Feb. 12, 1929. 1,702,117

R. HOFFMAN

VENTILATOR

Filed Feb. 23, 1928 2 Sheets-Sheet 1

FIG. 1.

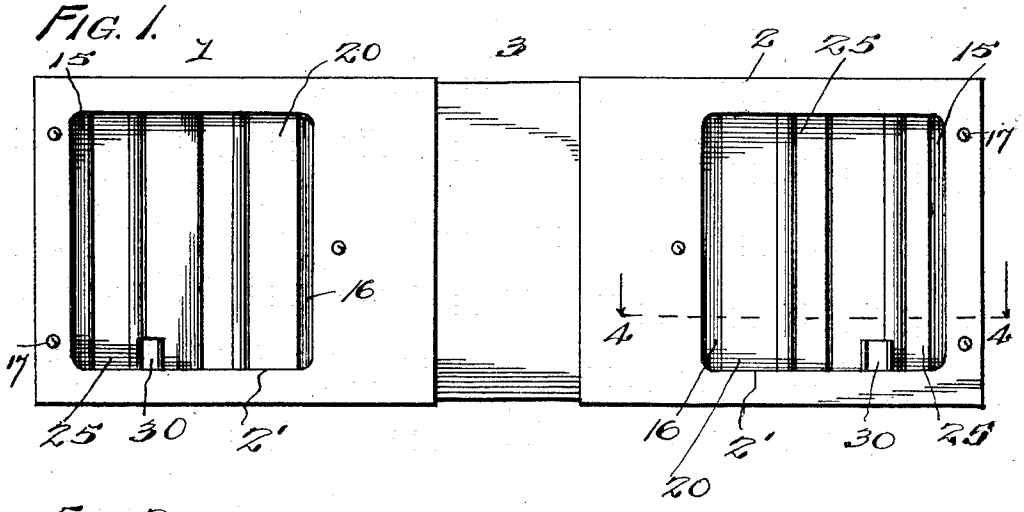
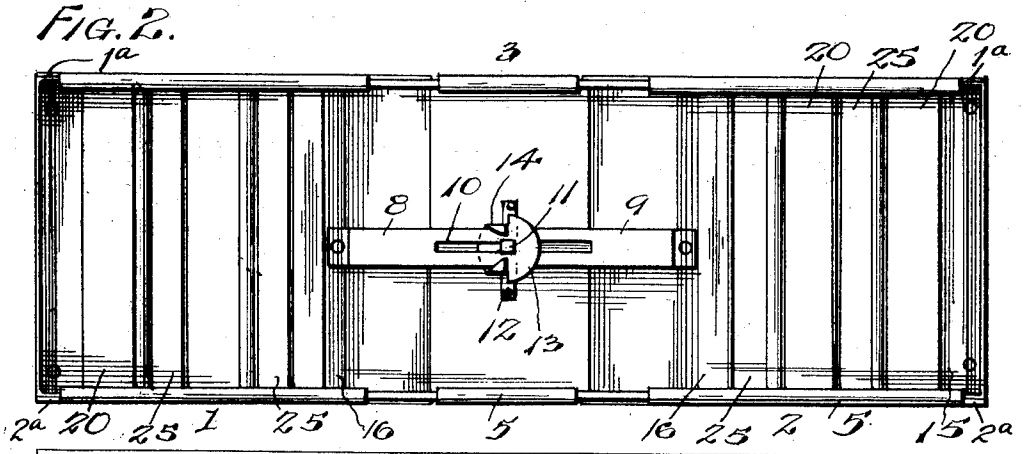


FIG. 2.



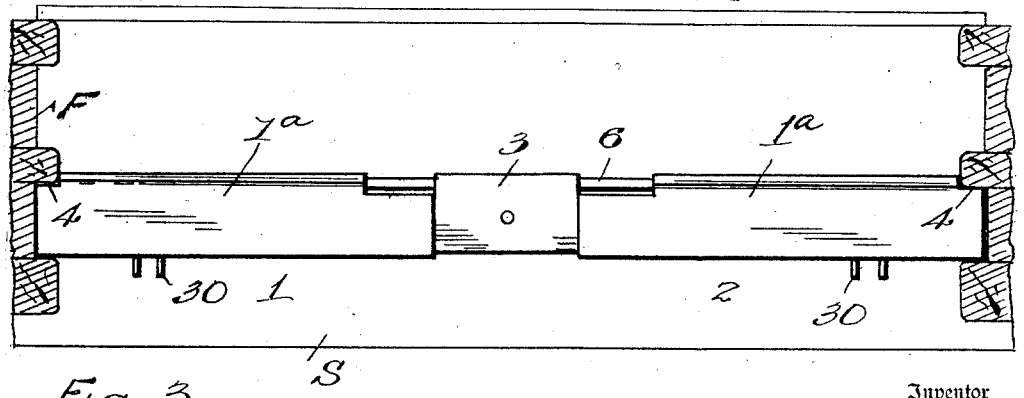


FIG. 3.

