F. C. AUSTIN.

WINDOW VENTILATOR.

APPLICATION FILED JAN. 13, 1911.

1,081,195.

Patented Dec. 9, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

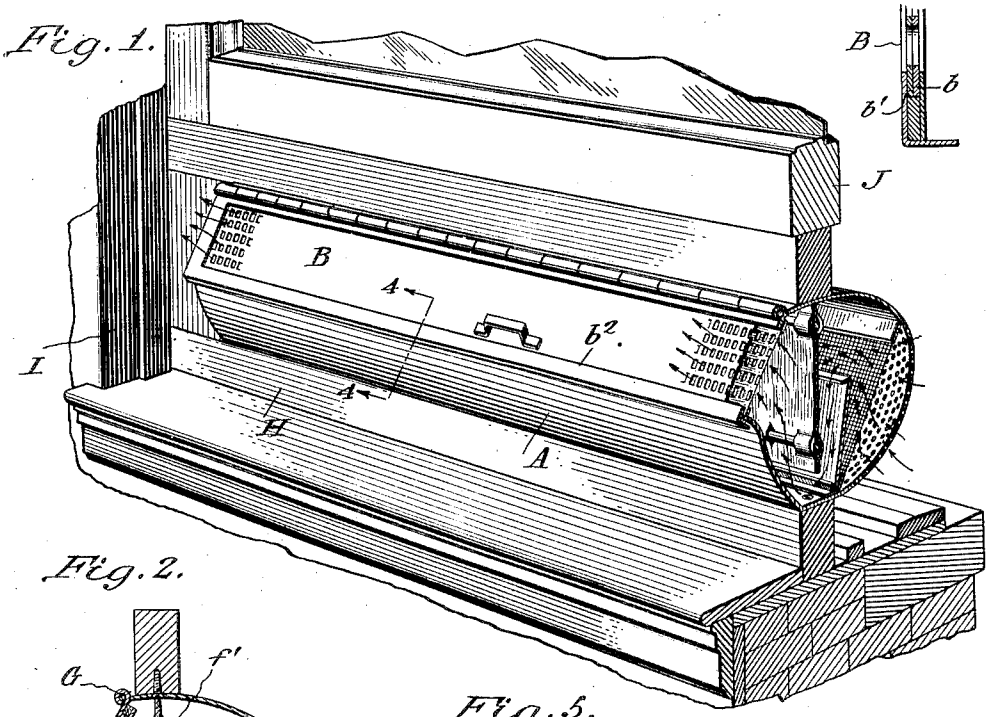


Fig. 4.

Fig. 2.

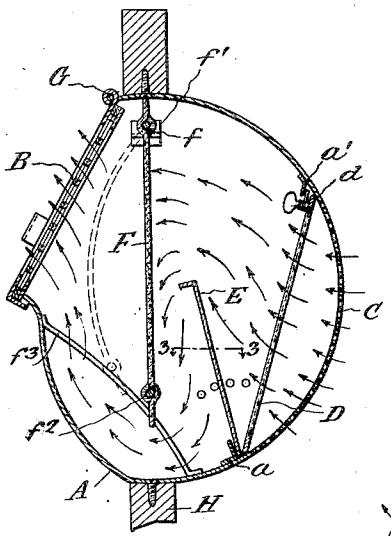


Fig. 5.

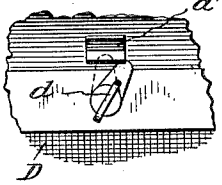


Fig. 6.

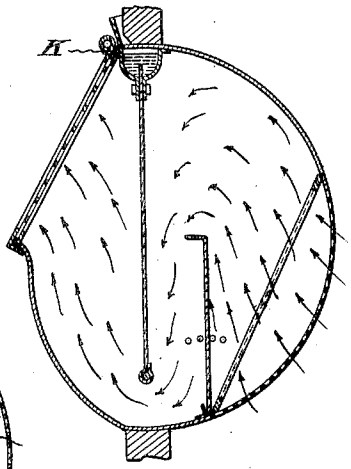


Fig. 7.

