(No Model.)

A. S. EMERSON.

CAR VENTILATOR.

No. 324,099. Patented Aug. 11, 1885.

Fig. 1.

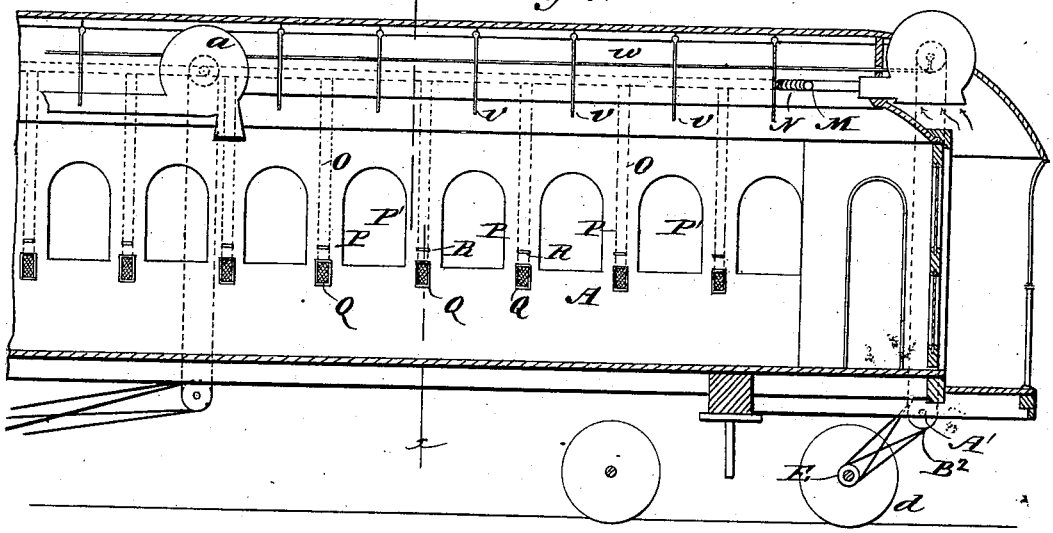


Fig. 2.

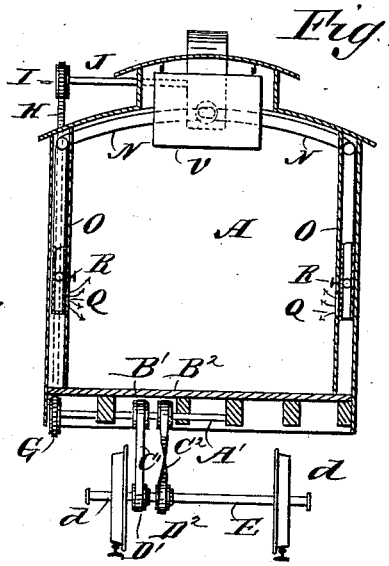


Fig. 4.

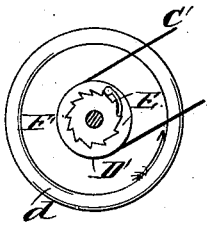


Fig. 5.

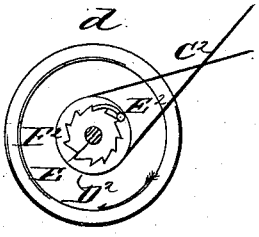
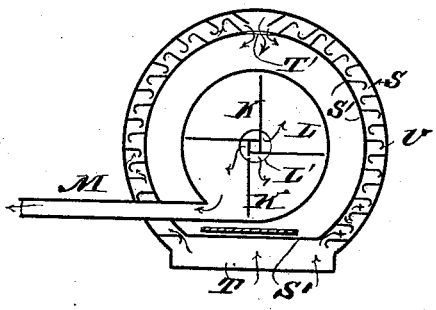


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALFRED S. EMERSON, OF CHARLESTON, SOUTH CAROLINA.

CAR-VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 324,099, dated August 11, 1885.

Application filed June 3, 1885. (No model.)

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 the said shaft the two belt-pulleys B′ B² are mounted, over which the plain and crossed driving-belts C′ C² pass, which also pass over the loose pulleys D′ D² on the axle E, the said pulleys having pawls E′ E², which engage with ratchet-wheels F′ F² 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, passing 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 and 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 F² catch in the pawl E² and revolve the pulley D², over which the crossed belt C² is passed, the teeth of the ratchet-wheel F′ sliding under the pawl E′. When the wheels revolve in the inverse direction, the teeth of the ratchet-wheel F′ catch the pawl E′ and revolve the pulley D′, the teeth of the ratchet-wheel F² sliding under the pawl E². 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 of 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′ B², the loose pulleys D′ D² on the axle E, the ratchet-wheels F′ F² on the axle, the pawls E′ E², pivoted on the pulleys D′ D², the plain belt C′, the crossed belt C², 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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