Jan. 28, 1930. F. SCHUELER 1,745,121

METAL SASH WINDOW VENTILATOR

Filed Nov. 5, 1927

Fig. 1.

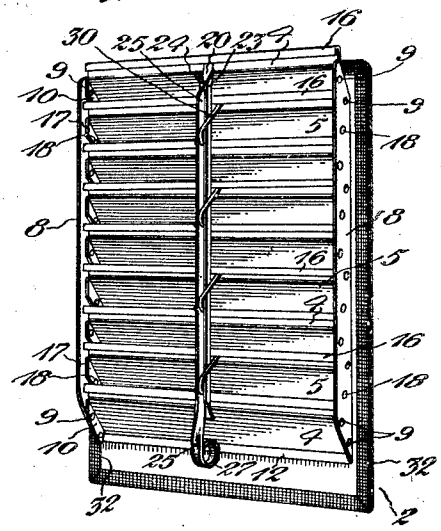


Fig. 2.

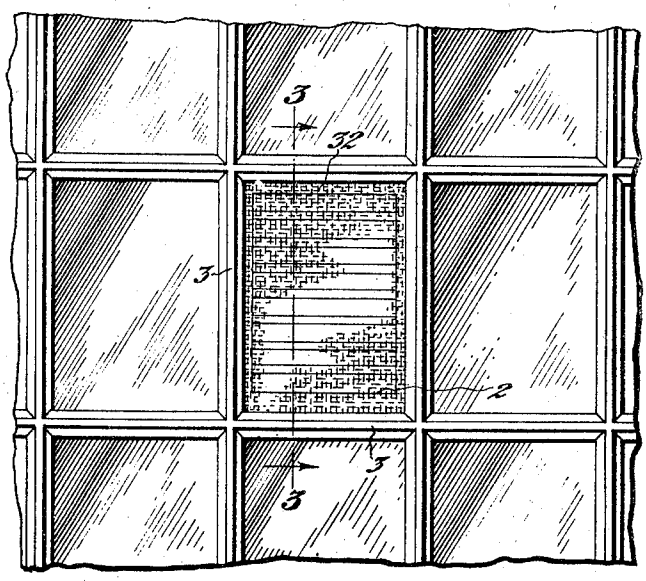
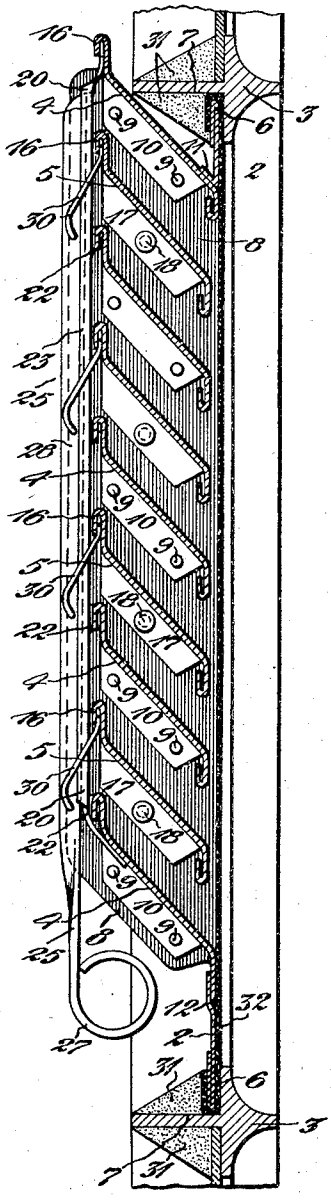


Fig. 3.



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UNITED STATES PATENT OFFICE

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METAL-SASH WINDOW VENTILATOR

Application filed November 5, 1927. Serial No. 231,288.

This invention relates to an improved ventilator for metal sash windows as used in office buildings, factories, mills, hospitals and other large structures.

A particular object of the invention is to provide a ventilator unit which may be set in metal sash of usual construction without requiring alterations therein or fitting thereto.

Another object of the invention is to provide a ventilator unit which may be set in the sash to replace a light of glass and held in place by putty as with the ordinary glazing.