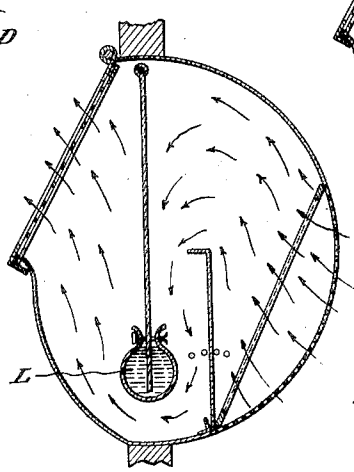
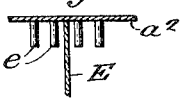


Fig. 3.



Witnesses:
E. H. Legg
L. E. Hanstrom

Inventor:
F. C. Austin
By Arthur F. Durand
Attorney

F. C. AUSTIN.

WINDOW VENTILATOR.

APPLICATION FILED JAN. 13, 1911.

1,081,195.

Patented Dec. 9, 1913.

2 SHEETS—SHEET 2.

Fig. 8.

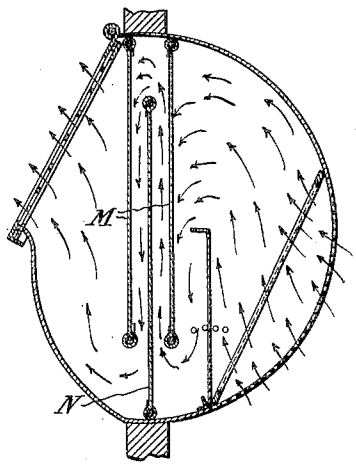


Fig. 9.

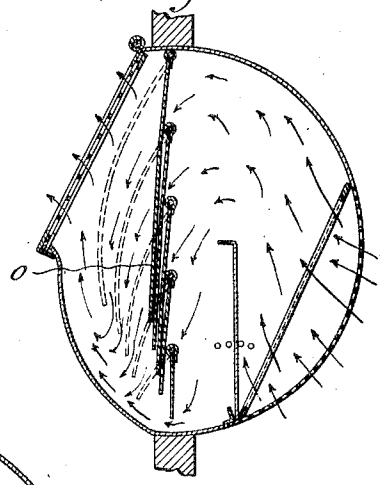


Fig. 12.

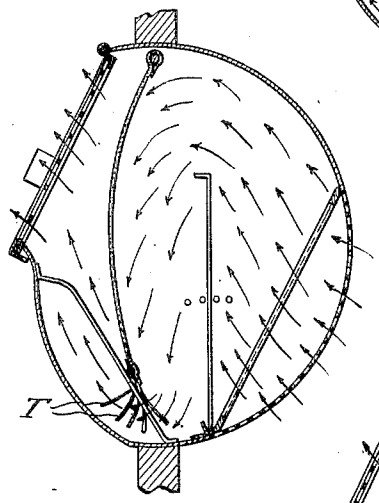


Fig. 10.

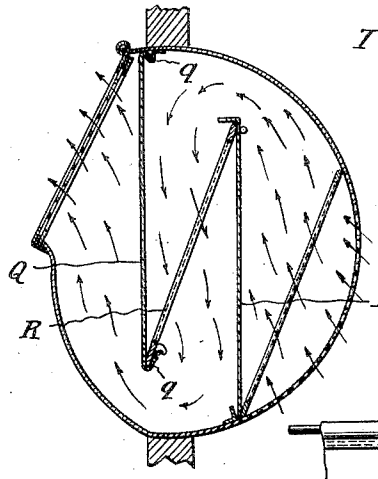


Fig. 11.

