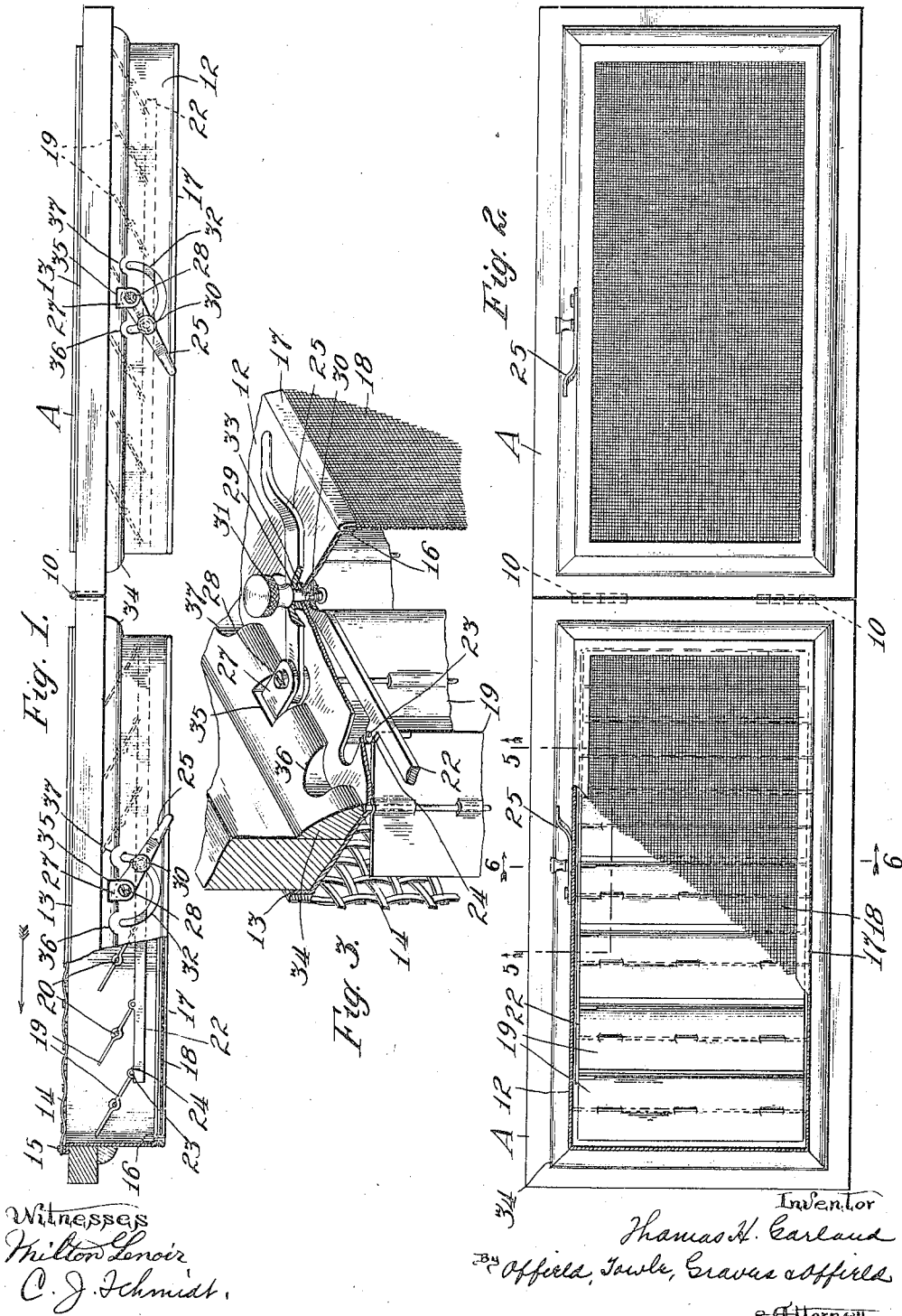


T. H. GARLAND.
 COMBINED VENTILATOR AND SCREEN FOR WINDOWS.
 APPLICATION FILED JAN. 19, 1912.

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2 SHEETS—SHEET 1.



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Fig. 4.

