Sept. 19, 1950 W. R. KUBATZKY 2,523,249

INSERTABLE VENTILATOR FOR DOUBLE HUNG WINDOW FRAMES

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FIG. 1.

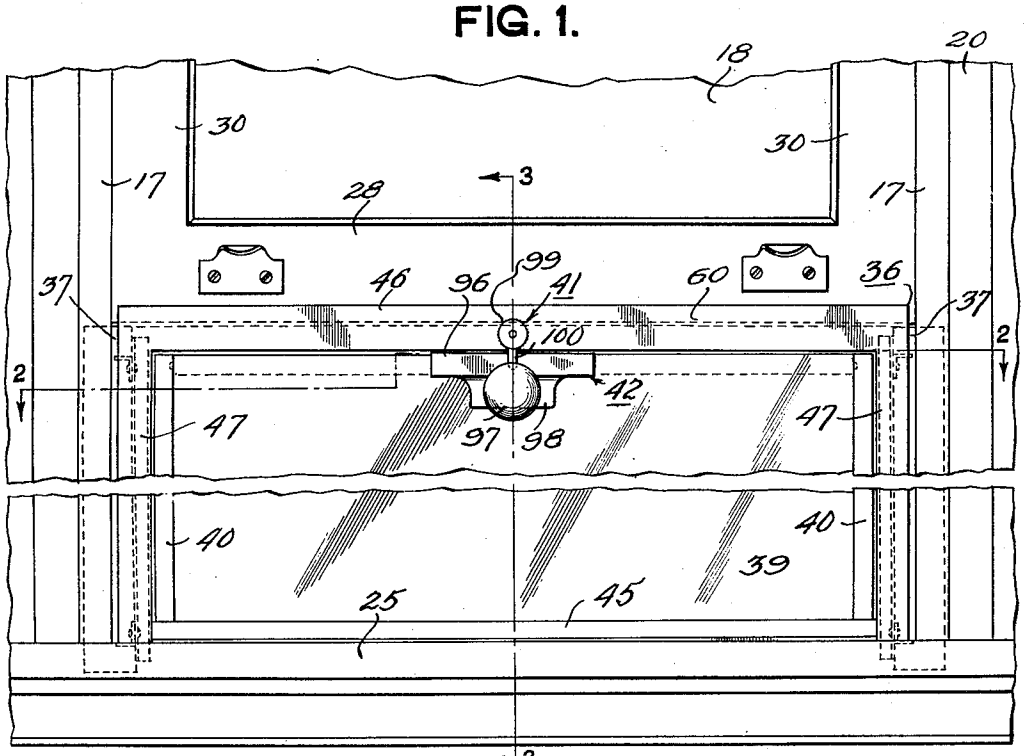
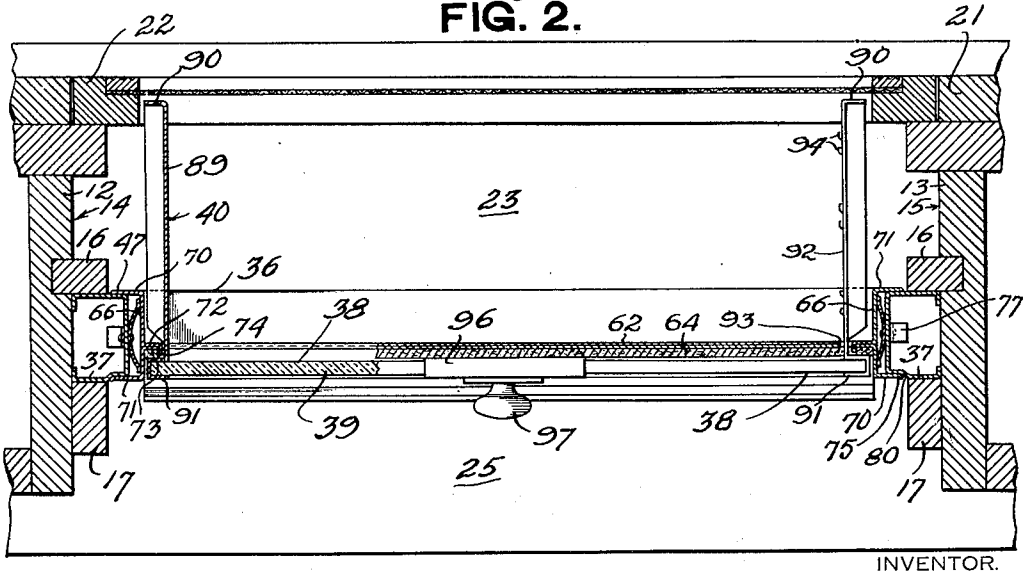


FIG. 2.