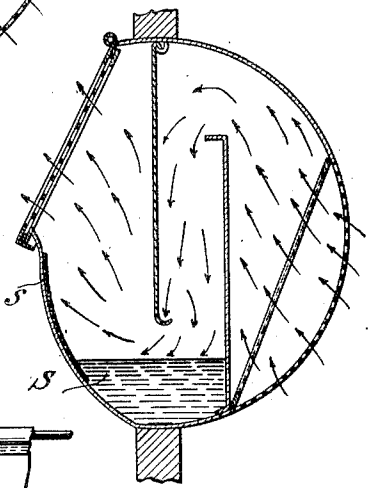
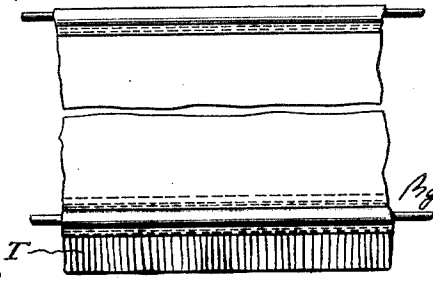


Fig. 13.



Witnesses:
E. A. Clegg
S. E. Svanstrom

Inventor:
F. C. Austin
By Arthur L. Simonds
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK C. AUSTIN, OF CHICAGO, ILLINOIS.

WINDOW-VENTILATOR.

1,081,195. Specification of Letters Patent. Patented Dec. 9, 1913.

Application filed January 13, 1911. Serial No. 602,372.

To all whom it may concern:

Be it known that I, FREDERICK C. AUSTIN, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Window-Ventilators, of which the following is a specification.

My invention relates to ventilators of the kind commonly known as window ventilators, as they are placed, usually, in the lower part of a window to insure a better and more satisfactory influx of air into the room than is ordinarily possible by simply opening the window.

Objects of my invention are to provide an improved window ventilator having means for easily and effectively regulating or controlling the influx of air; to provide improved means for filtering the air and extracting the dust therefrom before entering the room; to provide improved means for deflecting the air and thereby precipitating any dust or other impurities carried thereby, without interfering with the free circulation of the air through the ventilator and into the room; to provide an improved form of curtain or deflector that is movable with the air currents and provided with a surface that will catch the dust; to provide an improved construction and arrangement whereby the ventilator may be easily cleaned and whereby the different parts are all easily removable and adjustable; and to provide certain details of construction and combinations tending to increase the general efficiency of a ventilator of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1 is a perspective of the lower portion of a window equipped with a ventilator embodying the principles of my invention, showing one end thereof in cross-section. Fig. 2 is an enlarged cross-section of the said ventilator. Fig. 3 is an enlarged detail section on line 3—3 in Fig. 2. Fig. 4 is an enlarged detail section of a portion of the damper for regulating the influx of air, on line 4—4 in Fig. 1. Fig. 5 is an enlarged detail view showing one of the devices for removably securing the cloth screen or filter in place. Figs. 6 to 12, inclusive, are views similar to Fig. 2, showing different forms of my invention. Fig. 13 is a front view of the curtain shown in Fig. 12.

As thus illustrated, my invention comprises a sheet metal box or hollow body A, which in cross-section is substantially cylindrical except for a flat place on the inner side thereof, which is formed by a rectangular opening forming the air outlet, and which flat place is occupied by the damper B which controls or regulates the escape of air from the box. This damper consists of a stationary perforated plate b and movable perforated plate b^1 on the outer surface thereof, said movable plate being adapted to slide endwise in the rectangular frame b^2 to bring the openings thereof into and out of register with the openings in the stationary plate to open and close the latter and thereby control the admission of air into the room. A handle b^3 is provided on the plate b^1 for this purpose. The outer side of said box or hollow body A consists of a screen or perforated wall C through which the air passes from the outer atmosphere into the ventilator and then into the room. A cloth screen D, of say about 40-mesh, is arranged inside of the ventilator, and an angle-iron a is secured to the bottom of the box A, on the inside thereof, to serve as a rest for the lower edge of said screen D, the upper edge of the latter being provided with thumb-pieces d adapted to rotate into engagement with the catch-pieces a^1 on the inner upper surface of the box A, to hold the screen D in place. The said screen D consists of a frame of metal with the cloth or other like material stretched thereon. With this construction the air passes first through the screen C and then through the screen D.

