Nov. 29, 1927. 1,650,946

E. LAMBRIGHT

WINDOW VENTILATOR

Filed Dec. 17, 1926

Fig 1

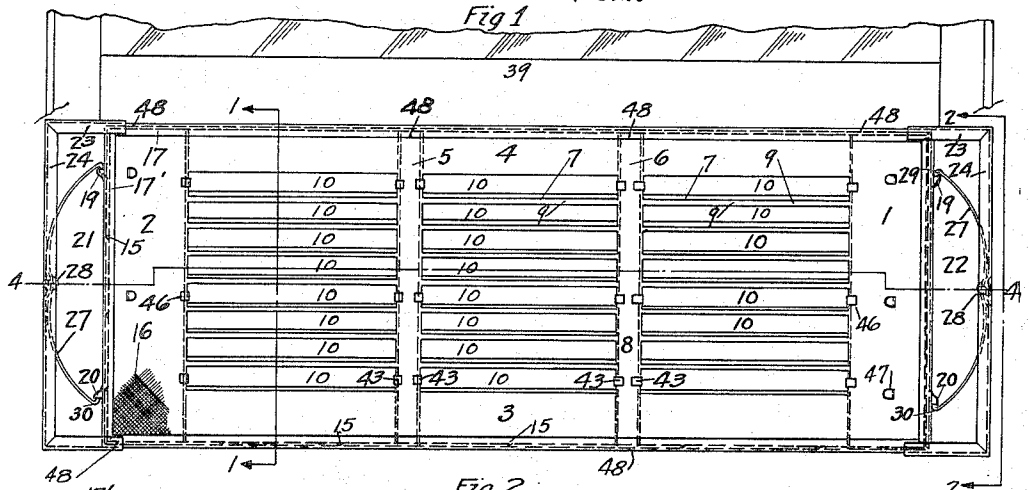


Fig. 2.

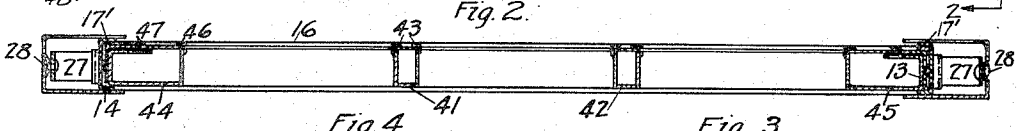


Fig. 4.

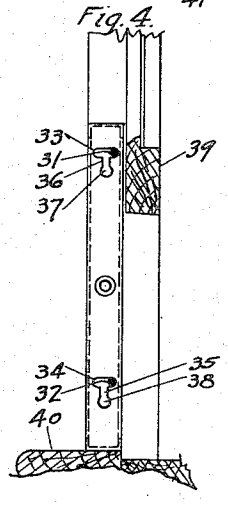


Fig. 3.

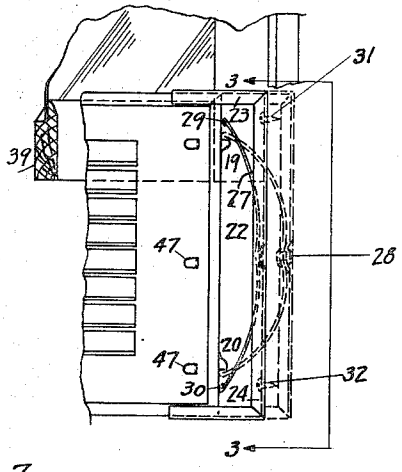


Fig. 5.

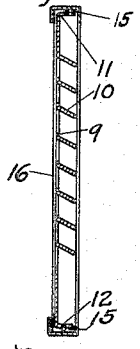


Fig. 6.

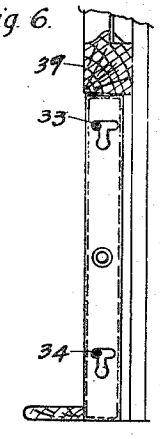
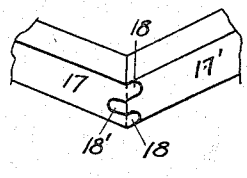


Fig. 7.



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# UNITED STATES PATENT OFFICE.

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## WINDOW VENTILATOR.

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This invention relates to a sheet metal window ventilator.

One of the primary objects of the invention is to construct a window ventilator with end members that will yield under tension to permit the end members of the ventilator to be adjusted to allow the ventilator to fit and conform to various widths of window frames.

A further object is to provide means for adjusting the ventilator to fit different sizes of the windows, the adjustable parts being held in contact with the window frame under tension, so that the ventilator will be prevented from rattling or becoming loose in the window frame.

Further objects are to provide means for preventing dust, débris or the like from entering the room through the ventilator and to provide means for locking the ventilator to the window frame to prevent same from being removed from the outside.