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FIG. 3.

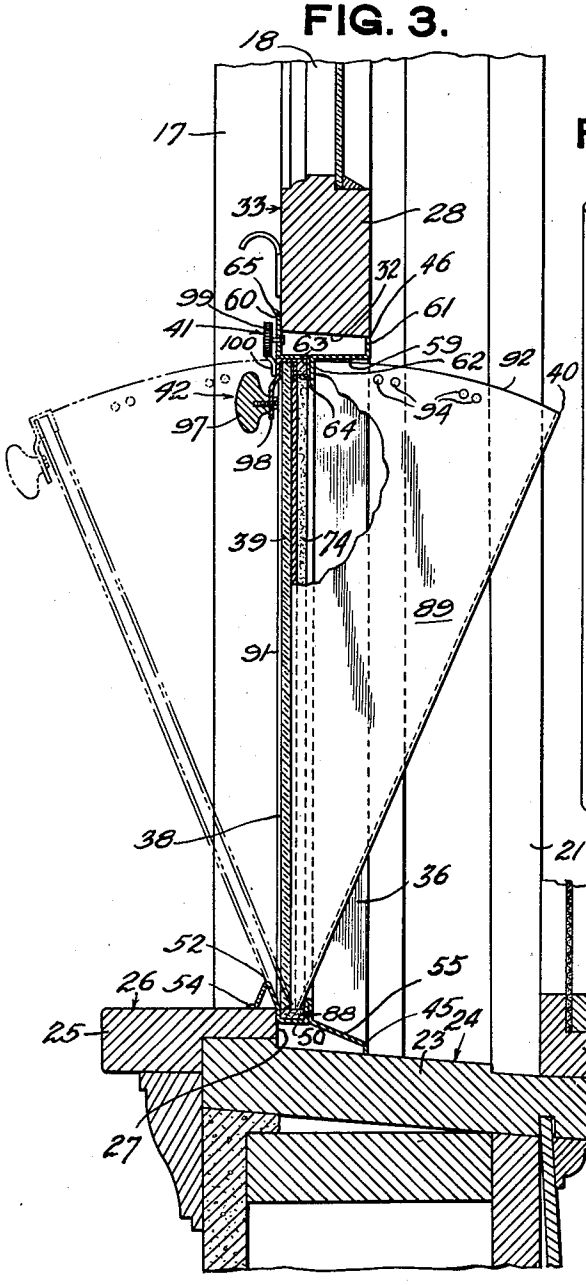


FIG. 7.

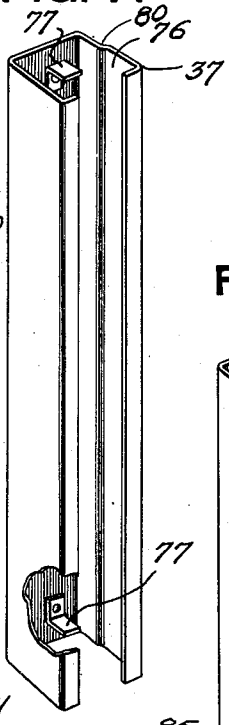
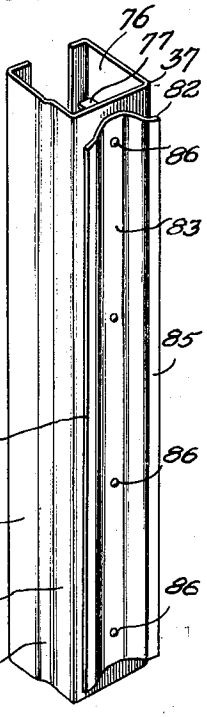


FIG. 8.



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FIG. 4.

