(No Model.)

W. S. ROGERS.

RAILWAY CAR VENTILATOR.

No. 481,196. Patented Aug. 23, 1892.

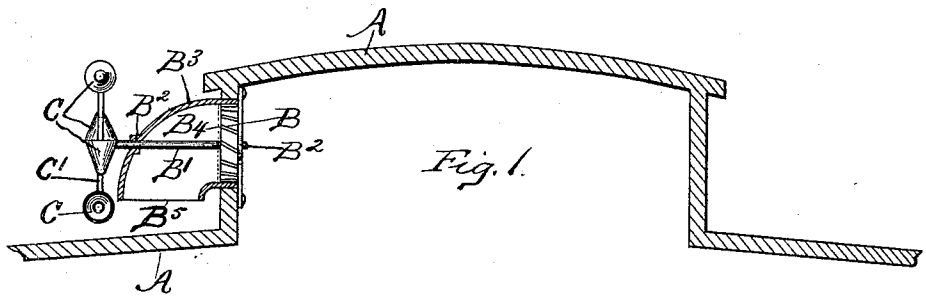


Fig. 1.

Fig. 2.

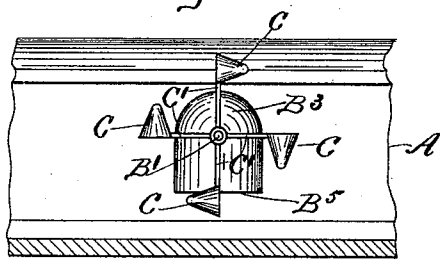
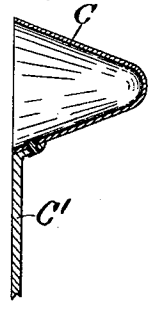


Fig. 3.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WINFIELD S. ROGERS, OF TROY, NEW YORK.

RAILWAY-CAR VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 481,196, dated August 23, 1892.

Application filed January 11, 1892. Serial No. 417,761. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD S. ROGERS, a citizen of the United States, residing at Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Railway-Car Ventilators, of which the following is a specification.

This invention pertains to improvements in ventilators for railway-cars and is designed to overcome defects in that class of ventilators which produce outward currents of air from the car by means of mechanical devices operated by the movement of air outside the car.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical transverse section of a portion of a car-roof, showing my improved ventilator in position; Fig. 2, a side elevation of a portion of the roof at the ventilator, and Fig. 3 a vertical section through one of the motor-cups.

In the drawings, A indicates the roof portions of a railway passenger-car as usually constructed with a clear-story; B^5, a curved elbow-shaped conduit secured to the side wall of the clear-story at a horizontal opening through that wall and extending outwardly and then downwardly from the opening to a point of downward discharge; B^5, the downwardly-discharging end of this conduit, the conduit thus forming a protecting-hood over the opening; B^2, journal-bearings concentric with a portion of the conduit; B′, a shaft journaled in those bearings and projecting outwardly beyond the outer wall of the conduit; B, an air-moving wheel or fan secured upon this shaft within the conduit and adapted as the wheel is turned in a certain direction to cause an outward movement of air in the conduit; C′, a wind-driven wheel secured to the outer end of the shaft exterior to the conduit and consisting of a series of arms projecting from a hub, each arm being provided at its outer end with a wind-catching cup, and C the cups upon the outer ends of the arms of the wind-driven wheel. The axes of the cups are tangential to the circle through which they sweep as the wheel turns, and the open ends of the cups are arranged in a common direction—that is to say, as each cup reaches its upper position its open end will be in the same direction as with the other cups reaching that position—and the direction of opening is such in relation to the vanes of the wind-moving wheel B that as the cups turn with their closed ends foremost the wheel B will be given that direction tending to produce a current of air outwardly in the conduit. Air striking the wheel C′ edgewise will strike the upper and lower cups and tend to turn the wheel both ways; but the cup receiving the air in its open end will offer the greatest resistance to the passage of the current of air, and consequently will yield the most readily to it, wherefore the wind-driven wheel will be rotated in such direction that the open end of the cup receiving the air will move in the direction of the current. The wheel will therefore turn in one certain direction, no matter what the direction of the current of air acting edgewise upon it. The wheel will therefore be moved by currents of air moving in either direction parallel with the length of the car, and in still air will be moved by the relative currents produced by the movement of the car in either direction. The continued movement of the wind-driven wheel therefore tends to cause an outward current of air from the interior of the car, and this outward current, by reason of the peculiar disposition of the conduit-hood, is not disturbed and negatived by the action of the exterior currents which drive the wind-driven wheel.

I claim as my invention—

In a railway-car ventilator, the combination, substantially as set forth, of a car-wall provided with an opening leading sidewise horizontally from the interior of the car, a curved conduit secured exterior to said wall and forming a protecting-hood at said opening and having a downward discharge, an air-propelling wheel housed within said conduit and having a spindle projecting outwardly through the wall of said conduit, and a wind-driven wheel secured to said spindle exterior to the car and hood and separated from said air-propelling wheel by the wall of said conduit.

In testimony whereof I have hereunto set my hand this 6th day of January, 1892.

WINFIELD S. ROGERS.

Witnesses:

FRANK C. CURTIS,

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