Another object is to provide means for permitting the window sash to slide in the window frame and pass by the ventilator to rest upon the bottom sill of the frame without coming in contact with or being obstructed by the ventilator or to permit the sash to be supported by the ventilator if desired.

A further object is to provide means for bracing and strengthening the sheet metal blank between the ends of each series and sections of slats, the braces also being adapted to fill the gap between the ends of the alined section of each series of slats thereby providing a smooth, plane surface.

Another object is to construct a ventilator of sheet metal that is light in weight, but of maximum strength to prevent undue warping, bending or rattling and to so assemble and construct the parts as to form a flat and smooth box-like structure of unusual rigidity for the purpose intended.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings accompanying this specification and forming a part thereof, the preferable form of my invention is illustrated in which—

Fig. 1, is a rear or inside view of my improved ventilator.

Fig. 2, a longitudinal section of Fig. 1 taken on the lines 4—4 thereof.

Fig. 3, a fragmentary sectional rear view of the ventilator and window frame showing an end member adjusted to different positions in full and dotted lines.

Fig. 4, an end view of Fig. 3 taken on the lines 3—3 thereof showing the ventilator in position to permit the window sash to pass by the ventilator.

Fig. 5, a cross sectional view of Fig. 1, taken on the lines 1—1 of Fig. 1 showing the sides of the channel frame engaging the ventilator.

Fig. 6, an end view of Fig. 1, taken on the lines 2—2 thereof.

Fig. 7, a perspective view of one corner of the channel frame or a section of the channel frame showing the means of joining parts of the frame.

Referring to the drawings showing the preferred embodiment of the invention and especially to Fig. 3 the ventilator shown is made from an integral blank of sheet metal having series of slats pressed therefrom in separate sections.

The end portions of the ventilator 1 and 2 are adapted to aline with the sides of the sash to prevent air from entering the room other than through the spaces between the slats. The side portions 3 and 4 of the ventilator add strength and rigidity thereto and constitute an integral frame surrounding the slats, with parts 1 and 2.

At predetermined points between the portions 1 and 2 of the integral blank, portions 5 and 6 (or more) are provided to brace the blank. The sheet metal blank is slitted or cut along parallel lines at 7, the slits having right angular extensions 8 at each end thereof.

The right angular slits 8 do not extend through the full width of each slat portion of the blank, thereby leaving the integral parallel portions 9 of the slat portions integral with the portions 1, 2, 5 and 6 of the blank providing a plane and smooth surface on one side of the blank.

Slats (or stationary shutters) 10 are pressed in parallel relation to each other from the sheet metal blank and in angular relation thereto as shown in Fig. 5. The

angular position of the slats with respect to the ventilator admits air into the room, deflects it and causes the air to enter the room in an upward direction through the openings between the slats preventing drafts.

The integral portions 1 and 2 located at the ends of the sheet metal blank can be made any size or shape desired and the integral parts 5 and 6 can be made of any size, shape or number desired or necessary to strengthen the ventilator in accordance with the varying widths of window frames.

Attention is called to the fact that one or more series or sections of slats can be pressed from the blank as desired. To strengthen the blank of sheet metal and impart rigidity thereto the sides of the blank 11 and 12 and the ends 13 and 14 are turned up at right angles to the plane of the body portion of the ventilator. (See Figs. 2 and 5.)

This provides a right angularly related integral edge surrounding the sheet metal blank of a depth or width substantially equal to the depth or width of the down turned angular slats. The sides of the blank 11 and 12 and ends 13 and 14 have outwardly pointed protuberances 15 formed thereon, projecting outwardly therefrom to provide means to secure a meshed fabric cloth 16 thereto to filter and effectively separate or remove particles of dust and dirt in the air which circulates through the ventilator. The filtering device is secured to the ventilator in such a way that it can be removed easily and cleaned, thereby making the ventilator particularly adapted for household use. The fabric is fastened over the ventilator under tension and is engaged by the pointed protuberances 15.

In order to strengthen the ventilator and provide means to further secure the fabric in place and to present a smooth box-like frame, the parts 17 and 17′ of the frame are made channel shape and fitted to the sheet metal blank forming the ventilator along the sides and ends thereof as shown in Figs. 2 and 5. The parts 17—17′ are preferably fastened together by means of interconnecting lugs, the lugs 18′ being pressed between and in contact with one of the parts 17 and the lugs 18 being pressed in contact with the part of the frame 17′.

This arrangement strengthens the ventilator, keeps same from warping out of shape and adds rigidity thereto, while, at the same time it provides a frame surrounding the ventilator of channel shape (see Fig. 7) with the sides of the channel iron extending inwardly over the edges of the ventilator and leaving the closed portion of the channel in close contact therewith and also providing plane surfaces around the edges and ends thereof which are adapted to fit the channel shaped grooves of the end members.