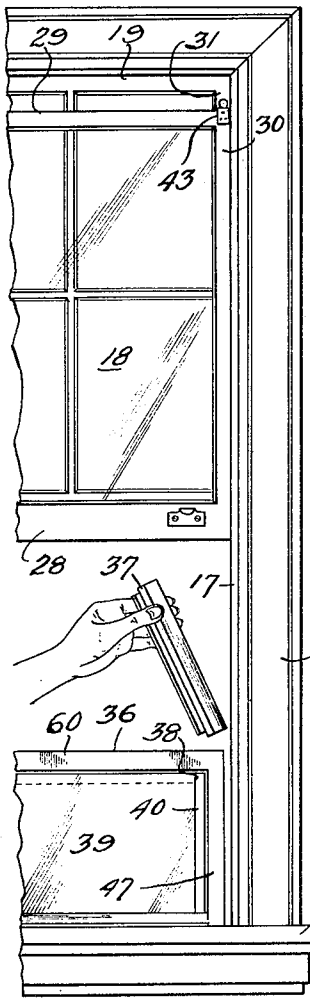


FIG. 5.

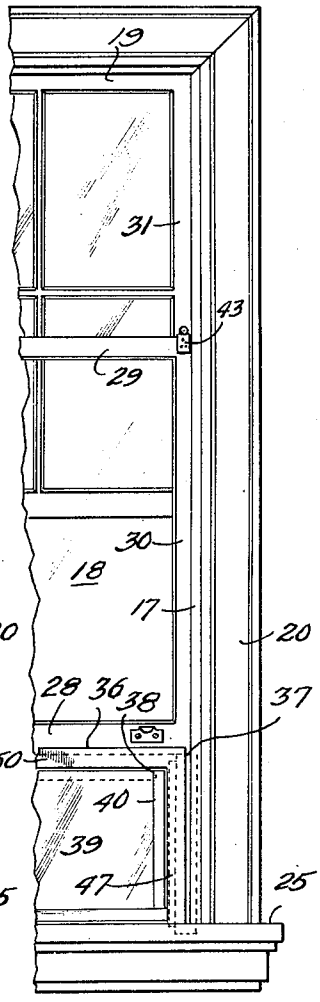


FIG. 9.

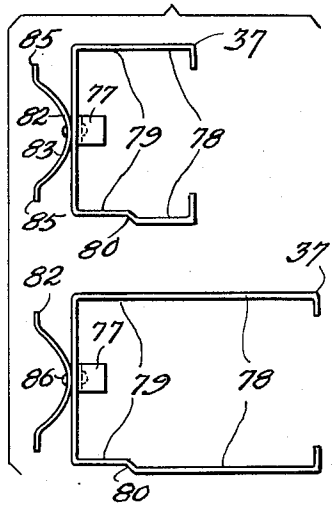


FIG. 10.

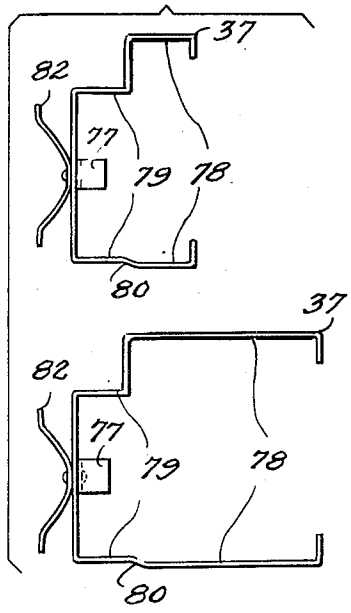
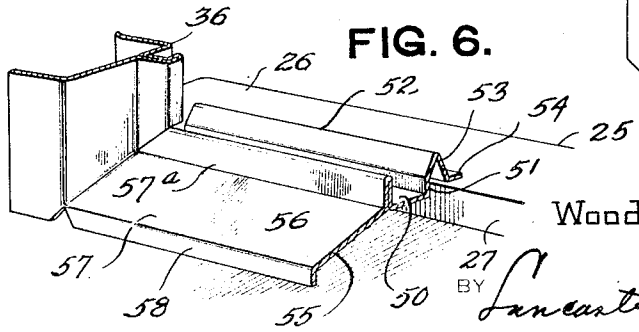


FIG. 6.