Inventor
RUDOLPH HOFFMAN
By Thomas R. Harney
Attorney

Feb. 12, 1929. 1,702,117

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Filed Feb. 23, 1928 2 Sheets-Sheet 2

FIG. 4.

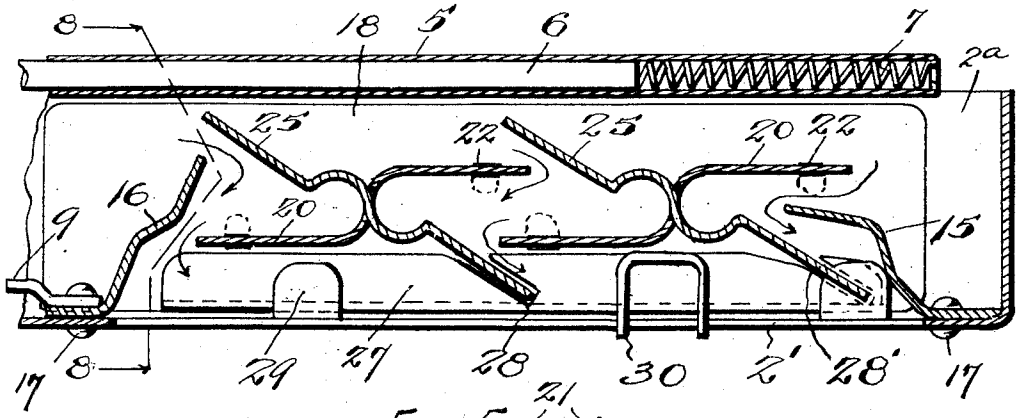


FIG. 5.

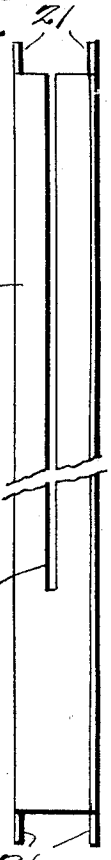


FIG. 9.



FIG. 6.

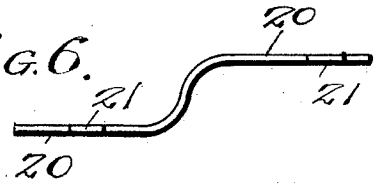
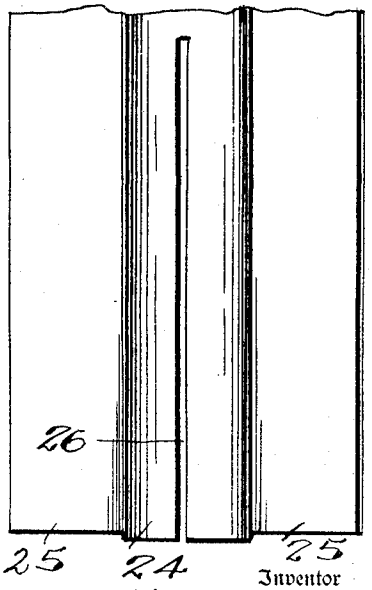


FIG. 10.



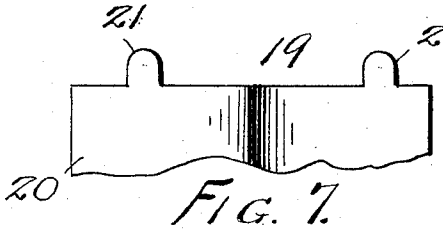


FIG. 7.