The end parts 17′ forming the end of the channel frame have integral portions 19 and 20 pressed therefrom to provide pocket-like openings (see Fig. 1). End members 21 and 22 are provided having integral channel shaped grooves as shown at 23 and 24 formed on one side and intersecting at right angles to each other.

The grooves 23 of each end member 21 and 22 slidably fit over the sides of the channel shaped frame and when the end members are forced to their closed positions the parts forming the grooves 24 overlap the ends of the channel shaped frame.

In order to limit the outward movement of the end members 21 and 22 flat circular shaped springs 27 are provided and secured within the channel grooves 24 by rivets 28 or the like. The free ends of the springs 27 are provided with hooked ends 29 and 30 which normally engage the pocket members 19 and 20 and stop the outward movement of the end members. The springs exert a tension upon the end members and automatically maintain said members at the limit of their outward throw, which movement does not withdraw the grooves or channel shaped parts of the end members from their engagement with the channel shape frame.

When it is desired to place the ventilator within the window frame the end members are forced inwardly against the tension of the springs 27 toward the ends of the ventilator, thereby forcing the springs 27 to yield to fit window frames of various sizes. When the end members are released the springs 27 force the end members in contact with the window frame and holding the end members in yielding contact with the window frame under tension of the springs thereby preventing rattling, displacement, noise and the like. (See Fig. 3.)

The end members can be adjusted at both ends of the ventilator approximately 4 or 5 inches to fit different sizes of window frames. The end members are held in place by screws 31 and 32. The end members carrying the ventilator can also be moved to aline with the sash or to permit the sash to pass by shifting same through the medium of the slots 33 and 34.

The head of the screw (not shown) prevents any one from removing the screw from the outside as the end members must be lifted up to permit the screw to enter and be moved in the slots 35 and 36 to allow the head of the screws to be withdrawn through the enlarged holes 37 and 38. (See Fig. 4.)

It will be noted that in Fig. 4 the sash 39 is shown in a position to pass by the ventilator or a portion thereof and to rest upon the sill 40. The user of the ventilator can regulate or govern the amount of air that will flow through the ventilator by the adjustment of the sash with relation to the ventilator. In Fig. 6, the sash 39 of the

window is shown supported upon the top of the ventilator and the openings between all of the slats permits air to pass into the room or inclosure.

The arrangement described of slot and screw fastening means provides for shifting the ventilator so that it may support the sash or to permit the sash to pass by the ventilator in overlapping relation thereto as desired. While it is preferable to turn the ventilator so that the fabric attached thereto will be located on the inside, the ventilator can be turned or reversed and exposed from the outside of the room if desired.

In cutting away or slitting the sheet metal blank to form the angular related slats to provide series of sections of slats leaving integral portions of the blank between the ends of each section in series, openings or gaps are left between the alined ends of the slats leaving the sharp edges of the ends of the slats adjacent to the openings or gaps.

In order to fill the openings between the alined ends of the slats and brace the ventilator U-shaped filler braces 41 and 42 are provided having integral lugs 43 formed thereon. The lugs 43 are bent in close contact with the integral portions 5 and 6 and they securely hold and fasten the said integral portions 5 and 6 to the filler braces 41 and 42 as shown in Fig. 1, thereby bracing and strengthening the ventilator.

In addition to the filler braces 41 and 42, U-shaped end filler braces 44 and 45 having lugs 46 formed integral therewith are fastened to the integral end portions 1 and 2 at one side of the sheet metal ventilator by turning same over in close contact with said integral end portions of the sheet metal ventilator.

Ears 47 are formed integral with the U-shaped filler braces 44 and 45 and extend up through apertures formed in the end portions 1 and 2. They are then turned over in contact therewith holding and fastening the U-shaped filler braces at and adjacent to the ends of the ventilator.

It will be noted that the ends of the filler pieces 48 fit snugly between the parts of the channel frame and they are adapted to press against the sheet metal blank forcing the ventilator into close contact with the parts of the channel frame thereby holding the blank forming the ventilator in close contact therewith avoiding and preventing rattling or any looseness or the like of the parts and imparting strength and rigidity thereto which prevents warping, bending or the like.

It will be noted that the construction of a ventilator as described and shown in the drawing provides a ventilator that is light in weight but of maximum strength and rigidity for the weight of the material used in its construction as the blank from which the ventilator is formed is thoroughly braced by cross and longitudinal U-shaped braces (or channel shape) and a channel shape frame of sheet metal, all of them forming a box-like plane structure having the sides and ends unobstructed and the ventilator also can be easily and conveniently handled and placed in the window frame or withdrawn therefrom with efficiency and without the aid of skilled help.

It will also be noted that the entire structure is made of sheet metal and so formed and arranged as to give the maximum strength with a minimum number of parts for size or weight of material used in its construction.