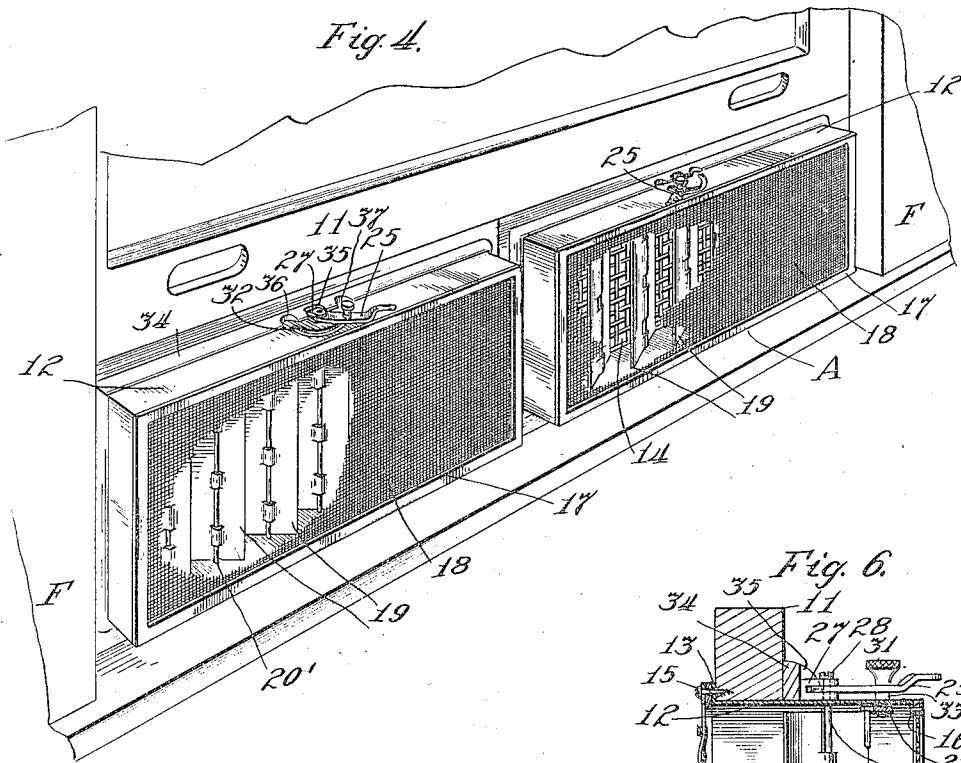


Fig. 5.

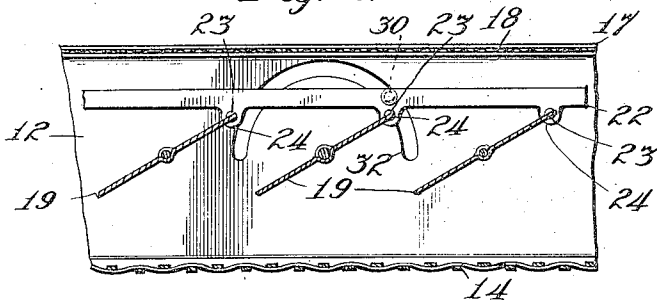
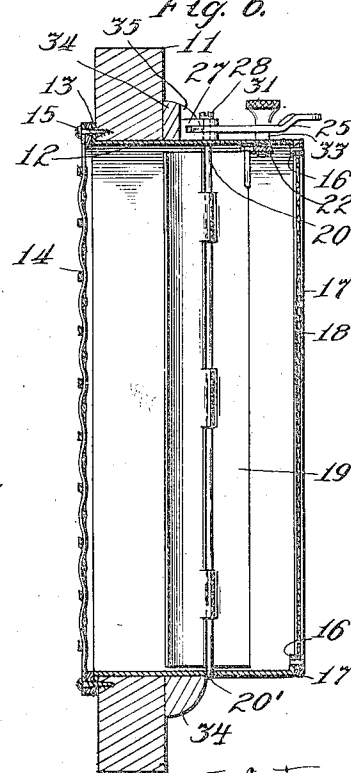


Fig. 6.



Witnesses
 Milton Lenoir
 C. J. Schmidt.

Inventor
 Thomas H. Garland
 by Offield, Jacule, Graves & Offield.
 Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS H. GARLAND, OF CHICAGO, ILLINOIS.

COMBINED VENTILATOR AND SCREEN FOR WINDOWS.

1,052,812.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed January 19, 1912. Serial No. 672,166.

To all whom it may concern:

Be it known that I, THOMAS H. GARLAND, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combined Ventilators and Screens for Windows, of which the following is a specification.

My invention relates to combined ventilator and screen adaptable for windows of 10 railway coaches and buildings of all kinds.

Among the important objects of my invention are to provide a combined ventilator and screen device which can be inserted between a window and its sill and which can 15 be adjusted to control the air flow in either direction through the window opening and which can be adjusted to control the effective area of said opening or to entirely close the opening; to provide a construction which 20 will substantially prevent the entrance with air of heavier particles, such as smoke, soot, dust or cinders, yet which will allow the clean air to enter; to provide a construction in which adjustment for air flow can be 25 readily accomplished by the occupants of seats adjacent the structure; to provide a construction which will adapt the combined window ventilator and screen devices to be used efficiently in connection with main 30 ventilator mechanisms for railway coaches and buildings to more efficiently control the ventilation; and in general to provide a more desirable and more efficient device of the class referred to.