Another object of the invention is to provide a window ventilator having an in-built screen which is applied to place in the operation of setting the ventilator in the sash.

Further objects of the improvement are set forth in the following specification which describes a preferred form of construction of the invention as illustrated by the accompanying drawings. In the drawings:

Fig. 1 is a perspective view illustrating the improved ventilator unit;

Fig. 2 is a view of a steel sash window showing the ventilator unit applied thereto in place of a light of glass; and

Fig. 3 is an enlarged cross-sectional detail view of the ventilator unit taken on line 3—3 of Fig. 2 and showing it in place in the sash.

The present improved ventilator is adapted for use with metal sash windows of the type now generally employed in large structures such as office buildings, factories, hospitals and other institutions. Heretofore no practical and adequate means have been provided for ventilating such buildings through the windows without removing a section of the sash or in other cases raising the sash and applying an interior ventilator or deflector. The present improvement provides a ventilator unit which may be employed in place of one or more lights of glass in the window and which may be applied to the sash in the same manner as the glass itself, that is, by puttying it in place as in the ordinary glazing operation.

As shown in Fig. 1 of the drawings the improved ventilator unit comprises a rectangular, flanged frame 2 adapted to be set in place in the opening between the sash-bars 3 of a window and having inclined louvres 4 and 5 with apertures therebetween for admitting air to the interior of the building without causing drafts. The louvre construction excludes rain and snow and the ventilator is provided with an exterior screen which protects the interior of the building from dirt, flies and other insects.

The main frame 2 of the ventilator unit is preferably constructed of sheet-metal with its marginal rim folded over on all four sides to provide a double-thick, reinforced flange 6 adapted to seat in the mortise or rabbet 7 of the sash-bars 3. At the opposite sides of the opening in the frame 2 are two vertical flanges or plates 8 projecting at right-angles to the frame and adapted to support the louvres 4 and 5. One set of louvres 4 is secured in fixed position extending laterally across the space between the side-members 8, being attached thereto by means of rivets 9 passing through wings or ears 10 bent around from the ends of the louvres. As shown more particularly in Fig. 3, the edges of the top and bottom fixed louvres 4 are closely joined to the rim of the opening in the frame 2. For this purpose the upper louvre has its lower edge folded over to reinforce the structure and the inner edge of the opening in the frame is flanged over at 11 to abut the upper inclined face of the louvre and is soldered or brazed thereto. The bottom fixed louvre 4 has its lower edge bent down to overlie an offset flanged portion 12 on the inner rim of the frame 2, being secured thereto by soldering or brazing.

The movable louvres 5 have substantially the same construction as the fixed louvres, their longitudinal edges being bent into vertical position and folded over at 16 to provide stiffening flanges. At the ends of the movable louvres 5 are ears or flanges 17 bent at right-angles to abut the side-plates 8 of the frame 2 and pivoted thereto by means of studs 18 riveted through the side-members.

Extending across the edges of the louvres 4 and 5 midway between the side-members 8 is a channeled or grooved guide-strip 20 which is permanently fastened to the fixed louvres 4 in any suitable manner. As shown

in Figs. 1 and 3, the guide-strip 20 has its upper end inserted between the sides of the folded edge-portion 16 of the upper fixed louvre 4 and soldered thereto. The back of the strip 20 is soldered to the edges of the other fixed louvres at 22 and its lower end is bent over and soldered to the lower face of the bottom fixed louvre 4. The guide-strip 20 has a relatively narrow flange 23 bent up from one edge and its opposite side is folded over at 24, see Fig. 1, to provide a channel for a sliding control-bar 25. The bar or slide 25 is preferably constructed of sheet-metal folded along its length to provide a double-thick strip which slides in the channel of the guide-strip 20. The lower end of the bar 25 is bent around in a loop 27 which forms a finger-hold or handle for sliding the bar.

The slide 25 is provided with a longitudinal rib 28 having suitable holes through which are hooked a plurality of wire spring-arms 30. The opposite ends of the arms 30 are held between the folded edge-portions 16 of the movable louvres 5, being soldered or other-wise suitably secured thereto. When the bar 25 is slid in the channel of the guide-strip 20 the spring-arms 30 act to rock the movable louvres 5 on their pivots 18 to swing them into open position, as shown in Fig. 3; or on the other hand, to bring them into closed relation with respect to the fixed louvres 4, this construction and method of operation of the louvres being as previously used in the art.