A deflector or baffle-plate E of imperforate sheet metal or other material is disposed back of the screen D and has its lower edge resting with the edge of the said screen in the groove formed between the angle-iron a and the adjacent wall of the box. Pins e mounted on the end walls a^2 of the box and slightly spaced apart from the means for holding the deflector E in different positions. In other words, this deflector can be lifted out and then inserted between a different set of pins to change its angle. The

upper edge of this plate or deflector E is bent over at e^1, in the direction of the damper, and serves to deflect the air upwardly as it passes into the ventilator.

The curtain or dust-arrester F hangs in the ventilator between the damper and the plate E, and is supported at its upper edge by the rod f the ends of which rest on the supports f^1 on the ends of the box. The said dust-arrester F can be of any suitable flexible material, such as heavy black felt, and has its lower edges provided with a rod f^2 to keep it straight. The rods f^3, one at each end of the box or body A, are disposed in an inclined position to engage the rod f^2, whereby the force of the wind will not completely close the outlet openings in the damper B, as the curtain, in order to bend or bulge in this direction, must lift the rod f^2 upwardly along the rods f^3, and as soon as the pressure is reduced the rod f^2 drops down and straightens out the curtain. In this way said rods serve to limit the swing of the curtain inwardly, and serve to hold it normally in the position shown in Fig. 2. The said curtain or dust-arrester can swing outward until it touches the plate E, should the air happen to move in this direction; but when the influx of air is strong the pressure tends to bulge or curve the curtain, so that it becomes hollow on the outside to more effectively catch the dust, as shown in dotted lines in Fig. 2. The distance between the said curtain F and the plate E is changed by changing the angle of the said plate in the manner explained. The surface of the said curtain can be oiled or moistened, if desired, to increase the tendency of the dust to adhere thereto.

The curtain presents an imperforate body surface to the incoming air, for although porous is not perforated or apertured.

The box or body A is secured in a rectangular frame H which is adapted to be placed in the window frame I below the sash J, so that the bulging or curved exterior C is exposed to the outer atmosphere. This, I find, is calculated to give good results, and to promote the proper influx of good fresh air. Thus the construction is such that all of the parts can be readily lifted out, through the air outlet, by swinging the damper upward about its hinge G, when it is necessary or desirable to regulate or change the deflection of the air, or when it is desired to clean the ventilator.

In Fig. 6 the construction is substantially the same as previously described, except that in this case the upper edge of the curtain or dust-arrester has a reservoir K for oil or water. In this way the surface of the said dust-arrester is kept moist to more effectively collect the dust from the incoming air.

In Fig. 7 the construction is again similar to that previously described, except that a reservoir L is provided for the lower edge of the curtain or dust-arrester. This reservoir may contain oil or water for the purpose described.

In Fig. 8 the construction is similar, but in this case the dust-arrester consists of two curtains M, which are spaced apart, and an intermediate stationary sheet or baffle-plate. The curtains M can be stationary, as with this arrangement the up-and-down travel of the air between the surfaces of the arrester serves to extract the dust.

In Fig. 9 the construction is the same as before, except that in this case the dust-arrester O consists of a series of curtains of flexible material, arranged so that they overlap each other like shingles, and with each one a little longer than the other toward the top. Thus the air is compelled to pass between these curtains or dust-arresters before escaping into the room.