35 In the drawings, which illustrate the various features of my invention, Figure 1 is a top view of a ventilator and screen, part of the top wall of one of the sections being broken away, Fig. 2 is a view of the inner 40 side of the device, part of the front wall of one of the sections being broken away, Fig. 3 is a fragmentary perspective view, showing particularly the adjusting arrangement for the air directing elements, Fig. 4 is a 45 perspective view, showing the device applied to the window of a railway coach or building, Fig. 5 is an enlarged sectional view taken on plane 5-5, Fig. 2, and Fig. 6 is an enlarged sectional view taken on 50 plane 6-6, Fig. 2.

The device may comprise a single section A of sufficient length to extend entirely across the window to be fitted, or the device may comprise a plurality of such sections A 55 which are preferably hinged together, so

that they can be easily adjusted to the window and when not in use may be folded together. The particular device of the drawings comprises two sections A hinged together at 10, as best indicated in Figs. 1 and 2. The various sections are identical in construction, and each comprises a supporting sash 11 which may be of wood or which may be formed up of sheet metal, the height of the sashes and the combined length thereof where a number of sections are used being such that the device will fit between the sides of the window frame and between the open window and the sill. Inserted in each sash is a frame 12 preferably of sheet metal, whose outer edge section is deflected outwardly at right angles to form a flange 13 for engaging against the outer side of the sash. The opening surrounded by the flange 13 is preferably covered by grill-work 14 of metal bars, and this grill is secured at its edge as by screws 15, and in common with the flange 13, to the sash. The inner edge sections of the frame 12 are deflected inwardly at right angles to form a flange 16, to which is secured a frame 17 shown as of U-cross-section for receiving the edges of a screen panel 18. This screen panel may be of woven wire, but is preferably of perforated sheet metal which can be more readily cleaned and which is also of greater strength and will retain its shape better than the woven wire. The horizontal depth of the frame 12 is preferably such that the screen 18 will not extend beyond the plane of the outer faces F of the window frame. 60 65 70 75 80 85 90

Between the grill and the screen is a row of vanes or louvers 19, each having upper and lower pivot ends 20 and 20' whereby they are pivoted to the upper and lower walls of the frame 12. The vanes or louvers are preferably of sheet metal, but can be made of any suitable material. Each louver has pivotal engagement at its upper inner corner with a connecting and adjusting bar 22. As shown, a vertical pin 23 extends upwardly from the upper inner corner of each louver and pivots in the opening 23 through one of the lugs 24 extending inwardly from the bar 22, these openings having the same horizontal spacing as the vanes or louvers, so that the vanes or louvers will at all times be parallel. Upon moving the bar longitudinally the louvers may be simultaneously 95 100 105 110

adjusted to various angles, and may also be moved into a common vertical plane to substantially cut off all flow of air through the device. In order to more readily adjust the louvers and to lock them in adjusted position an adjusting lever 25 is provided. Secured to the top wall of the frame 12 is a U-shaped bearing block 27 whose limbs have openings for receiving a pivot screw 28 adapted to thread securely in the lower opening, these openings being in vertical registration with the pivot line of one of the louvers, preferably the center one. The rear end of the lever 25 engages in the U-frame and receives the pivot screw 28, so that the lever can be swung in a horizontal plane over the top wall of the device. At an intermediate point the lever has a hole 29 through which extends the screw 30 having the knurled head 31. At its lower end the screw is adapted to thread through the bar 22, and a slot 32 concentric with the pivot screw 27 is provided in the top wall of the frame 12 so that as the lever 25 is swung the screw 30 will pass through the slot, and the bar 22 will move to cause simultaneous rotation of the louvers to which it is pivoted. The lever 25 has also a lug 33 for engaging the top of the frame 12, and through this lug the screw 30 passes. When the lever has been moved to accomplish the desired adjustment the head 31 is turned in the direction to cause the bar to be thrown upwardly into clamping engagement with the top wall of the frame 12 and to cause the lug 33 on lever 25 to be clamped securely against the top wall of the frame, the parts being thus locked in adjusted position. If it is desired to move the lever into another position the head 31 is turned in the opposite direction to release the lever and the bar, whereupon the desired adjustment can be made, and the lever and bar again locked. A quarter-round molding 34 preferably surrounds the frame 12 and is secured against the inner face of the sash, the molding being recessed at 35 to accommodate the bearing block 26, and other recesses 36 and 37 are also provided to accommodate the head 31 of the adjusting screw when the lever reaches the ends of the slot 32.