Attention is called to the fact that the ventilator can be used and held rigidly in place in the window frame if desired without the use of the screws 31 and 32 as a tension of the flat spring 27 will maintain same in place.

I claim:

1. A ventilator comprising a rectangular sheet of metal having a plurality of series of inclined slats pressed therefrom in angular relation to the body of the sheet metal blank, said plurality of series of slats being spaced apart from each other by right angular related integral flat portions of the sheet metal blank and also having right angular related integral flat portions at the ends thereof at and adjacent to the ends of the blank, a frame formed of channel shaped metal fitted around the ends and sides of the metal blank and secured thereto, a fabric, and means to removably secure the fabric between the frame and the ventilator.

2. A ventilator comprising in combination, a rectangular blank of sheet metal, a plurality of slats arranged in sections and pressed therefrom at an incline to the plane of the body portion, said slats being spaced apart from each other leaving an integral portion of the blank between each series and an integral portion at each end thereof, a channel shape sheet metal frame secured to and arranged around the edges of the blank and tension means fitted to slide over the ends of the ventilator for adjustment of the width thereof as described.

3. A ventilator comprising, in combination, a rectangular blank of sheet metal, a plurality of slats pressed therefrom at an incline to the plane of the body portion, said slats being spaced apart from each other leaving an integral flat portion of the blank between each series and an integral portion at each end thereof, a channel shape sheet metal frame secured to and arranged around the edges of the sheet metal blank, a fabric and means to separate the parts of the channel shaped frame to insert and removably hold the fabric between the ventilator and channel frame.

4. A ventilator comprising in combination,

a rectangular blank of sheet metal, a plurality of slats pressed therefrom at an incline to the plane of the body portion, said slats being spaced apart from each other leaving integral portions of the blank between each series and integral portions at each end thereof, a channel shape sheet metal frame secured to and arranged around the edges of the metal blank, end members telescopically fitted to slide over the channel frame at and adjacent to the ends thereof, yielding tension means interposed between the end members and the ends of the channel shaped frame and means to limit the outward movement of the end members.

5. A ventilator comprising in combination, a rectangular blank of sheet metal, a plurality of slats pressed therefrom at an incline to the plane of the body portion, said slats being spaced apart from each other leaving integral flat portions of the blank between each series and integral flat portions at each end of the blank, a channel shape sheet metal frame secured to and arranged around the edges of the blank, end members telescopically fitted to slide over the channel frame at and adjacent to the ends thereof and means to permit the end members to be moved in and out of line with the window sash.

6. A ventilator comprising in combination, a rectangular blank of sheet metal, a plurality of slats pressed therefrom at an incline to the plane of the body portion, said slats being spaced apart from each other leaving integral flat portions of the blank between each series and integral portions at each end thereof, a channel shape sheet metal frame secured to and arranged around the edges of the blank, end members telescopically fitted to slide over the channel frame at and adjacent to the ends thereof, means to permit the end members to be moved horizontally in and out of line with the sash, said means also providing means to prevent the removal of the ventilator from the outside of the window, as and for the purpose described.

7. A ventilator comprising, in combination, a rectangular blank of sheet metal, a plurality of slats pressed therefrom at an incline to the plane of the body portion, said slats being spaced apart from each other leaving integral flat portions of the blank between each series of slats and also having integral flat portions at each end thereof and channel shaped filler braces arranged between the alined ends of each series of slats to provide a filler brace to close the gap therebetween, said braces having lugs formed thereon to fasten same to the integral flat portions of the sheet metal blank, as and for the purpose described.

8. In a ventilator, in combination, a sheet metal blank having slats pressed therefrom leaving openings in the blank and a frame made of bars which are detachably fitted around the edges of the blank, as described and set forth.

9. In a ventilator, in combination, a sheet metal blank provided with slats and openings and a frame made of bars which are detachably fitted around the edges of the blank, movable end members slidably fitted to the frame and means to connect the end members to the frame by yielding members that are also adapted to limit its outward movement, as described and set forth.

10. A ventilator, a sheet metal body provided with inclined integral slats and openings, a channel shape frame composed of channel shaped bars which are detachably secured together around the edges of the sheet metal body portion, a fabric secured between the edges of the sheet metal body and channel frame, end members slidably fitted to the ends of the channel shape frame and yielding means connected to the end members and adapted to exert a pressure on the end members.

11. In a ventilator, in combination, a sheet metal member having a series of inclined slats pressed therefrom leaving openings in the sheet metal member, said member also having the edges bent, a fabric and a frame composed of channel shaped bars which are detachably connected together connected to the sheet metal members providing means for attaching the fabric to the sheet metal member and bracing said member.

In testimony whereof I affix my signature.

EMANUEL LAMBRIGHT.