C. J. WOLKARTE.

VENTILATOR.

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1,065,420.

Patented June 24, 1913.

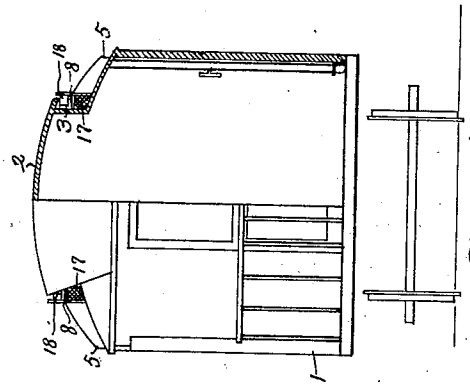

Fig. 2.

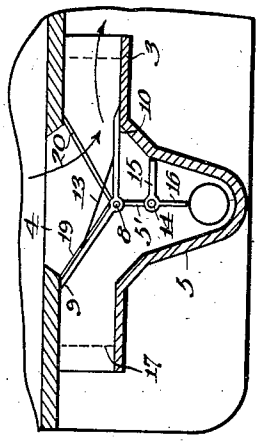

Fig. 4.

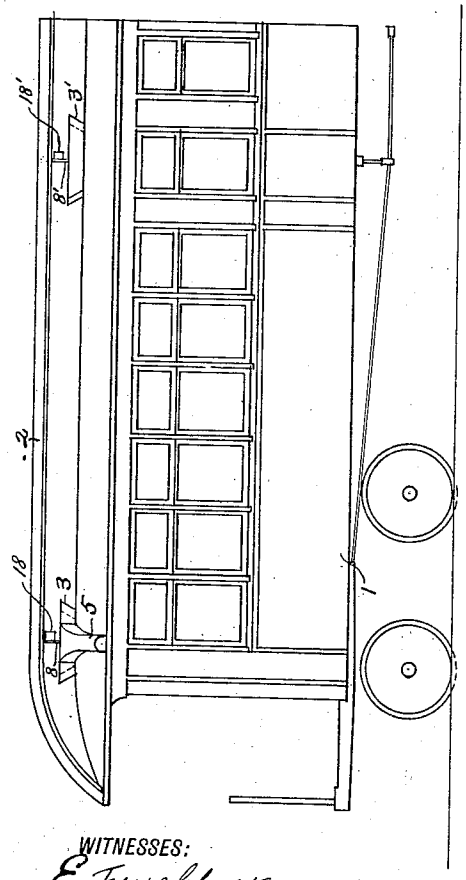

Fig. 1.

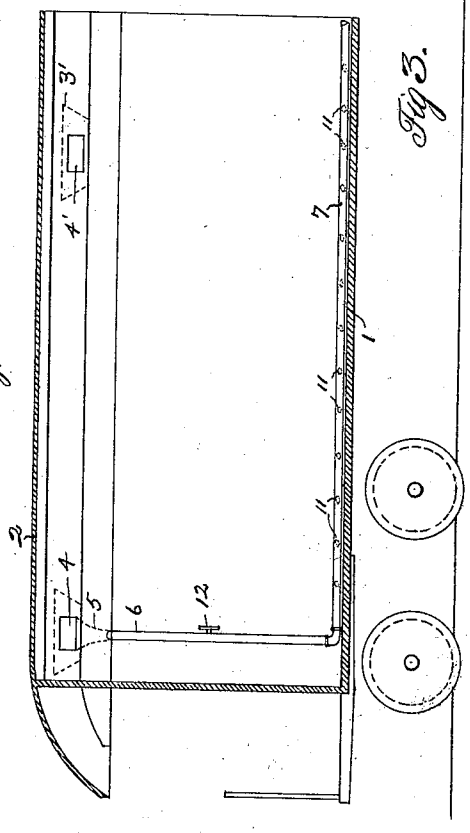

Fig. 3.

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VENTILATOR.

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To all whom it may concern:

Be it known that I, CHARLES J. WOLKARTE, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

My invention relates to new and useful improvements in ventilators, and has more particular relation to such devices as are adapted to be used for ventilating street and railway cars.

The object of the invention is to provide a device of the character described, by means of which fresh air will be taken into a moving car and distributed in the lower portion thereof, and by means of which the foul air may be emitted from the top of the car by automatically operated ventilators.

A further feature of the device resides in the provision of improved valves controlling the entrance of fresh air to the car and the emission of the foul air therefrom.

With the above and other objects in view, the invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of one end of the ordinary railway car, showing the ventilator applied thereto. Fig. 2 is the end view of a car, partially in section, provided with said improved device. Fig. 3 is a sectional side elevation of one end thereof, and Fig. 4 is an enlarged detail of the intake-exhaust cowl.

Referring now more particularly to the drawings, wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 refers to the car, which is of the ordinary construction and shape. As is clearly shown in Fig. 2, the top of the ordinary car has a central elevation 2, whose sides are abrupt and the valves controlling the ventilation of the car are arranged along the perpendicular sides of the elevated portion 2.

At the ends of the car and on each side thereof, I have secured an oblong chute 3, which communicates with the interior of the car through the opening 4 and extending laterally from this chute is the neck 5, which extends to the edge of the top and communicates with the down pipe 6, which extends down the wall of the car on the inside to the bottom thereof and connects with pipe 7, which extends along the bottom from end to end of the car. Within the chute 3 I have secured to the vertical pivotal support 8 a two-way valve, composed of wings 9 and 10. In the illustration, the front end of the car is shown and as the car moves forward, the air rushes into the front end of the chute 3, as indicated by the arrow in Fig. 4, and with the result that the wing 9 is forced by the air current to block the chute 3 and divert the entering current into the neck 5 and thence into the pipe 6, from which it is distributed through the perforations 11 along the floor of the car.