Referring particularly to Figs. 1 and 4, assume that the structure is applied to a railway coach, and that the coach is traveling toward the left. The vanes or louvers when set as shown in the advance section will scoop up the air entering through the grill-work and will deflect it into the car, while the vanes if set as shown in the rear section, will tend to deflect outwardly the air which strikes them and particularly to deflect outwardly the more solid particles, such as smoke and cinders, and these vanes will also tend to cause air flow from the interior of the car to the exterior. The vanes and lou-

vers can thus be adjusted to accomplish any desired flow of air through the open window, and adjustment is readily made by the occupants of the seats. In the present method of inserting a common screen in the window opening, no adjustment could be made, and if no air flow was desired through the window opening the screen had to be removed. My device can remain permanently in the window opening; and the inlet or outlet area can be varied at will or entire closure effected.

In railway coaches, particularly in Pullman cars, ventilating mechanisms are provided for causing circulation of fresh air through the coach, and my improved device herein can be used very efficiently for inlets for fresh air in conjunction with such ventilating mechanism. In the present system, where ordinary screens are used, if all the windows are closed the ventilator mechanism cannot operate properly, as the coach would be entirely closed, but where my devices are used, even though the louvers of all the devices are in closed position, the fit is not so tight but that under pressure or suction there would be passageway there-through, and although there would not be direct drafts through the window ventilating devices, there would be sufficient passageway to allow the main ventilator mechanisms of the coach to draw in air between the louvers and their containing frames.

The present ordinary screens do not prevent the entrance of smoke, soot or small cinders, but where my improved devices are installed it is very difficult for smoke, soot or cinders or dust to enter. The smoke and dust-laden air will first strike the grill-work 14, and a great many of the solid particles will be deflected away. The louvers will act as baffle plates for the remaining particles and will tend to check their flying and cause them to drop to the bottom of the frame 12, from where they can be carried to the outside. The screen 17 will strain out the remaining particles from the inflowing air, so that practically fresh air will enter at all times into the coach. The lower in-turned flange 16^a to which the screen frame 17 is secured, performs an important function, as it prevents entrance through the screen of particles which are deflected to the bottom of the frame 12 by the louvers. The outflowing air currents will pick up the particles and carry them out through the grill-work.

My improved device can of course be utilized with equal efficiency in any opening. Railway coaches usually have double windows, and my improved device can be inserted with its sash between the sill and the sash of either window. I do not desire to be limited to the precise construction and arrangement herein shown, as modifications, 130

both in construction and arrangement, are possible which would still come within the scope of my invention, and I claim the following:

5 1. In a device of the class described, the combination of a frame open at its inner and outer ends, the inner edges of said frame being deflected inwardly to form a flange, a screen member secured to said flange over
10 the inner end of said frame, and adjustable louvers pivoted within said frame for controlling the flow therethrough, said flange preventing entrance through the inner end
15 of said frame of particles deflected to the bottom of said frame by said louvers.

2. In a device of the class described, the combination of a sash adapted to be inserted in an opening through which ventilation is desired to be accomplished, a rectangular
20 sheet metal frame lining said sash, a screen secured to the inner edge of said frame, grill-work secured to the outer edge of said frame, vertical louvers in a horizontal row within said frame and pivoted in the upper
25 and lower walls thereof, a connecting rod disposed below the upper wall of said frame and having pivoted connection with the adjacent upper corners of said louvers, the upper wall of said frame having a segmental
30 slot, a stud extending through said slot and having screw threaded engagement with said connecting rod whereby said rod may be moved to simultaneously adjust the louvers and whereby said rod may be clamped

against the top wall of the frame after adjustment thereof. 35

3. In a device of the class described, the combination of a sash adapted to be inserted in an opening through which ventilation is desired to be accomplished, a rectangular
40 sheet metal frame lining said sash, a screen secured to the inner edge of said frame, grill-work secured to the outer edge of said frame, vertical louvers in a horizontal row within said frame and pivoted in the upper
45 and lower walls thereof, a connecting rod disposed below the upper wall of said frame and having pivoted connection with the adjacent upper corners of said louvers, the upper wall of said frame having a segmental
50 slot, a stud extending through said slot and having screw threaded engagement with said connecting rod, an adjusting lever pivoted concentric with the upper pivot of one of said louvers and having an opening for
55 receiving said stud, swing of said lever causing movement of connecting rod to simultaneously adjust said louvers and turning of said stud causing said rod, said lever and said top wall to be clamped together. 60

In witness whereof, I hereunto subscribe my name this 15th day of January, A. D. 1912.

THOMAS H. GARLAND.

Witnesses:

NELLIE B. DEARBORN,
J. M. LUTZ.