C. E. LUCAS.

Car-Ventilator.

No. 220,628. Patented Oct. 14, 1879.

Fig. 1

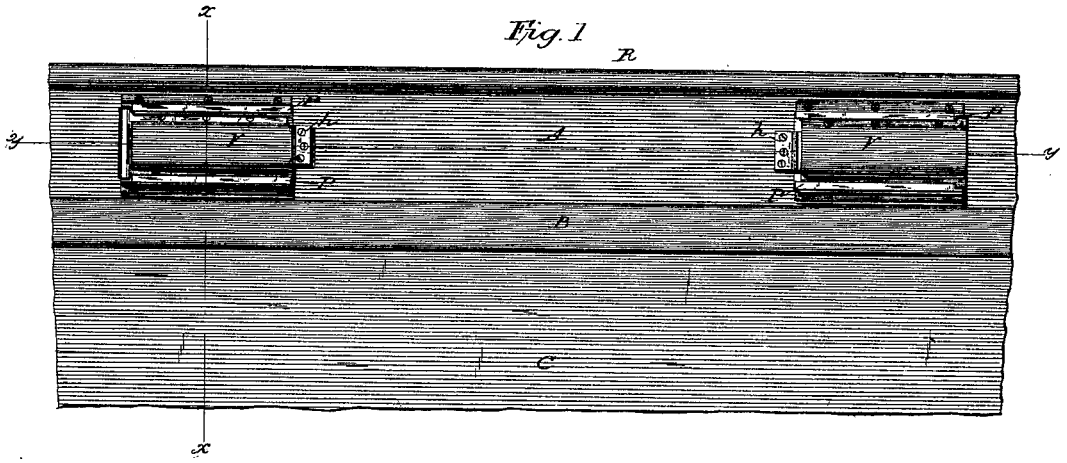


Fig. 2

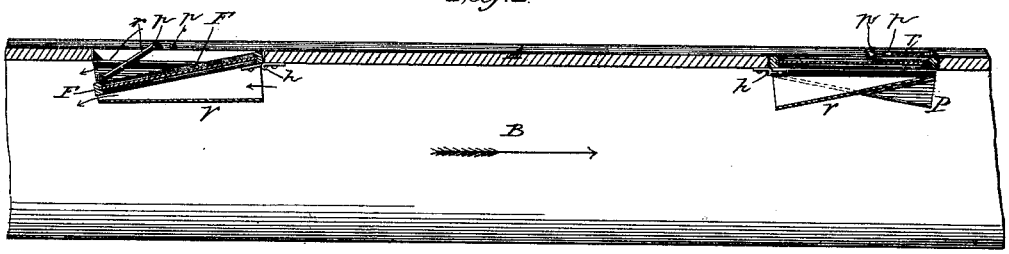


Fig. 3.

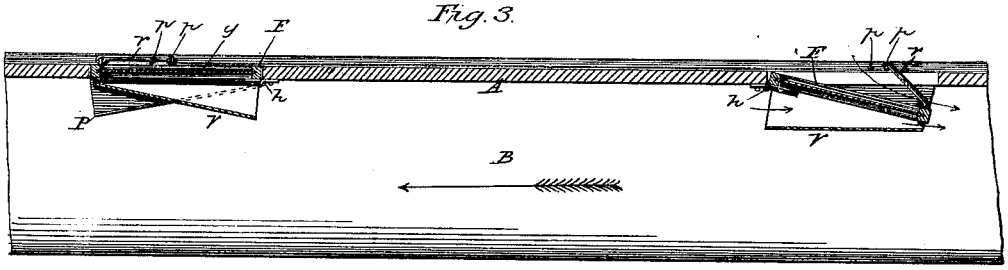
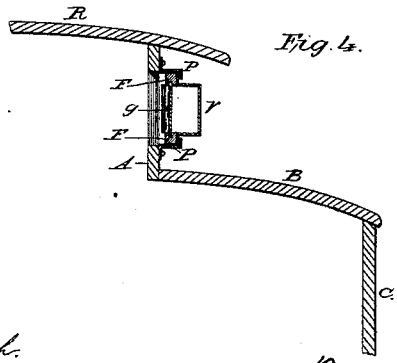


Fig. 4.



Witnesses.

Sidney P. Hollingsworth.

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Inventor

C. E. Lucas,

By his Attorneys,

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UNITED STATES PATENT OFFICE.

CHRISTIAN E. LUCAS, OF ATLANTA, GEORGIA.

IMPROVEMENT IN CAR-VENTILATORS.

Specification forming part of Letters Patent No. **220,628**, dated October 14, 1879; application filed September 5, 1879.

To all whom it may concern:

Be it known that I, CHRISTIAN E. LUCAS, of Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Ventilators to Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of the upper part of a railroad-car having my ventilators applied. Fig. 2 is a horizontal longitudinal section on line *y y* of Fig. 1, showing the left-hand ventilator open and the right-hand one closed. Fig. 3 is a similar section, showing the ventilator at the left hand closed and the one at the right hand open. Fig. 4 is a vertical transverse section on line *x x* of Fig. 1.

The same part is indicated by the same letter of reference wherever it occurs in the drawings.

The nature of my invention consists in providing railroad-cars with ventilators of the peculiar construction hereinafter described, whereby, when the car is in motion, an outward current is induced from the upper portion of the car by the side current passing out at the rear of the air-tube of the ventilator, while the horizontal plates, placed above and below the ventilator, and between which it moves, entirely prevent the passage of smoke, dust, or cinders into the car, all as hereinafter more particularly set forth.

The position of the ventilator relatively to the sides and roof of the car is shown in the drawings. I usually place two or more on each side of the car, under the roof R, as shown.

The ventilator forms a valve, the inner face of which, *g*, may be made of wood or of a plate of metal or glass set in a frame, F, preferably the latter, which is the construction shown in the drawings. On the outer side of this plate is attached a wedge-shape tube, V, open at both ends, and having the opening at one end much larger than that at the other.

The valve is hinged to the car-frame at *h*, at the end nearest the larger opening of the tube.

The position of the valve is regulated and fixed by means of the hook-rods *r* and pins *p*, in the ordinary manner.

Above the upper and below the lower edge of the valve is placed a horizontal triangular plate, P, turned up at right angles on the edge. Between these plates the valve moves, the angular edges serving to limit the outward movement of the valve, and to aid in keeping dust and smoke from entering at the edges of the valve.

The plates P P themselves prevent the entrance of dust and smoke above and below the valve.

When the car is moving in the direction indicated by the long arrow on Fig. 2 the valve at the right hand is completely closed, and that at the opposite end opened, as shown.

The air-current induced by the motion of the car rushes into the large end of the flaring tube or funnel, and out with greater violence at the smaller end, giving rise, by the operation of a well-known law of fluid motion, to a powerful induced current flowing out from the upper part of the car, and effecting its thorough ventilation.

The air to replace that exhausted by the ventilators may enter through openings in other parts of the car, suitably protected from the entrance of dust and cinders by wire-gauze or other means, such devices forming no part of this invention.

When the car is moving in the opposite direction, as indicated by the long arrow in Fig. 3, the right-hand ventilator is open, and the one on the left closed, as shown.

I claim as my invention—

A car-ventilating valve, consisting of the frame or plate F, hinged at one end of an opening near the roof of the car, and moving between the plates P P, said plate F having attached on its outer side the flaring open tube V, the whole constructed and applied in the manner and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

CHRISTIAN E. LUCAS.

Witnesses:
J. H. STANSBURY,
CHAS. F. STANSBURY.