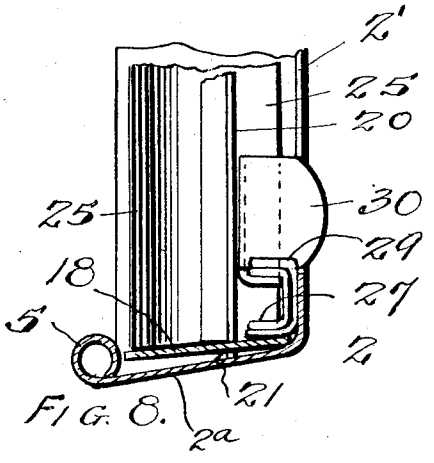


FIG. 8.

Inventor

RUDOLPH HOFFMAN

By Thomas R. Harney

Attorney

Patented Feb. 12, 1929. 1,702,117

UNITED STATES PATENT OFFICE.

RUDOLPH HOFFMAN, OF CLEVELAND, OHIO, ASSIGNOR TO V-W VENTILATOR CO., OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

VENTILATOR.

Application filed February 23, 1928. Serial No. 256,388.

My present invention relates to improvements in ventilators which are designed for use in the windows of houses, offices, apartments, hotels and other buildings, and also for use in the windows of railroad cars, street railway cars and other vehicles.

The improved ventilator is designed to ventilate a room by providing for required circulation of air, and at the same time to prevent direct drafts through the window opening. When the ventilator is used in windows of railway trains, it is also designed to act as a guard against the ingress of cinders, dust, dirt, etc.

The ventilator is preferably constructed of metal and compactly arranged so that it may with convenience be placed in the window frame below the lower sash, and it may with equal facility be removed when required.

The ventilator involves the use of stationary shutters or louvres with which movable shutters or louvres are adapted to coact in order that the ventilator may be closed against ingress of air, or the louvres may be opened to provide circulation of air from the exterior to the interior of the building or vice versa, for purposes of ventilation.

The invention consists in certain novel combinations and arrangement of parts as will hereinafter be more fully set forth and claimed.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention wherein the parts are combined and arranged according to the best mode I have so far devised for the practical application of the principles of my invention.

Figure 1 is a view from the interior of a window showing the ventilator in elevation.

Fig. 2 is a view from the exterior of a window showing the ventilator in elevation.

Fig. 3 is a top plan view of the ventilator showing its relation to the side frame members and sill of a window.

Fig. 4 is an enlarged detail horizontal sectional view at line 4—4 of Fig. 1.

Fig. 5 is an edge view of one of the fixed louvres.

Fig. 6 is a top plan view of the fixed louvre.

Fig. 7 is a side view at the top of one of the fixed louvres showing the attaching lugs.

Fig. 8 is a sectional detail view at the lower part or bottom of the ventilator, as at line 8—8 in Fig. 4.

Fig. 9 is a top view of one of the movable louvres.

Fig. 10 is a face view of a portion of a movable louvre.

In carrying out my invention, I use a pair of box frames 1 and 2, each of which is provided with an opening 2′, and these box frames are longitudinally slidable relative to an intermediate section 3, also constructed of metal. The ventilator is designed to be installed as seen in Fig. 3, between side frame bars F and to rest upon the window sill S. The outer ends of the box frames are fashioned with notches, as 4, to engage a part of the window frame and hold the ventilator in place as indicated in this figure. The two box frames 1 and 2 each comprising upper and lower flanges 1^a and 2^a respectively, are designed to be pressed toward the center of the intermediate section in order that the ventilator may be shortened for insertion between the opposite side frame bars of the window frame, and then these box frames are automatically pressed outwardly into position of Fig. 3. Each of the box frames and the intermediate section are provided with upper and lower tubular casings 5, that are alined, and a rod 6 is fixed to each of the casings of the intermediate section. The pair of tubular casings on each box frame are slipped over the opposite ends of the rods 6, and springs 7 are located between the outer ends of the tubular casings and the outer ends of the rods 6 to permit shortening of the ventilator preparatory to placing in position, and when these springs expand, they push the ends of the ventilator into position between the side frame bars F, as in Fig. 3.

As best seen in Fig. 2, each of the box frames is provided with a guide strap, as at 8 and 9, and these straps are provided with longitudinally extending slots 10. The outer ends of the straps are riveted to their respective box frames and the inner slotted ends of these straps overlap so that their slots 10 reg-

ister and permit the introduction therethrough of the guide head 11. This head 11 has arms or brackets 12 that are fixed to the central portion of the intermediate section 3, and it will be apparent that the slotted straps are guided by this head. The strap 8 has an enlarged retaining head 13, and the strap 9 has a pair of inturned lateral lugs 14 that overlap the edges of the strap 8. It will thus be seen that these retaining lugs and the retaining head guide the movement of the straps one upon another, and of course the retaining head and lugs prevent separation of the box frames from the intermediate section 3.

