J. W. HARDING.

VENTILATING APPARATUS.

APPLICATION FILED AUG. 5, 1914.

1,216,685.

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Fig. 1.

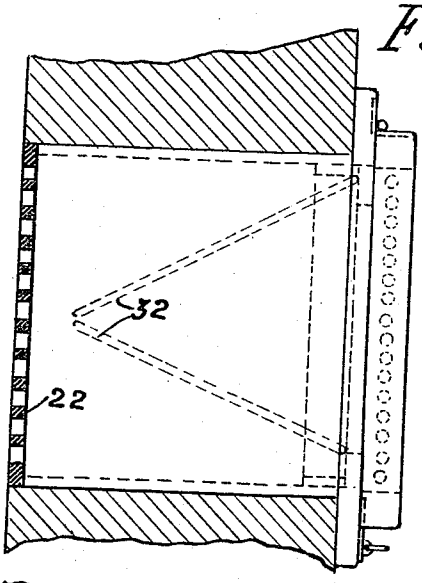
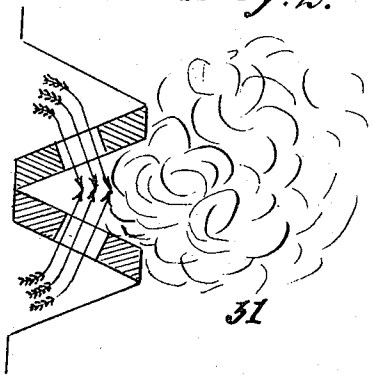



Fig. 2.



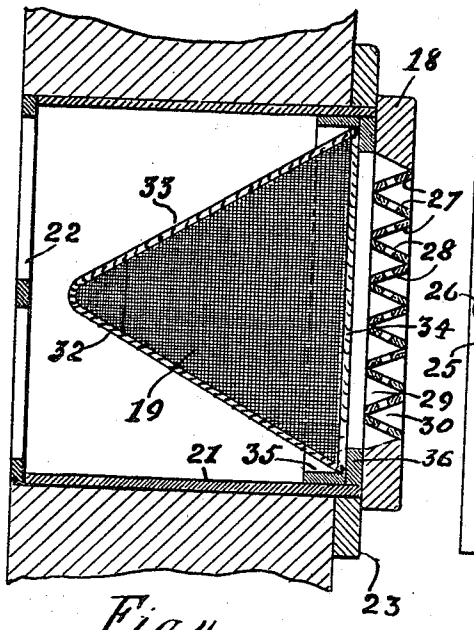




Fig. 4.

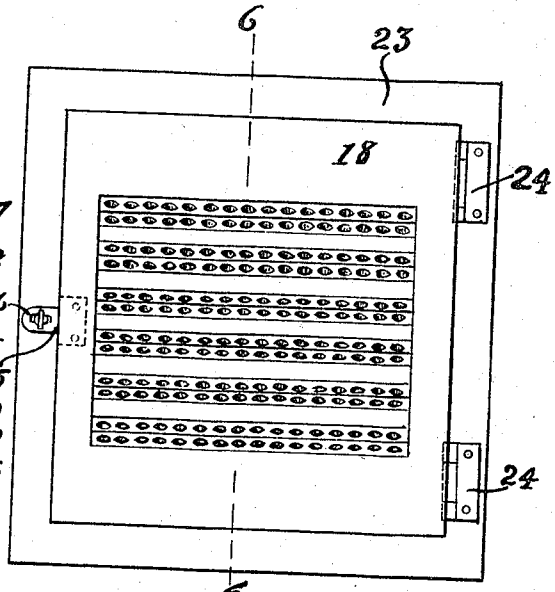



Fig. 3.

WITNESSES

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# UNITED STATES PATENT OFFICE.

JOSEPH W. HARDING, OF BROOKLYN, NEW YORK.

## VENTILATING APPARATUS.

1,216,685. Specification of Letters Patent. Patented Feb. 20, 1917.

Application filed August 5, 1914. Serial No. 855,108.

*To all whom it may concern:*

Be it known that I, JOSEPH W. HARDING, a subject of the Kingdom of Great Britain, residing in the borough of Brooklyn, city, county, and State of New York, have invented a new and useful Improvement in Ventilating Apparatus, of which the following is a description.

My invention relates to systems of ventilation and air purification and has particular reference to apparatus applicable to and adapted for large buildings such as hospitals, homes for convalescents, and for incurables, several of the features being also adapted for hotels, public buildings and private dwellings.

Among the objects of my invention may be noted the following: to provide means for supplying fresh air in large quantities without drafts; and to provide means for filtering the air as it is supplied or taken into the structure so as to prevent dust or other objectionable particles entering the latter.

With the above objects in view and others which will be set forth during the course of this description, my invention consists in the parts, features, elements and combination or system of elements hereinafter set forth and claimed.

In order that my invention may be fully understood, I have provided drawings in which:

Figure 1 is a sectional elevation of a structure showing my air-filtering means;

Fig. 2 is a detail showing how the air-supplying means operates without creating a draft;

Fig. 3 is a front elevation of the diffusing means; and

Fig. 4 is a section on the line 6—6 of Fig. 3.

