A. BLIST.

VENTILATOR.

APPLICATION FILED APR. 1, 1918.

1,285,908.

Patented Nov. 26, 1918.

FIG. 1.

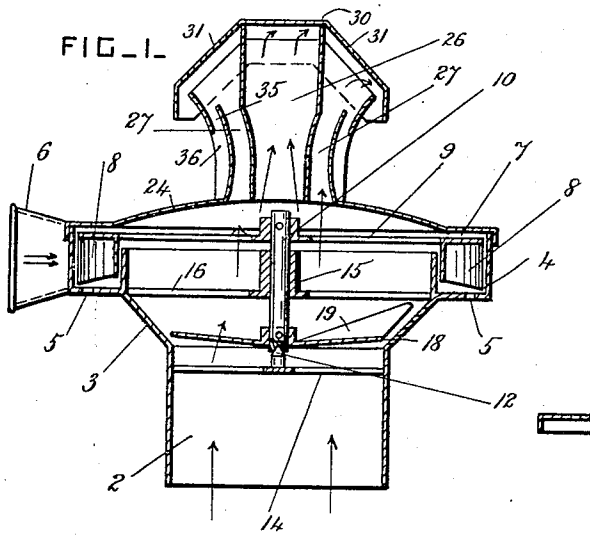


FIG. 3.

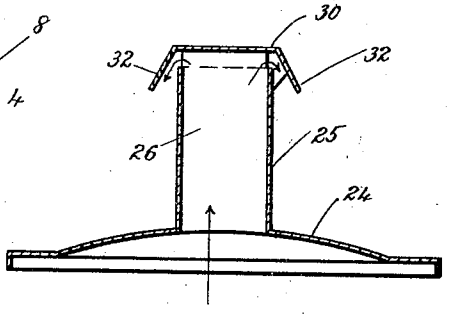


FIG. 2.

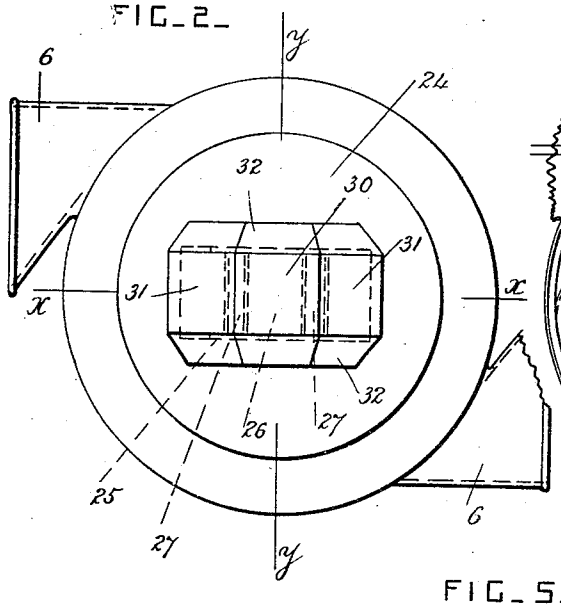


FIG. 4.

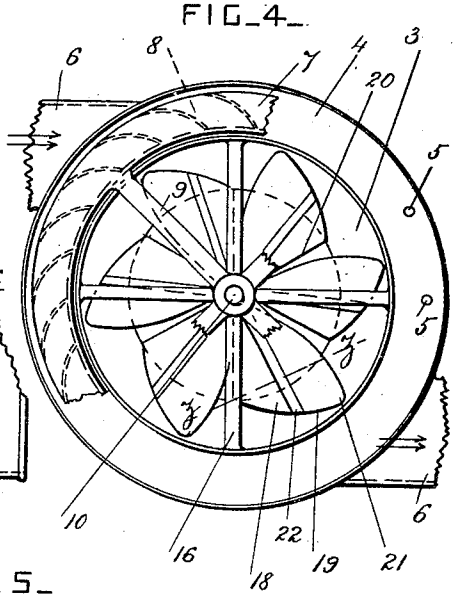
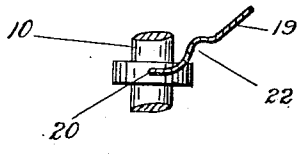


FIG. 5.



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ALBERT BLIST, OF SAN FRANCISCO, CALIFORNIA.

VENTILATOR.

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Application filed April 1, 1918, Serial No. 225,938.

To all whom it may concern:

Be it known that I, ALBERT BLIST, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

This invention relates to ventilators more particularly adapted for use on rail road trains; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed whereby the foul air is removed from the car as the train is moved along the track.