In Fig. 10 the deflector or baffle-plate P is made higher than in previous cases, and the plate or sheet of material Q hangs from the top, being removably supported on a ledge q, and having its lower edge formed with a seat q^1 for the lower edge of the screen R, which latter leans over against the said deflector or plate P, as shown. In this way the air is compelled to pass twice through a screening means, and is caused to pass down and then up before passing out through the damper. All of said parts are, as shown, very easily removed.

In Fig. 11 the construction is similar to that shown in Fig. 10, except that the screen R is omitted, and a body of oil or water S is substituted as the means for catching the dust. The said oil or water is held in the bottom of the hollow box or body, and the front wall thereof is provided on its inner surface with a sheet of cloth or other similar material s, which latter is kept moist by capillary attraction. The dust is collected by the surface of the body of liquid, and by the surface of the cloth s, before passing upward through the damper.

In Figs. 12 and 13 the construction is the same as that shown in Figs. 1 to 5, except that the dust-arrester F has its lower edge provided with a fringe T composed of strips that flutter or move in the wind to still more thoroughly take out the dust and purify the air before it enters the room.

From the foregoing it will be seen that I provide a simple and highly effective form of window ventilator, and that I do not limit myself to any particular construction. In each case the ventilator has an outwardly bulging and perforated intake for the air, and a screen arranged inside thereof, which intake and screen are disposed outside of the vertical plane of the window sash. In each case, also, a baffle-plate or deflector is arranged inside of the screen, to deflect the air

upward, and a dust-arresting device, of some one of the various forms shown, is disposed between said plate or deflector and the damper that controls the escape of the air into the room.

What I claim as my invention is:

1. In a window ventilator, an outwardly facing and perforated intake, a screen inside of said air intake, a deflector inside of said screen, to deflect the air upward, a seat for the lower edge of said deflector, means for removably holding the deflector in position in said seat, an adjustable air outlet, and a dust-arrester interposed between said deflector and outlet, receiving the air from the screens.

2. In a window ventilator, an outwardly facing and perforated intake, a screen inside of said air intake, a deflector inside of said screen, to deflect the air upward, a seat for the lower edges of said screen and deflector, an adjustable air outlet, and a dust-arrester interposed between said deflector and outlet, receiving the air from the screens, said dust-arrester comprising a vertically disposed sheet of material for deflecting the air downward, and said ventilator having means for causing the air to pass below the lower edge of said sheet of material and then upwardly to said outlet.

3. In a window ventilator, an outwardly facing and perforated intake, a screen inside of said air intake, a deflector inside of said screen, to deflect the air upward, an adjustable air outlet, and a dust-arrester interposed between said deflector and outlet, receiving the air from the screens, said outlet comprising an outwardly swinging door, and a damper in said door, said screen and deflector being removable through said outlet when the door is open.

4. In a window ventilator, a box for insertion in the window, having an outwardly facing and perforated intake, a screen inside of said air intake, a seat for the lower edge of said screen, a deflector inside of said screen, to deflect the air upward, an adjustable air outlet, and a dust-arrester interposed between said deflector and outlet, receiving the air from the screens, said deflector and screen and intake being disposed outside of the vertical plane of the window sash, the screen being removable and inclined outward, and the dust-arrester being disposed substantially in the vertical plane of the window-sash, the screen and deflector and dust-arrester being removable through said outlet.

5. In a window ventilator, an outwardly facing and perforated intake, a screen inside of said air intake, a deflector inside of said screen, to deflect the air upward, an adjustable air outlet, and a dust-arrester interposed between said deflector and outlet, receiving the air from the screens, said dust-arrester comprising a swinging and imperforate curtain for deflecting the air downward and under the lower edge thereof, which curtain is removable through said outlet.

6. In a window ventilator, an outwardly facing and perforated intake, a screen inside of said air intake, a deflector inside of said screen, to deflect the air upward, a seat for the lower edge of said deflector, an adjustable air outlet, and a dust-arrester interposed between said deflector and outlet, receiving the air from the screens, said deflector being adjustable to change the angle thereof relative to the screen, and said ventilator having upper and lower walls for causing the air to pass over the upper edge of said deflector and under the lower edge of said dust-arrester.