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2,523,249

UNITED STATES PATENT OFFICE

2,523,249

INSERTABLE VENTILATOR FOR DOUBLE HUNG WINDOW FRAMES

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Application February 14, 1947, Serial No. 728,578

3 Claims. (Cl. 98—99.7)

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The present invention relates to ventilators for use with windows and is particularly well adapted for use with double hung window frames.

Various devices have been provided for use at windows, to permit ingress and egress of air to and from rooms. Some of these are affixed to the architraves or stop beads of the windows. These types of ventilators require considerable skill, if they are to have neat appearance when installed. It is often desirable to remove the ventilators during fair seasons, such as for the late spring, summer and early fall, and these types of ventilators, when removed, leave the frames marred, such as exposed holes made by screws, nails or other fastening devices, and parts may stick to the paint or other finish leaving such unsightly when the ventilator parts are pried therefrom. It is frequently found, upon removal of such types of ventilators that the decorative coatings of the window frames, which were concealed by parts of the ventilator, are of a different color than the remainder of the coatings, due to fading, so that the entire frames must be redecorated, or the unsightly contrast of colors left to view.

Another type of ventilator in common use is that which is telescopic or adjustable lengthwise, to suit various widths of windows, between the pulley stiles, to fit beneath the lower sash of a double hung window, and rest upon the window sill. While such type may be readily removed and is not apt to damage woodwork of the decorative finish, it may be readily removed by unauthorized persons from the outside of the building, and usually is not symmetrical in appearance so that it detracts from the architectural effect. Also, in recent years, it has been found desirable to provide ventilators using glass or other transparencies as deflecting shields for incoming air currents, so as to not shut off considerable light from the outside, and these telescopic types of ventilators have considerable opaque areas exposed to view at the adjustable zones.

The principal object of the present invention is to provide a ventilator for window frames which may be easily and quickly placed, without likelihood of damaging the window construction or the finish thereof, since it fits between the pulley stiles and between the sash and sill; and which cannot be collapsed or diminished in over all length, so that if the sash is locked, either to the casing or to the upper sash after the ventilator has been placed, the latter cannot be readily removed without breakages unless the locked sash is first released.

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The invention contemplates the provision of a rigid rectangular frame, supporting a transparent or translucent deflecting shield which may be held in a closed position with respect to the frame, to prevent the ingress or egress of air, or adjusted to various open positions, this frame being of a length almost as wide as the window opening so as to permit of entry of considerable light into the building; and rigid filler pieces which may be slid into place, from above to occupy substantially the entire space between the rigid ventilator frame and the pulley stiles and to fit snugly between beads of the window casing. Thus a ventilator having symmetrical appearance and relatively small opaque areas at the ends of the frame, is provided, which cannot be readily removed without withdrawing the filler pieces vertically from between the main frame and window casing.

It is common practice to somewhat standardize double hung window frames, so that the dimensions of the window openings, in width, vary as to different sizes, by one inch or two inches or other unit of measurement. By way of example for some windows the sash may have a width of two feet and two inches, the next size, two feet and four inches, the next, two feet and six inches, and so on. For comparatively inexpensive window construction the sash may have a thickness of one and three eighths inches and for better grade, one and three quarters inches. The present invention makes possible the stocking of a comparatively few sizes of ventilator frames and a variety of sizes and shapes of filler pieces to meet the average demands of persons in a locality seeking ventilators without resorting to unsightly, unsymmetrical assemblies or patchwork when installing.

Another object of the invention is to provide window ventilators of the insertable type which when installed are comparatively weathertight when the deflecting shields are closed, so they may be used in cold localities and those subjected to driving rain or snow storms without danger of ingress of moisture or air when ventilation at the window is not desired.

A further object of the invention is to provide ventilators which will fit neatly with respect to the many designs of lower sash rails, and the sills and stools of window frames, so that the assembly will have good appearance and conceal any rough or uneven edges of the rail and stool.

Other objects and advantages of the invention will appear in the following detailed description of the preferred embodiment of my inven-

tion, taken in connection with the accompanying drawings, forming a part of this specification, and in which drawings:

Fig. 1 is a fragmentary view in elevation of the lower portion of a window equipped with a ventilator, made according to the present invention, a portion of some being broken away and removed, to condense the view.

Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged, vertical sectional view on substantially the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view in elevation of a double hung window frame, with the lower sash raised and showing the manner in which a filler piece may be inserted between the frame of the ventilator and the pulley stile of the window frame and between the parting and stop beads thereof.

Fig. 5 is a view similar to Fig. 4, but showing the filler piece in place, the lower sash resting upon the ventilator and the upper and lower sashes locked together, so that the ventilator cannot be removed from the outside of the window.

Fig. 6 is a fragmentary, detail view in perspective, showing a portion of the ventilator frame resting upon the sill and stool of the window frame.

Fig. 7 is a detail view in perspective of one of the filler pieces, looking toward the faces thereof adapted for engagement with the window frame pulley stile, a portion being broken away to show a preferred detail thereof.

Fig. 8 is a view similar to Fig. 7, but looking toward the face adapted for engagement with the ventilator frame.

Fig. 9 is a view showing for comparison two of such filler pieces in plan, for selective use according to the distance between the pulley stiels of the particular window frame in which the ventilator is to be installed, this view showing by way of example, the filler pieces for a window having sash of 1⅜ inches thickness.

Fig. 10 is a view similar to Fig. 9, but showing suitable filler pieces for a window having a sash of 1¾ inches in thickness.

The improved ventilator is shown applied to a double hung window frame of the well known type comprising a sill 11, pulley stiles 12 and 13, from the confronting faces 14 and 15 of which project the parting beads 16 and stop beads 17, and lower and upper sashes 18 and 19 respectively. The frame is shown as having an architrave 20, outside casing 21 and screen 22 disposed upon the sill and engaging the trim. The sill 11 is shown as comprising a main body portion 23, the upper face 24 of which slants downward toward the outside of the building, from a stool 25, having a top face 26 and an outer side face 27 in angular relation to each other. The lower sash includes a bottom rail 28 parting rail 29 and stiles 30 and the upper sash is also of ordinary construction, including a stile 31, shown in Figs. 4 and 5. The bottom rail 28 has its lower surface beveled downwardly and outwardly, as at 32, to conform to the pitch of the upper face of sill portion 23. All of these details disclose common practice in building construction, but it is pointed out that it is to the stop beads 17 or the architrave 20 that some of the window ventilators now in common use are attached as hereinbefore disclosed; and that it is the margin of the stool portion 25 at the juncture of the faces 26 and 27, and the margin at the juncture between the bevel 32 and inner face 33 of the bottom rail 28 that are frequently found to be uneven or rough, due to warping or wear and tear in some buildings. The thickness of the sash is usually standardized to the dimensions of 1⅜ and 1¾ inches and hence the pairs of beads 16 and 17 are spaced apart rather accurately, to slidably engage the upright margins of the sash according to the thickness thereof.

The ventilator preferably comprises mainly an elongated rectangular frame 36, filler or side extension pieces 37, to engage the pulley stile between the beads 17 and 18, and a deflector shield 38, for directing incoming air primarily to portions of the room where such is desired. In the example shown, the deflector shield comprises a plate 39 and segmental side wings 40, resembling somewhat those elements shown in Patents 1,809,518; 2,273,758 and 2,351,522 issued to Otto Kubatzky granted June 9, 1931, February 17, 1942, and June 13, 1944, respectively. There is also shown a suitable latch 41 for retaining the plate 39 in a position closing the opening of frame 36, when such is desired, a knob arrangement 42 on the plate 39, and a window lock 43, which may be used to lock the sashes 18 and 19 together when the lower sash has been raised to a predetermined height. This lock may be of any suitable character, such as is disclosed in Patent 1,580,611 granted to E. C. Kirkpatrick, April 13, 1926.

The frame 36 is preferably made of rolled or extruded metal sections suitably welded or otherwise secured together and preferably comprises a lower rail 45, an upper rail 46 and stiles 47.