In the drawings, Figure 1 is a vertical section of a ventilator constructed according to this invention, taken on the line *x—x* in Fig. 2. Fig. 2 is a plan view of the top of the ventilator. Fig. 3 is a vertical section through the top, taken on the line *y—y* in Fig. 2. Fig. 4 is a plan view of the ventilator with the top removed, and portions of the wind wheel removed. Fig. 5 is a section of an exhaust fan blade, taken on the line *z—z* in Fig. 4.

The ventilator has a cylindrical lower end portion or pipe 2 which is secured to the car in any convenient position, and which communicates with the interior of the car. The single arrows in Fig. 1 show the direction of the current of foul air through the ventilator. A conical throat piece 3 is secured to the top of the cylindrical part 2, and an annular trough 4 is secured to the top of the throat piece 3. This trough projects laterally of the throat piece, and it has holes 5 in its bottom plate so that rain water will drain out of it. The trough 4 has tangentially arranged funnels 6 at opposite sides of its periphery, so that as the train is moved along the track a current of air is caused to enter one funnel and pass out by the other funnel, as indicated by the double arrows in Fig. 4.

A wind wheel 7 is arranged to revolve in the trough 4, and is provided with a series of buckets 8 arranged around its periphery, for the current of air to operate on. These buckets are closed at their tops and inner sides. The wind wheel 7 is provided with arms 9, and is secured on the upper part of a driving shaft 10. The shaft 10 is mounted on a conical step 12 which is secured by arms 14 in the upper part of the cylinder or pipe 2. The middle part of the shaft 10 is journaled in a bearing 15 having arms 16 which secure it to the inner wall of the trough 4.

An exhaust fan 18 is secured on the lower part of the shaft 10 below the bearing 15. This fan is formed of a series of substantially triangular blades 19 each having a radial front edge 20. These blades are inclined upwardly, rearwardly and outwardly from their front edges 20 to their tips 21, and each blade has a substantially radial corrugation 22 at its middle part which projects upwardly. The rear part of each blade behind the corrugation is substantially flat on its upper side, and the front portion of the blade between the corrugation and the front edge 20 is slightly concave on its upper side. This form of the blades of the exhaust fan enables it to draw the foul air through the cylinder and throat piece and discharge it from the car.

The top 24 of the ventilator is a suitably shaped disk or plate which is secured over the trough and the wind wheel. This top has an air outlet chamber 25 secured to it, and this outlet chamber is provided with two partitions which divide it into a central chamber or air passage 26 and two side passages 27.

The center passage and the side passages are open at the top, and the tops of the side passages are enlarged and spread apart to increase the area of their outlets. A deflector 30 is secured over the outlet chamber 25 at a little distance above its top, and it has inclined end portions 31. It has also inclined side portions 32 at the sides of its middle and end portions. Curved channels 35 are also provided at the ends of the outlet chamber 25 which are open at both top and bottom. The lower ends 36 of the channels 35 are arranged below the level of the bottom edges of the ends of the deflector, and their upper ends are arranged so that they are above the level of the bottom edges 37 of the ends of the deflector. This arrangement of outlet passages and of the deflector prevents currents of air from being forced backwardly through the ventilator, and it also prevents the rain from entering the car through the ventilator. The central chamber 26 is arranged over the air inlet pipe 2, and the chambers or passages 27 are arranged longitudinally, one in front of and the other behind the chamber or passage 26, in a plane parallel to and between the planes

of the tangential air inlet members or funnels 6 through which the air passes to drive the wind wheel as the train is moved along the rails.

What I claim is:

1. In a ventilator, an air pipe provided with a conical throat piece at its top, an annular trough secured around the top of the throat piece and provided with tangentially arranged funnels at opposite sides of its periphery, a wind wheel mounted to revolve in the said trough, and an exhaust fan driven by the said wind wheel and arranged in the said throat piece.

2. In a ventilator, an air pipe provided with a conical throat piece at its top, an annular trough secured around the top of the throat piece and provided with tangentially arranged funnels at opposite sides of its periphery, a wind wheel mounted to revolve in the said trough and provided with a series of buckets at its periphery which are closed at their tops and inner sides, and an exhaust fan driven by the said wind wheel and arranged in the said throat piece.

3. In a ventilator, an air pipe provided with a throat piece at its top, an annular trough secured around the top of the throat piece and provided with a tangentially arranged air inlet member at one side of its periphery and an air outlet on the other side, a wind wheel mounted to revolve in the said trough, and an exhaust fan driven by the wind wheel and arranged in the said throat piece.

In testimony whereof I have affixed by signature.

ALBERT BLIST.

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