7. In a window ventilator, a box having an inlet for the air, an outlet for the same, a removable baffle-plate for deflecting the incoming air upwardly, said plate supported at its lower edge on the bottom of the box, a swinging deflector depending in the box between the said baffle-plate and outlet, for deflecting the air downward, said deflector supported at its upper edge and extending below the upper edge of said plate adapted to swing with the wind, and means for purifying the air before it reaches said deflector, said plate and deflector being removable through said outlet.

8. In a window ventilator, a box having an inlet for the air, an outlet for the same, a baffle-plate for deflecting the incoming air upwardly, said plate supported at its lower edge on the bottom of the box, a deflector depending in the box, disposed between the said baffle-plate and outlet, for deflecting the air downward, said deflector being detachably supported at its upper edge and extending below the upper edge of said plate, said deflector adapted to yield or move with the incoming air, and means for purifying the air before it reaches said deflector.

9. In a window ventilator, a box having an air inlet and an outlet for the same, and an imperforate deflector supported in the box, disposed between the said inlet and outlet, said deflector at all times preventing the air from passing over its upper edge, but adapted to permit the air to pass under its lower edge, said deflector being mounted to flex and yield or move with the incoming air, and means for purifying the air before it reaches said deflector.

10. In a window ventilator, a box having an inlet for the air, an outlet for the same, a removable baffle-plate for deflecting the incoming air upwardly, said plate supported at its lower edge on the bottom of the box, a swinging deflector depending in the box, disposed between the said baffle-plate and outlet, for deflecting the air downward, said deflector supported at its upper edge and

extending below the upper edge of said plate adapted to swing with the wind, and an outwardly facing and perforated covering for said inlet.

11. In a window ventilator, a box having an inlet for the air, an outlet for the same, a removable baffle-plate for deflecting the incoming air upwardly, said plate supported at its lower edge on the bottom of the box, a deflector depending in the box, disposed between the said baffle-plate and outlet, for deflecting the air downward, said deflector supported at its upper edge and extending below the upper edge of said plate, said deflector adapted to flex and yield or move with the incoming air, and an outwardly facing and perforated covering for said inlet.

12. In a window ventilator, a box having an air inlet and an outlet for the same, and an imperforate deflector supported in the box between the said inlet and outlet, said deflector at all times preventing the air from passing over its upper edge, but adapted to permit the air to pass under its lower edge, said deflector being mounted to flex and yield or move with the incoming air, and an outwardly facing and perforated covering for said inlet.

13. In a window ventilator, a box having an inlet for the air, an outlet for the same, a baffle-plate for deflecting the incoming air upwardly, said plate supported at its lower edge on the bottom of the box, a swinging deflector depending in the box, disposed between the said baffle-plate and outlet, for deflecting the air downward, said deflector supported at its upper edge and extending below the upper edge of said plate adapted to swing with the wind, and means for varying the angle of said baffle-plate, the latter being removable by itself.

14. In a window ventilator, a box having an inlet for the air, an outlet for the same, a baffle-plate for deflecting the incoming air upwardly, said plate supported at its lower edge on the bottom of the box, a deflector depending in the box, disposed between the said baffle-plate and outlet, for deflecting the air downward, said deflector supported at its upper edge and extending below the upper edge of said plate, said deflector adapted to yield or move with the incoming air, and means for varying the angle of said baffle-plate, the latter being removable by itself.

15. In a window ventilator, a flexible and imperforate dust arrester or curtain supported at its upper edge, an inlet for the air at one side of said dust arrester or curtain, an outlet for the same at the other side thereof, and means acting on the lower end of said curtain to cause it to bulge or curve under the air pressure in the direction of said outlet.