The rail 45, as shown more in detail in Figs. 3 and 6 is preferably shaped for sturdiness, to conceal any unevenness or roughness along the previously mentioned margin of the stool 25, and to provide a support for the plate 39 as well as conduct any moisture contacting and flowing downwardly on the outside of plate 39 to the pitched surface of sill portion 23. With this in view the rail 45 preferably comprises an upwardly opening horizontal trough 50 paralleling the juncture between the faces 26 and 27 of stool 25, an inside wall 51 of the trough preferably abutting against the face 27; a first flange portion 52 engaging upon the face 26 and connected to the wall 51, this flange portion 52 being preferably and mainly of inverted V-shape cross section 53 and terminating in a minor flange 54 for intimate contact with the top surface of stool 25; and a second flange portion 55 joined to the other side of the trough 50 and including a major section or web 56 having an upper face 57 inclining downwardly and outwardly from the trough 50, this section or web to overlie the sill body 23. If the rail 45 is made from rolled metal stock the web 56 is preferably joined to the upper portion of the trough 50 by an integral flange 57^a and it is also preferred to provide a depending flange 58 along the other margin of web 56 which may engage, with intimate contact, the sill body 23, as shown in Fig. 6.

The upper rail 46 is also preferably shaped for sturdiness, to conceal any unevenness or roughness of the lower inner margin of sash rail 28, and to provide an abutment for the upper marginal portion of plate 39. This rail is shown more in detail in Figs. 1 and 3 and preferably channel shaped in cross section, including a web 59 and upstanding flanges 60 and 61, the web 59 having a depending angular flange 62 forming an inwardly opening channel 63 for receiving a packing strip 64 of sponge rubber or the like, which is engaged by parts of the deflector shield 38 as

hereinafter described. The flange 60 preferably has its upper margin bent outwardly of the channel as shown at 65, the flange having intimate contact with the inner face of sash rail 33. The depth of web 59 is preferably made less than the thickness of the sash rail it is to engage so that the upper margin of flange 61 will engage the underside of the sash rail. For instance if the sash of minimum thickness for which the ventilator frame is intended, has a thickness of 1⅜ inches, the web 60 will be made of a depth less than 1⅜ inches, thus assuring a fit with not only a sash having this dimension but also with those having greater thickness, such as one of 1¾ inches in thickness.

Referring now to the stiles 47 they are each preferably similar to the upper rail 46 in that each is of channel cross section, comprising a web 66 outer and inner flanges 70 and 71, respectively and an inwardly extending angular flange 72 forming a channel 73 for receiving a packing strip 74 to engage a portion of the deflector shield 38. The channels of the stiles 47 are each open at the top and endwise of the frame, and may also be open at the bottom thereof, for reception of the companion filler or extension piece 37. The free margin of flange 70 may be formed with a bead 75 to give good appearance and to provide a substantial abutment for resisting any attempt to pry the adjacent piece 37 from its position between the window beads 16 and 17.

The over-all length of frame 36 is at most, less than the distance between one of the stiles and the faces of the beads 16 and 17 on the other stile which confronts same. In other words this length is less than the distance of stile 12 from the faces of beads 16 and 17 on stile 13 which confront stile 12, and preferably the length of the frame 36 is less than the distance between the confronting faces of the pairs of beads 16 and 17 on stiles 12 and 13, so that the frame may be placed in the window opening by movement transversally of the plane of the window. This is essential where two filler or extension pieces 37 are used and the over-all thickness of the frame 36 is greater than the space between the beads 16 and 17 on their respective pulley stiles as shown in Fig. 2.

In Fig. 4 the frame 36 is shown in position in the window opening, with the lower sash 18 raised high, and a hand is illustrated in the act of placing one of the filler or extension pieces 37, by sliding it downwardly between the frame 36 and the pulley stile and between the parting and stop beads on such stile. The pieces 37 are preferably made interchangeable, so it suffices to describe merely one in detail. Each piece 37 is preferably made tube like, so as to provide a hollow 76. This formation facilitates manufacture of the piece from rolled sheet metal stock or extruded metal, renders the piece comparatively light in weight, but sturdy, and permits placing of one or more lugs or finger holds 77 in the hollow to facilitate placing and removal of the piece with respect to the ventilator frame and window. The piece 37 is coextensive with the stile 47 of the ventilator frame with which it cooperates and comprises a first portion 78 substantially as thick as the stile 47, and a second reduced portion 79 fitting in and slidable longitudinally of the hollow of the channel shaped stile 47. The reduced portion 79 provides a shoulder 80 for engagement with the bead 75, as shown in Fig. 2 to limit the extent to which the reduced portion 79 may be forced into the hollow of stile 47. Since the distance between the pulley stiles 12 and 13 of windows