Referring to the drawings,

It will be understood that the rooms of a building, and preferably between the windows, will be provided with an air-diffuser or fresh-air inlet. The details of this structure are shown in the several figures and will be presently described; but, it may be noted that such inlet may be provided merely with the air-diffusing portion 18, the filter 19 being omitted, if desired. The object of the diffuser 18 is to prevent any draft occurring within the room where the patient is located, this being accomplished by the peculiar arrangement of the members of the inlet and diffuser presently described. Each of the windows in the room may also be provided with an air-diffuser arranged at or near the sill thereof, the structure of said diffuser being the same as that located between the windows.

Referring now to Figs. 1, 2 and 4, the air-inlet is shown as composed of a frame 21, which may be of any shape or form and of any size, it being preferred to make the same of a depth corresponding with that of the thickness of the wall of the building at the windows or at any other point where the same may be disposed. The frame 21, at its outer end, is provided with a barred or latticed closure or a grating 22, and at its inner end is provided with the surrounding framing, beading, or other suitable finish 23, the inner end of the frame 21 being extended sufficiently far to support the same. The air-diffuser 18, is hinged at 24 to the framing or beading 23, at one side, or at the top or bottom, as may be desired, and at the opposite side has the latch-bar 25, which may be held by a thumb-screw or other holding means 26, to securely fasten the air-diffuser in closed position. The air-diffuser is composed of the frame-portion 18, having a large opening in which are set perforated bars or slats 27, arranged in staggered relation to each other, so as to provide a zigzag structure, each bar of which is provided with a plurality of apertures 28, the arrangement of which is such as to enable the air to pass therethrough from spaces 29 in rear of the zigzag structure to spaces 30 in front of the same. Owing to the angular direction in which the air passes from rear to front of the zigzag structure, as clearly shown by the arrows in Fig. 2, the air entering from opposite angles will encounter each other in a space 30, and break up into small particles, thus entirely eliminating any possibility of draft by completely diffusing the air entering or passing through the zigzag structure, as indicated at 31, in Fig. 2.

If desired, a filter for the air, adapted to keep out dust and small particles, may be provided, as generally indicated at 19, the filtering material being composed of cheese-cloth, or other closely-woven fabric, and may be made of finely woven wire, as will be generally understood. The framework of the filter consists of one or more wires 32, bent or disposed relatively in the proper

manner to provide a cone-shaped structure to which the edges of the screen or filtering material 19 are secured, as indicated at 33, as by stitches or wiring, or otherwise. Surrounding the opening of the filter is another wire 34, which may be of the shape desired for the opening of the filter at its inner end, and to this wire are secured the ends of the wire 32, thus producing a fairly rigid and firm structure, which may be held frictionally in, or secured to, a supporting medium 35, set within the frame 21, near its inner end; and to prevent said filtering structure from being displaced, a frame-piece 36 is disposed in front of the wire 34, within the frame 21, and flush with the inner edge thereof. This frame-piece may be secured to the part 18 of the air-diffuser, or it may be independent thereof, as desired.

From the foregoing detail description, it will be seen that the air entering at the grating or lattice 22 will be filtered through the screen 19, and upon reaching the zigzag structure of the air-diffuser will enter the various apertures 28, at different angles, said air combining within the spaces 30 and intermingling in such manner as to break up into fine particles and prevent any possibility of draft in the room. This fresh air will mix with the air in the room where the patient is located, and will supply him with fresh, pure air.

All the parts of my ventilator and air diffuser are separable and independent, as indicated, and, in consequence, said parts can be readily put together, set in place, removed and separated whenever desired. Moreover, the parts are all simple, economical to produce and can be readily removed at any time desired. Furthermore, by hinging the diffuser 18, the same can be thrown wide open at any time so as to permit the air to enter the building in greater volume through the filter 19; and it will be understood that the ventilators in the windows can thus be treated without disturbing the diffusers in the walls between the windows.

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

1. A ventilator for buildings comprising a plurality of slats arranged in zig-zag relation to each other, so as to form a structure having V-shaped air-receiving recesses on opposite sides thereof, said slats having apertures therein connecting a plurality of recesses on the outside of the structure with a recess on the inside thereof, whereby the air passing through the slats will combine within the inner recesses and intermingle without creating draft.

2. A ventilator comprising a plurality of slats arranged in zig-zag relation to each other and set rigidly relatively to each other so as to form a structure having V-shaped, air receiving recesses on opposite sides thereof, said slats having apertures therein connecting a plurality of recesses on the outside of the structure with a recess on the inside thereof, whereby the air passing through the slats will combine with the inner recesses and intermingle without creating draft.

3. A ventilator comprising a supporting frame; a supplemental frame hinged to the supporting frame, said supplemental frame having a plurality of slats arranged in zig-zag relation to each other so as to form a structure having V-shaped, air receiving recesses on opposite sides thereof, said slats having apertures therein connecting a plurality of recesses on the outside of the structure with a recess on the inside thereof, whereby the air passing through the slats will combine within the inner recesses and intermingle without creating draft.

4. A ventilator comprising a plurality of slats arranged in zig-zag relation and each of said slats having apertures extending therethrough at an angle to the surface of the slats, the apertures in one of the slats being arranged respectively opposite the apertures in an adjacent slat, the zig-zagged relation of the slats forming recesses into which air enters on one side of the ventilator and the arrangement of the apertures causing streams of air to intermingle and destroy each other within the recesses on the other side of the ventilator.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOSEPH W. HARDING.

Witnesses:
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M. HERSKOVITZ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."