It will be understood by reference to the drawings that the reinforced flanged rim 6 of the frame 2 is adapted to seat in the rabbeted opening 7 in the steel sash with the louvre portion of the ventilator on the inside of the window. A strip of wire screen-cloth 32 is placed against the outer side of the frame 2 with its edge folded over the marginal rim 6 thereof to hold it in place thereon. When the ventilator unit is inserted in the sash as shown in Fig. 3 the screen-cloth 32 will be held against the bottom of the rabbet 7 in the sash-bars 3 with its folded edge overlying the opposite face of the flange 6.

The ventilator unit is manufactured in different sizes in accordance with the standard size and shape of lights of window glass used in metal sash. The ventilator may be applied to the sash when the latter is glazed or it may be employed as a replacement unit to be substituted for a light of glass already in place. All that is necessary to apply the ventilator unit to the sash is to place its flanged rim 6 in the rabbeted opening between the sash-bars 3 and to then insert wire springs or clamps as with glass lights. Putty or its equivalent is applied over the flanged rim 6 of the frame 2, as shown at 31 in Fig. 3, and pressed into place as in the ordinary process of glazing. The ventilator thus becomes a permanently fixed unit with the sash and any number of the units may be used in the window in accordance with requirements for ventilating the interior of the building.

It will be observed that my invention provides a particularly efficient device for the purpose specified, being compact in size, neat in appearance and especially convenient and easy to apply to metal sash windows. The ventilator unit may be applied to use without alteration in the form or structure of the sash itself and without fitting thereto. When once applied to place the ventilator requires no setting or alteration in position beyond the usual adjustment to open and close the louvres in accordance with the amount of air desired to be admitted. The volume of air admitted is easily regulated by sliding the control-bar 25 to open or close the openings between the louvres, the current of air being directed upwardly to prevent drafts.

When the ventilator is open a constant flow of air circulates on both sides of the window to maintain a substantially uniform temperature so that condensation on the glass and window frame is prevented. This prevents rust or corrosion in the frame, thus making for economy in cost of maintenance and repair. Being light in weight, small in compass, and constructed wholly of sheet-metal, the ventilator unit may be manufactured at relatively low cost so as to render the device economical for use in multiple units as required for large buildings. Moreover, the separate units may be placed in any location as desired to provide for convenient adjustment and to ventilate any particular section of the building.

While I have herein shown and described a preferred embodiment of the device it is to be understood that various modifications may be made in the form and construction of its parts without departing from the spirit or scope of the invention.

Therefore, without limiting myself in this respect, I claim:

1. A ventilator unit comprising a flat rectangular frame adapted to be set within the rabbeted recesses of the sash-bars of a window and provided with inclined louvres extending laterally across its opening, and a metal screen extending across the front of the frame and folded over its edge to adapt it to be held in place between its rim and the sash-bars when the frame is puttied into the sash.

2. A ventilator unit comprising a sheet-metal frame having a flanged rim adapted to fit within the rabbeted recesses of the sash-bars of a window to be held in place by putty, vertical strips projecting rearwardly from the sides of the opening in the frame, inclined louvres extending between said side-strips and supported thereon, and a metal screen

extending across the opening at the front of the frame.

3. In a ventilator unit the combination of a sheet-metal frame having its marginal edges folded over to provide a reinforced flange for reception in the rabbeted recesses of the sash-bars of a window, vertical side-strips projecting inwardly from the opposite sides of the opening in the frame, a series of inclined louvres fixedly supported between the side-strips on the frame, a series of movable louvres pivoted to the side-strips in alternate relation with the fixed louvres, and means to tilt the movable louvres on their pivots to regulate the volume of air admitted through the ventilator.

4. In combination with the rabbeted sash-bars of a window, a metal frame having a marginal flange seated in the recesses of the sash-bars and held in place by putty, and a series of inclined louvres extending across the opening in the frame.

In testimony whereof I affix my signature.

FREDERICK SCHUELER.