specified as of a given size may vary slightly, due to shrinkage of wood by way of example, it is preferred to provide each piece 37 with a spring device 82 to compensate for such inaccuracies and to make the assembly as weathertight as possible. The spring device may be in the form of a strip of spring metal, such as weatherstrip material, having a major central portion 83 arched transversally and bordering minor flat flange portions 85, to engage the web 66 of stile 47. The spring device 82 as well as the lugs 77 may be secured to the reduced portion 79 by rivets 86 and it is preferred to provide a lug 77 adjacent each end of the piece 37 so that, no matter whether the piece is placed at the left end or right end of the ventilator frame, there will be readily accessible one of these lugs which may be engaged by the finger of a person when exerting an upward pull on the piece 37 to remove it when disassembling the ventilator with respect to a window. The spring device 82 in reality forms a part of the filler or side extension piece 37 and functions only to prevent the adjacent parts of the ventilator from rattling, due to wind forces, etc., and to effectively close the space between the ends of the ventilator frame and the window stiles.

The deflector plate 39 may be made of glass, sheet plastic material or the like and is preferably transparent or translucent. It preferably rests on a shock absorbing strip 88 of rubber or the like resting on the bottom of the rail trough 50 and on which it pivots as shown by full and dot and dash lines in Fig. 3. The side wings 40 are segmental in shape and each comprises a main body portion 89, an outturned radial flange 90 to engage the stile 47 for limiting swinging movement of the wing in one direction, and a radial channel portion 91 for embracing the end portion of the plate 39. The channel portion 91 engages the packing strip 74 and the top edge of plate 39 engages the packing strip 64 when the plate is swung to a position closing the ventilator frame opening. It will be noted that the vertex end of the side wing also rests on the strip 88 and the arcuate upper edge portion 92 of the wing is accommodated in a slit 93 in the angular flange 62, as shown in Fig. 2. This edge portion 92 may be provided with several pairs of spaced dimples 94 to yieldably hold the deflector shield 38 in various open positions by frictional contact of the dimples with the packing strip 64. The angle flanges 62 and 72 are preferably located well forward toward the flanges 60 and 70, respectively, so as to dispose the plate 39 well toward the inside of the window opening and to permit use of rather wide segmental side wings 40 which may be accommodated in the window opening, without touching the screening of screen 22, when the ventilator plate 39 is in a closed position, as shown in full lines in Fig. 3.

The knob arrangement may comprise an attaching channel 96 cemented or otherwise secured to the upper portion of plate 39, midway of its ends, and a knob 97 attached to a lip 98 integral with the channel 96. The latch 41 may comprise a rotatable knob 99 attached to the flange 69, midway of its ends, the knob 99 carrying a finger 100 which may swing to engage the face of channel 96 when the shield is in a closed position.

It will be noted from Figs. 9 and 10 that filler pieces 37 may be made in various sizes so that a selection may be made among them for use with the particular ventilator frame to be used and according to characteristics of the particular window in which the ventilator is to be installed.

The frames **36** may be made in stock sizes for use in stock windows of two somewhat closely related sizes. For instance a frame **36** may be used in a window having an opening of two feet and two inches with filler pieces of minimum size shown in the upper portion of Fig. 9 and where the sash is 1⅜ inches thick, or with a filler piece of maximum size (each one inch deeper) with a window having an opening of two feet and four inches, the maximum size filler piece being shown in the lower portion of Fig. 9. If the sash is 1¾ inches thick then a selection from the types of filler pieces shown in Fig. 10 may be made, the upper piece in the view being the minimum size for the smaller window opening and the lower piece in the view being for the larger size window opening.

It will be noted from Fig. 4 that the ventilator may be easily installed when the upper sash is raised high without danger of damaging the window or marring the finish thereof since the frame **36** may be held in place with one hand and the filler pieces **37** slid downwardly between the ends of the frame and the window pulley stiles, using the other hand to accomplish such. The pieces **37** then close the spaces between the ends of the frame **36** and the stiles **12** and **13**, and also fill the spaces between the beads **16** and **17** at the zone of the ventilator, making it impossible to remove the ventilator without first withdrawing the filler pieces in an upward direction. As shown in Fig. 5, the window lock **43** may be thrown to prevent such removal of the ventilator unless the sashes are first released to permit raising of the lower sash sufficient to gain access to and remove the filler pieces.

