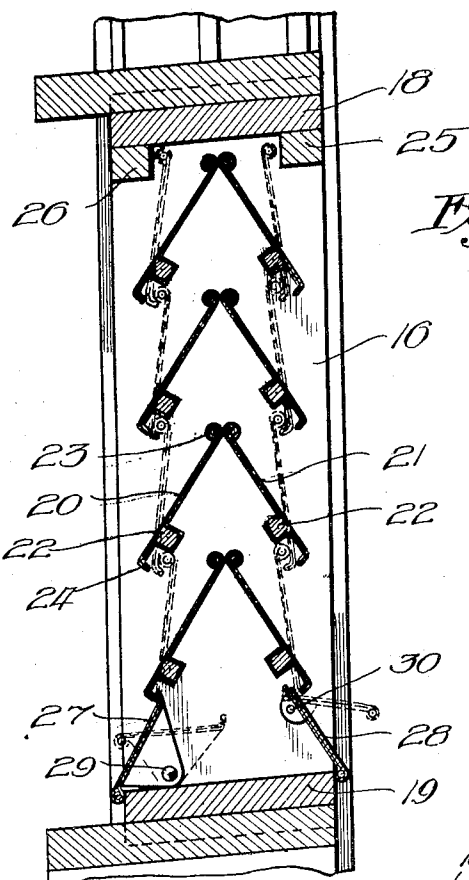


Fig. 7.

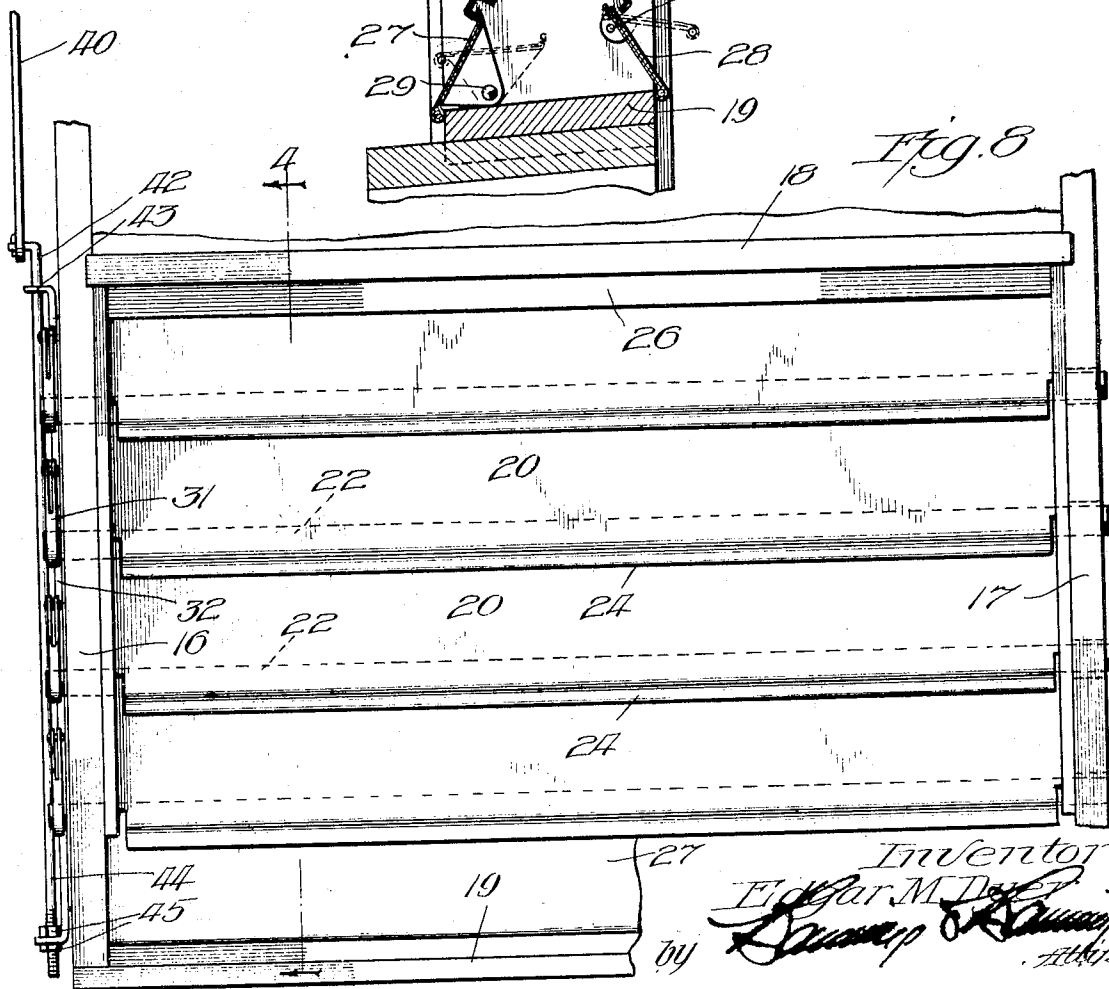


Fig. 8.