The passage of the air through pipe 6 may be controlled by hand valve 12. The wings 9 and 10 are braced by means of a cross brace 13 and extend at such an angle relative to each other from the support 8, that when the front end of chute 3 is blocked by the wing 9, the wing 10 will rest against the outer wall of said chute, leaving the rear end of the chute in communication with the interior of the car, through the opening 4. In the neck I have provided a vertical pivotal support 14, carrying the wings 15 and 16, which extend at right angles to each other. When the car is moving forward, as shown in Fig. 4, the air current operates against wing 16 and forces wing 15 to block the passage of air from the neck 5 to the rear end of the chute 3 and the air current entering the forward end of the chute 3 is thus forced into the down pipe 6. It is thus obvious, that while fresh air is being distributed through the bottom of the car through the pipes 6 and 7, and foul air is being emitted therefrom through the opening 4 and the rear end of the chute 3, as shown by the arrow in Fig. 4. The top of the chute 3 projects out at each end beyond the bottom thereof so as to prevent falling rain, snow, etc., from entering the chute, and the ends of the chute are protected by means of wire mesh 17, which keeps out dust and like matter. When the movement of the car is reversed, the air current will enter the other end of the chute 3 and the pressure thereof against the

wing 9 will force the same back and elevate the wing 10 and the wing 10 will be caught by said current and forced to block the rear end of said chute 3 and the front end thereof will be unlocked, the wing 9 assuming a position against the outside of said chute. The entering current will be diverted into the neck 5 and will operate against the wing 15 to force the wing 16 against said neck 5, thereby blocking the same and the wings 9 and 16 will thus prevent the passage of any air out through the front end of the chute and force the same into the pipe 6 and thence to pipe 7 and through the orifices 11 thereof. The neck 5 has a lengthwise partition 5′ which extends from support 8 to support 14 and divides the chute into two passageways communicating, respectively, with the respective ends of the chute and the wings 15 and 16 and provide to alternately open and close said passageways. The pivotal support 8 is provided with a vane 18 which is provided to assist in the operation of the wings 9 and 10 as the car moves in one direction or the other.

I have provided seats 19 and 20, which extend across the chute 3 and against which the respective wings 9 and 10 rest when they are in position to block the chute 3 and which are provided in order to entirely cut off any passage of air by said wings. It is obvious that as the fresh air is being admitted through one end of the chute 3 into the pipe 6, the foul air is being discharged from the inside of the car through the opening 4 and the other end of the chute 3.

Near the center of the car from end to end and on each side thereof I have provided the chute 3′, communicating with the interior of the car through an opening similar to 4. This chute is provided for the purpose of permitting the exit of the foul air, and in shape and construction, is in all respect similar to the chute 3, except that it is not provided with the laterally extending neck 5 which leads to the down pipe 6, as it is provided for the exclusive purpose of emitting foul air from the car. This chute is controlled by the wings (not shown) similar to wings 9 and 10 which are secured to the pivotal support 8′ and which alternately block the opposite ends of the chute accordingly as the car is moving in one direction or the other and rest against the respective seats (not shown) similar to seats 19 and 20 as they block their respective ends of said chute. The pivotal support 8′ is provided with the vane 18′ which operates similarly to the vane 18.

As is well known, the ordinary railway car, as at present constructed, is ventilated from the top and no provision is made for introducing fresh air in the bottom of the car and for forcing the foul air from the car. A ventilator constructed in accordance with the foregoing specification and the drawings accompanying the same and made a part thereof, will automatically force fresh air into the bottom of the car and distribute the same throughout the car in jets, thus avoiding a direct draft of cool air and will automatically provide for the discharge of the foul air from the top of the car and is so arranged as to automatically reverse the mechanism thereof so as to be equally efficient in whichever way the car may be moving.

What I claim is:—

1. A device of the character described including a car and an air pipe extending down the wall and continuing lengthwise thereof, an inlet chute carried by the top portion of the car and communicating with said pipe, said inlet also communicating with the interior of said car, means carried by said inlet for alternately connecting one end of said chute with said pipe and simultaneously connecting the other end of said chute with the interior of said car.

2. In a device of the character described, the combination with a car, of a current conducting pipe extending down the side thereof and continuing lengthwise of the car, an inlet chute carried by the top of the car and arranged to admit air at either end thereof and communicating with said pipe, said chute also having communication with the interior of the car, a pivotally mounted valve in said chute arranged to alternately communicate one end of said chute with said pipe and simultaneously connect the interior of the car with the other end of said chute, whereby air is admitted through the first mentioned end into said air pipe and discharged simultaneously from the interior of the car through the other end of said chute.

3. In a device of the character described, the combination with a car; of a suitable air pipe extending from the top of said car and discharging within the car, an oblong chute carried by the top of said car and having a forward and rearward discharge, a laterally extending neck connecting said chute with said pipe, a mechanism carried thereby for alternately blocking one of said discharges and communicating the other of said discharges with said pipe.

4. In a device of the character described, the combination of a car, of a suitable air pipe extending from the top of said car and discharging within the car, an oblong chute carried by the discharge of said car and having a forward and rearward discharge, a laterally extending neck connecting said chute with said pipe, a mechanism carried by the chute for alternately connecting one of said discharges with said pipe and the other of said discharges with the interior of the car, a lengthwise partition in

said neck which divides the same into two passageways which connects the respective ends of said chute with said pipe, and a mechanism pivoted in said chute which alternately blocks one of said passageways and connects the other of said passageways with said pipe.

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

CHARLES J. WOLKARTE.

Witnesses:
MAY MONTGOMERY,
J. W. YEAGLEY.

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