The assembled ventilator has very neat appearance as may be observed from Fig. 1 and the ventilator may be made so as to admit as much if not more light into a room than if omitted and the lower sash moved to a closed position engaging the window sill.

I claim:

1. In combination with a window of the type including a sill, spaced apart confronting stiles, a pair of spaced apart vertically disposed beads on each of said stiles, said beads at the confronting faces of the stiles, and a sash vertically slidable between said stiles with its edge portions confined between said beads; a ventilator inserted between the stiles, sill and lower portion of the sash, including an elongated rectangular frame of a length sufficiently smaller than the distance between the pairs of beads on the stiles so as to permit the frame being initially placed in the window opening by movement transversally of the plane of the window, said ventilator frame having its end members of outwardly extending channel formation confronting the channel formation presented by the beads on the window frame stiles a vertical rectangular filler piece for each end of the ventilator frame coextensive with the height thereof, said filler pieces each interlocked in the channel in the respective frame end against movement transversally of the plane of the ventilator and substantially spanning the channel space between the beads of the window and the stile and ventilator frame at its respective end of the ventilator frame so as to have no appreciable movement transversally of and in the plane of the ventilator frame and so that the filler pieces can be placed and removed only by vertical movement of the frame and filler pieces, one with respect to the other, when the sash is raised from engagement with the ventilator, and a longitudinal spring device along the edge of each filler piece confronting the inner surface of and for seating engagement with the corresponding channel of the ventilator stile thruout its height.

2. In combination with a window of the type including a sill, spaced apart confronting stiles, a pair of spaced apart vertically disposed beads on each of said stiles, said beads at the confronting faces of the stiles, and a sash vertically slidable between said stiles with its edge portions confined between said beads; a ventilator inserted between the stiles, sill and lower portion of the sash, including an elongated rectangular frame of a length sufficiently smaller than the distance between the pairs of beads on the stiles so as to permit the frame being initially placed in the window opening by movement transversally of the plane of the window, said frame provided with stiles of channel shape cross section open at top and bottom and endwise of the frame, a vertical filler piece of rectangular channel conformation for each end of the ventilator frame and coextensive with the height thereof, said filler pieces each of like formation and interchangeable one for the other at either end of the ventilator frame and each comprising a first portion to span the distance between the beads of the window at its respective end of the ventilator frame so as to have no appreciable movement transversally of the window, and a second portion fitting snugly in the endwise opening of its respective stile of the ventilator frame, so as to have no appreciable movement laterally in the plane of the ventilator frame, whereby the filler pieces can be placed and removed only by vertical movement of the frame and filler pieces, one with respect to the other, when the sash is raised from engagement with the ventilator, and a lug disposed in the hollow of each of the interchangeable channel filler pieces adjacent each of the ends thereof for selective engagement by the finger or thumb of a person, according to which lug is uppermost in the assembly, to facilitate placing and removal of the filler piece with respect to the ventilator frame and window.

3. In combination with a window of the type including a sill, spaced apart confronting stiles, a pair of spaced apart vertically disposed beads on each of said stiles, said beads at the confronting faces of the stiles, and a sash vertically slidable between said stiles with its edge portions confined between said beads; a ventilator inserted between the stiles, sill and lower portion of the sash, including an elongated rectangular frame of a length sufficiently smaller than the distance betwen the pairs of beads on the stiles so as to permit the frame being initially placed in the window opening by movement transversally of the plane of the window, said frame provided with stiles of channel shape cross section open at the top and bottom, and endwise of the frame, and a vertical filler piece of rectangular channel conformation for each end of the ventilator frame and coextensive with the height thereof, said filler pieces each of like formation and interchangeable one for the other at either end of the ventilator frame and each comprising a first portion to span the distance between the beads of the window at its respective end of the ventilator frame so as to have no appreciable movement transversally of the window, and a second portion fitting snugly in the endwise opening of its respective stile of the ventilator frame, so as to have no appreciable movement laterally in the

plane of the ventilator frame, whereby the filler pieces can be placed and removed only by vertical movement of the frame and filler pieces, one with respect to the other, when the sash is raised from engagement with the ventilator.

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