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UNITED STATES PATENT OFFICE.

EDGAR M. DYER, OF CHICAGO, ILLINOIS.

VENTILATOR AND THE LIKE.

Application filed June 1, 1920. Serial No. 385,555.

To all whom it may concern:

Be it known that I, EDGAR M. DYER, a citizen 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 and the like, of which the following is a specification.

The present invention has to do with improvements in ventilators for building construction, and particularly with a ventilator which is intended for permanent installation in the building in which it is to be used. The ventilator is constructed as a unit so that it can be built in completed form at a factory or assembling station and thereafter be installed without further assembling. The ventilator is also provided with suitable operating mechanism, by means of which it may be opened or closed to a greater or less extent in order to control the ventilation.

Other objects and uses of the invention will appear from a detailed description of the same, which consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawings:

Figure 1 shows a face view of a window frame having applied to its bottom portion a ventilator embodying the features of the present invention;

Fig. 2 shows a fragmentary detailed view of the operating mechanism for a pair of shutters in fully opened position;

Fig. 3 shows a view similar to Fig. 2, with the exception that the shutters are in a fully closed position;

Fig. 4 shows a view similar to Figs. 2 and 3, with the exception that the closing of the pair of shutters connected to the operating mechanism illustrated in this figure has been interfered with by the presence of some obstruction;

Fig. 5 shows a modified application of the features of the present invention to a transom shutter above a door;

Fig. 6 shows a vertical section through a frame within which has been installed the ventilator of the present invention, the parts standing in open shutter position;

Fig. 7 shows a vertical section through the ventilator, embodying the features of the present invention, the shutters being shown

in closed position by means of dotted lines, and in open position by means of full lines; 55 and

Fig. 8 shows a face view of the shutters on enlarged scale.

Referring first to Fig. 1, I have therein illustrated the ventilator 10 as being located or installed in the lower portion of a window casing 11. The ventilator shutters are connected by suitable operating mechanism with a lever or handle 12 which is exposed at a suitable point in the window casing for convenient manipulation. Said lever works within a plate 13 having a number of slots 14 into which the lever can be set, there being illustrated three slots corresponding to the fully closed, partially opened, and fully 70 opened positions.

In Fig. 5 I have shown the ventilator 10 as being applied to the upper or transom portion of a door casing 15. In this case I have also illustrated the operating lever 12 working within the slotted plate 13 in manner similar to that already explained. 75

Referring now particularly to Figs. 7 and 8, the ventilating unit therein illustrated comprises a series of shutters working on horizontal pivots or axes within a self-contained frame having side members 16 and 17, a top 18, and a bottom 19. These shutters are set in pairs opposite to each other, as shown in Fig. 7, each pair comprising 85 shutters 20 and 21. Each shutter is conveniently made from sheet metal or other suitable material and is mounted on a horizontal bar 22 pivoted in the side members 16 and 17. The upper end 23 of each shutter is preferably curved or bent outwardly, and its lower end 24 is preferably curved or bent inwardly, as shown in Fig. 7. This arrangement is such that when the shutters are fully opened their upper ends 23 will come together, whereas when the shutters are fully 95 closed, as shown by dotted lines, the upper end 23 of each shutter plate will come into register with the inwardly curved or bent lower end of the next higher shutter so as to provide an air tight and dust proof closure, as shown by the dotted lines. 100

It is preferred that the upper portion of the frame be provided with a pair or horizontal bars 25 and 26, as shown in Fig. 7, so as to effect a satisfactory closure at this 105

point. It is also preferred that there be provided a pair of specially formed shutters 27 and 28 in the lower portion of the device, the shutter 27 being pivoted on the axis 29, and the shutter 28 being pivoted on the axis 30. This arrangement is such that when these two shutters are thrown into the open or dotted position a straight opening is provided through the lower portion of the frame to make it possible to remove dust and dirt which may have collected therein.

On one end of the frame is provided a shutter operating mechanism, as shown in Figs. 6 and 8. I will now describe the same in detail. Each pivotal bar 22 is carried through the end member 16 of the frame and is provided with an operating lever or finger 31. The movement of these levers serves to rock the shutters. A vertical operating bar 32 is slidably mounted adjacent to the member 16, being guided in its movements by the clips or guides 33 and 34, as shown in Fig. 6. Said operating bar 32 carries a slotted plate 35 corresponding to each of the levers or fingers 31, each plate 35 having a longitudinal slot 36. Each finger or lever 31 carries a pin 37 working in the corresponding slot 36, the arrangement being such that when the plate 32 is drawn downward to the full extent the fingers 31 will be rocked towards each other by the engagement of their pins 37 with the extreme end portions of the slots 36 so as to fully open the shutters.