16. In a window ventilator, a flexible and imperforate dust arrester or curtain supported at its upper edge, an inlet for the air at one side of said dust arrester or curtain, an outlet for the same at the other side thereof, and means acting on the lower end of said curtain to cause it to bulge or curve under the air pressure in the direction of said outlet, said means consisting of inclined members up which the lower end of the curtain slides when it yields to the incoming current of air.

17. In a window ventilator, a flexible and imperforate dust arrester or curtain supported at its upper edge, an inlet for the air at one side of said dust arrester or curtain, an outlet for the same at the other side thereof, means acting on the lower end of said curtain to cause it to bulge or curve under the air pressure in the direction of said outlet, and devices for filtering and deflecting the incoming air before it is deflected downward by the surface of said curtain.

18. In a window ventilator, a flexible and imperforate dust arrester or curtain supported at its upper edge, an inlet for the air at one side of said dust arrester or curtain, an outlet for the same at the other side thereof, means acting on the lower end of said curtain to cause it to bulge or curve under the air pressure in the direction of said outlet, said means consisting of inclined members up which the lower end of the curtain slides when it yields to the incoming current of air, and devices for filtering and deflecting the incoming air before it is deflected downward by the surface of said curtain.

19. A ventilator provided internally with a flexible curtain disposed in position to swing with the wind, presenting an imperforate body surface to the incoming air, and a casing inclosing and providing space below the lower edge of said curtain, for the passage of air through the ventilator, said curtain having a weight extending along the lower edge thereof.

20. A ventilator provided internally with a cloth curtain disposed in position to swing with the wind and presenting an imperforate body surface to the incoming air, and a casing inclosing and providing space below the lower edge of said curtain for the passage of air through the ventilator, said curtain consisting of a continuous sheet of cloth with a stiffened and weighted lower edge.

21. A ventilator provided internally with a flexible curtain disposed in position to swing with the wind and presenting an imperforate body surface to the incoming air, and a casing inclosing and providing space only below the lower edge of said curtain, for the passage of air through the ventilator, and means interposed to prevent the

inward swing of the curtain from closing off the air.

22. A ventilator provided internally with a flexible curtain disposed in position to swing with the wind and presenting an imperforate body surface to the incoming air, and a casing inclosing and providing space below the lower edge of said curtain, for the passage of air through the ventilator, and means interposed to prevent the inward swing of the curtain from closing off the air, said means comprising a plurality of rods disposed in vertical planes in front of the curtain.

23. A ventilator provided internally with a flexible curtain disposed in position to swing with the wind and presenting an imperforate body surface to the incoming air, and a casing inclosing and providing space below the lower edge of said curtain for the passage of air through the ventilator, a supporting rod for the upper edge of the curtain, means upon which the ends of said rod are removably supported, and a rod extending along the lower edge of the curtain, the entire body of the curtain being flexible between said rods.

24. A ventilator provided internally with a flexible curtain disposed in position to swing with the wind and presenting an imperforate body surface to the incoming air, and a casing inclosing and providing space only below the lower edge of said curtain, for the passage of air through the ventilator, said curtain being of porous material.

25. A window ventilator comprising a box provided with means for holding it in place in the window, said box having air inlet and outlet openings, a door in which the outlet openings are located, and a swinging curtain in said box, removable therefrom by opening said door.

26. A window ventilator comprising a box provided with means for holding it in place in the window, said box having air inlet and outlet openings, a door in which the outlet openings are located, a swinging curtain in said box, removable therefrom by opening said door, and dust-catching mechanism within said box, removable therefrom by opening said door.

27. A window ventilator comprising a box provided with means for holding it in place in the window, and removable dust-catching mechanism in said box, said mechanism including a screen and a deflector, the deflector extending upwardly from the lower portion of the screen, and a seat for the lower edge of said screen and deflector.

Signed by me at Chicago, Illinois, this 30th day of December, 1910.

FREDERICK C. AUSTIN.

Witnesses:
J. NORBY,
S. LEWIS.