Each of the box frames is provided with an end slat 15 and an intermediate slat 16 which are secured as by rivets 17 to the walls of the box frames. These slats extend from the bottom to the top of the box frame, and they are fashioned to guide air currents through the ventilator as indicated by the dotted lines in Fig. 4.

Each of the box frames is provided with an attaching plate 18, one secured to the bottom flange 2^a and another secured to the top flange 1^a of the box frame. These attached plates are designed to support double fixed louvres shown in Figs. 5, 6 and 7, as well as in Fig. 4. Each of these louvres comprises a compound curved central bend 19 and louvres 20 arranged in parallel plane, and the bottom and top edges of the louvres are provided with attaching lugs 21, which are passed through slots 22 in the plates 18 and turned under to secure the fixed louvres in position between the top and bottom plates 18. Each of these fixed louvres has a vertically extending slit 23 in the central curved portion which extends from the top of the louvre and terminates near the bottom thereof.

Each fixed louvre has a complementary movable or pivoted louvre also having a central portion fashioned on a compound curve as at 24, and the louvres 25 extend from this bent portion in opposite directions and in parallel planes. The movable louvres are provided with slits 26, and the movable louvre is slid down into the slot 23 of its complementary fixed louvre so that the movable louvre may be turned to open position as in Fig. 4, or louvres 25 may be swung against complementary stationary louvres or slats to close the ventilator against passage of air currents.

Each box frame is provided with means for operating its movable louvres, and such means includes an operating slide 27 which is preferably of U shape in cross section and fashioned with a slot 28 for engagement with one of the movable louvres, and a cam edge 28′ as seen at Fig. 4 for frictional engagement with another movable louvre. This operating slide moves horizontally and is guided by a pair of U-shaped brackets 29 secured to the inner face of the box frames near their bottoms, and a finger-piece 30 is provided for each of the operating slides. Thus, by grasping the finger-piece 30 the operating slide 27 may be moved horizontally to open or close the movable louvres, or the louvres may be partially opened to adjust the ventilating opening.

In this manner the air currents passing from the ventilator may be regulated, or they may be entirely shut off without removing the ventilator from the window frame.

The top and bottom portions of the ventilator may be beveled to insure a snug fit between the window sill and the window sash and exclude dust, dirt, rain and snow. The expansion springs 7 are designed to hold the ventilator snugly and form tight joints with the window frame, and the ventilator is thus retained in its position against accidental displacement.

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

1. The combination in a window ventilator with an intermediate section and a pair of box frames, of co-acting means on the box frames for guiding their relative movement, springs carried by the box frames for urging the frames outwardly from the intermediate section, and ventilating louvres carried by the box frames.

2. The combination with a sectional expansible ventilator having overlapping slotted straps and an intermediate fixed section, of a guide head on the fixed section co-acting with the slotted straps, tubular casings carried by the box frames, rods carried by said intermediate section and fitted in said tubular casings, and springs co-acting with the rods and tubular casings for normally forcing the box frames outwardly.

3. The combination in a window ventilator with a pair of fixed, spaced slats, and a pair of fixed, spaced longitudinally offset and parallel louvres between said slats, of a pair of movable louvres pivoted intermediate said louvres and co-acting with the fixed louvres, and means for moving said movable louvres.

4. The combination in a window ventilator with a fixed slat and a fixed louvre disposed at an angle thereto, of a movable louvre supported on the fixed louvre and means for adjusting the movable louvre with relation to the end of the fixed slat.

5. The combination with a fixed louvre having a pair of offset flanges extending in parallel planes, of a movable louvre pivotally supported thereon and having oppositely extending flanges arranged in parallel planes.

6. The combination with a fixed louvre having a bend fashioned with a compound curve, of a movable louvre pivoted relatively to the fixed louvre and fashioned with a compound curve and said louvres being slotted

and arranged to form oppositely opening pockets.

7. The combination with a louvre having a central portion formed as a compound curve and provided with a slit, of a movable louvre pivoted relatively to the fixed louvre and fashioned with a central compound curve and provided with a complementary slit, and means for adjusting the movable louvre whereby the area of a pocket at each side of the central portion of the louvres may be varied.

In testimony whereof I have affixed my signature.

RUDOLPH HOFFMAN.