A spring 38 is provided between each plate 35 and the corresponding pin 37, said spring tending at all times to rock the corresponding finger 31 outwardly so as to close the shutter. The desirability of this arrangement will be understood from the following explanation: If a foreign body should be lodged between two of the shutters in vertical alignment so that they could not be fully closed, the closing of all of the other shutters would be interfered with and prevented, unless some form of lost motion connection such as the slotted connections were provided. The springs 38 tend to carry the individual shutters into the closed position, but in case of interference by a foreign body two or more of the shutters may remain in open position without interfering with the closing of the remaining shutters.

The operating lever 12 is conveniently pivoted to the window or door casing at the point 39, as illustrated in Fig. 6. This lever and the slotted plate 13 may be installed as a portion of the permanent equipment of the building. In like manner the shutter unit may be installed as a portion of the permanent equipment. Inasmuch as the operating connection must be provided between the lever and the shutter mechanism, and inasmuch as this operating connection must be so adjusted that the shutters will

be in the correct positions corresponding to the slots 14 of the plate 13, I have provided an adjustable connection whereby after the standard or unitized parts have been installed they may be connected up and adjusted so that they will function properly at all times. For this purpose I have provided a link 40 whose upper end is pivoted to the lever 12 at the point 41. The lower end of said link connects to a rod 42 which is supported by being passed through the upper and lower ends 43 and 44, respectively, of the bar 32. The lower end of the rod 42 is connected to the lower end 44 of the bar in an adjustable manner by means of set nuts or the like 45 threaded onto its lower end, and by means of which the plate 32 may be raised or lowered with respect to the rod 42 and set into desired position.

When the ventilator unit is located in a position easily accessible, as in a wall, partition or door, the operating handle 12 is exposed in the face of the unit, but when in an unaccessible place, such as a sky-light, near a ceiling, or as shown at 10, beneath a window a suitable connecting rod 40 runs to an accessible point where the handle 12 operating in the plate 13 is placed, the object also being to have the operating handle at a point on the level with the shoulder.

I claim:

1. A ventilator for the purpose specified, comprising in combination a rectangular frame, two series of plates extending across said frame, the plates of one series lying opposite to the plates of the other series, a horizontal pivotal member for each plate, journals for the ends of said pivotal members in the side portions of the frame, whereby as the pivotal members of one series are rocked in one direction and the pivotal members of the other series are rocked in the other direction the upper portion of each plate approaches towards or recedes from the lower portion of the next higher plate of the series, a swinging operating finger on the end of each pivotal member, a vertical operating bar between the fingers of one series and the fingers of the other series, a slotted link pivoted to said operating bar for each finger, a pin on each finger working in the slot of the corresponding link, and a spring connection between each finger and the corresponding link, tending to move the finger towards the outer extreme of movement as permitted by the pin and slot connection thereof, for the purpose specified.

2. A ventilator for the purpose specified, comprising in combination a rectangular frame, two series of plates extending across said frame, the plates of one series lying opposite to the plates of the other series, a horizontal pivotal member for each plate, journals for the ends of said pivotal members in the side portions of the frame, where-

by as the pivotal members of one series are rocked in one direction and the pivotal members of the other series are rocked in the other direction the upper portion of each plate approaches towards or recedes from the lower portion of the next higher plate of the series, a swinging operating finger on the end of each pivotal member, a vertical operating bar adjacent to all of said fingers, and a link connection from said operating bar to each of said fingers, for the purpose specified.

3. A ventilator for the purpose specified, comprising in combination a rectangular frame, two series of plates extending across said frame, the plates of one series lying opposite to the plates of the other series, a horizontal pivotal member for each plate, journals for the ends of said pivotal members in the side portions of the frame, whereby as the pivotal members of one series are rocked in one direction and the pivotal members of the other series are rocked in the other direction the upper portion of each plate approaches towards or recedes from the lower portion of the next higher plate of the series, the upper portion of each plate having an outwardly facing projection, and the lower portion of each plate having an inwardly facing projection, and means for rocking the pivotal members of one series in one direction and the pivotal members of the other series in the other direction, whereby said outwardly and inwardly facing projections co-operate to provide a tight ventilator

when the plates are in closed position, substantially as described.

4. A ventilator for the purpose specified, comprising in combination a rectangular frame, two series of plates extending across said frame, the plates of one series lying opposite to the plates of the other series, all of the plates being journaled with respect to the frame on horizontal axes, whereby as the plates of one series are rocked in one direction and the plates of the other series are rocked in the other direction the upper portion of each plate approaches towards or recedes from the lower portion of the next higher plate of the series, and means for rocking all of the plates in unison, substantially as described.

5. A ventilator for the purpose specified, comprising in combination a rectangular frame, two series of plates extending across said frame, the plates of one series lying opposite to the plates of the other series, all of the plates being pivoted with respect to the frame on horizontal axes, a vertical operating bar adjacent to one end of the frame, operating connections from said bar to all of the plates, whereby as said bar is moved up or down with respect to the frame all of the plates are swung in unison for the opening or closing function, a lever, a fixed pivot for said lever, a link between said lever and said operating bar, and means for adjusting the length of said link, for the purpose specified.

EDGAR M. DYER.