A. S. Emerson.
CAR VENTILATOR.

No. 324,099.
Patented Aug. 11, 1885.
To all whom it may concern:

Be it known that I, ALFRED S. EMERSON, of Charleston, in the county of Charleston and State of South Carolina, have invented a new and useful Improvement in Car-Ventilators, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved apparatus for supplying railway-cars with fresh and pure air, and carrying off the foul air, keeping the car free from dust, smoke, &c.

The invention consists in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of a car provided with my improved ventilating apparatus. Fig. 2 is a cross-sectional elevation of the same on the line x x, Fig. 1. Fig. 3 is a longitudinal sectional elevation of the blower for introducing air into the car. Figs. 4 and 5 are detail side views of the ratchet-pulleys for driving the blowers.

At an end of a car, A, a shaft, A', is journaled transversely under the car, and on said shaft the two belt-pulleys B' B' are mounted, over which the plain and crossed driving belts C' C' pass, which also pass over the loose pulleys D' D' on the axle of the said pulleys having jaws E' E', which engage with ratchet-wheels F' F' on the axle E, the teeth of the said ratchet-wheels being inclined in opposite directions. On the end of the shaft A', a pulley, G, is mounted, and over the same a belt, H, is passed, which is also passed over a pulley, I, on the end of a shaft, J, on the roof of the car. On the shaft J the wings K of a blower are mounted, the said wings being surrounded by a casing, L, having inlet-openings L' at the centers of the sides, and an outlet-tube, M, which is connected with tubes N extending longitudinally through the top of the car and provided with branch pipes O, extending downward in the posts P between the windows P'.

The lower ends of the pipes O are closed, and at the ends the said pipes are provided with openings in the sides, which openings are covered by pieces, Q, of wire-netting in the inner surfaces of the posts P. Each pipe O has a damper-valve, R, near the lower end.

The casing L is surrounded by the two concentric casings S S', the former having an air-tight inlet-opening, T, at the bottom and the latter an opening, T', at the top. Partitions U, having their outer ends turned down, project from the adjacent surfaces of the rims of the casings S S' and serve to catch the dust, cinders, &c., carried by the air drawn into the casing S and the space between the two casings S S'.

Fans V are hung on the top of the car and are connected with a rod, W, operated from the shaft J. A suction-fan, a, operated from a car-axle in the same manner as the air-forcing fan, draws the air out of the upper part of the car.

The operation is as follows: When the car is in motion, the shaft J is revolved from the car-axle and the wings force the air through the pipes N N and O into the car. The air is agitated by the wings V and the foul air drawn off by the suction-fan a.

When the wheels d revolve in the direction shown in Fig. 5, the teeth of the ratchet-wheel E catch in the pawl E' and revolve the pulley D, over which the crossed belt C is passed, the teeth of the ratchet-wheel F' sliding under the pawl E'. When the wheels revolve in the reverse direction, the teeth of the ratchet-wheel F catch the pawl E' and revolve the pulley D', the teeth of the ratchet-wheel F' sliding under the pawl E'. In all cases the shafts on which the blower-wings are mounted are revolved in the same direction independent of the direction in which the train runs.

I am aware that it is not new to force air into cars by means of blowers; also, that it is not new to agitate the air in cars by means of swinging wings; also, that blowers have been used for supplying buildings with and exhausting them of air, and I do not claim the same, broadly, as my invention.

I do not claim the particular construction of the blower, and reserve the right to claim the same in a separate application.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a car, of the shaft A', driven from the axle and provided with a
pulley, G, the shaft J on top of the car, the pulley I on said shaft, the belt H within the walls of the car and connecting the pulleys G H, the air-forcing blower operated by said shaft J, the series of wings V, pivoted in the upper part of the car, the rod W connected with the shaft J and with said wings V, substantially as set forth.

2. The combination, with a car, of the shaft A', the pulleys B' B', the loose pulleys D' D' on the axle E, the ratchet-wheels F' F' on the axle, the pawls E' E', pivoted on the pulleys D' D', the plain belt C', the crossed belt C'', the pulley G on the shaft A', the shaft J, the pulley I, the belt H, and a blower operated by the shaft J, substantially as herein shown and described.

ALFRED S. EMERSON.

Witnesses:

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