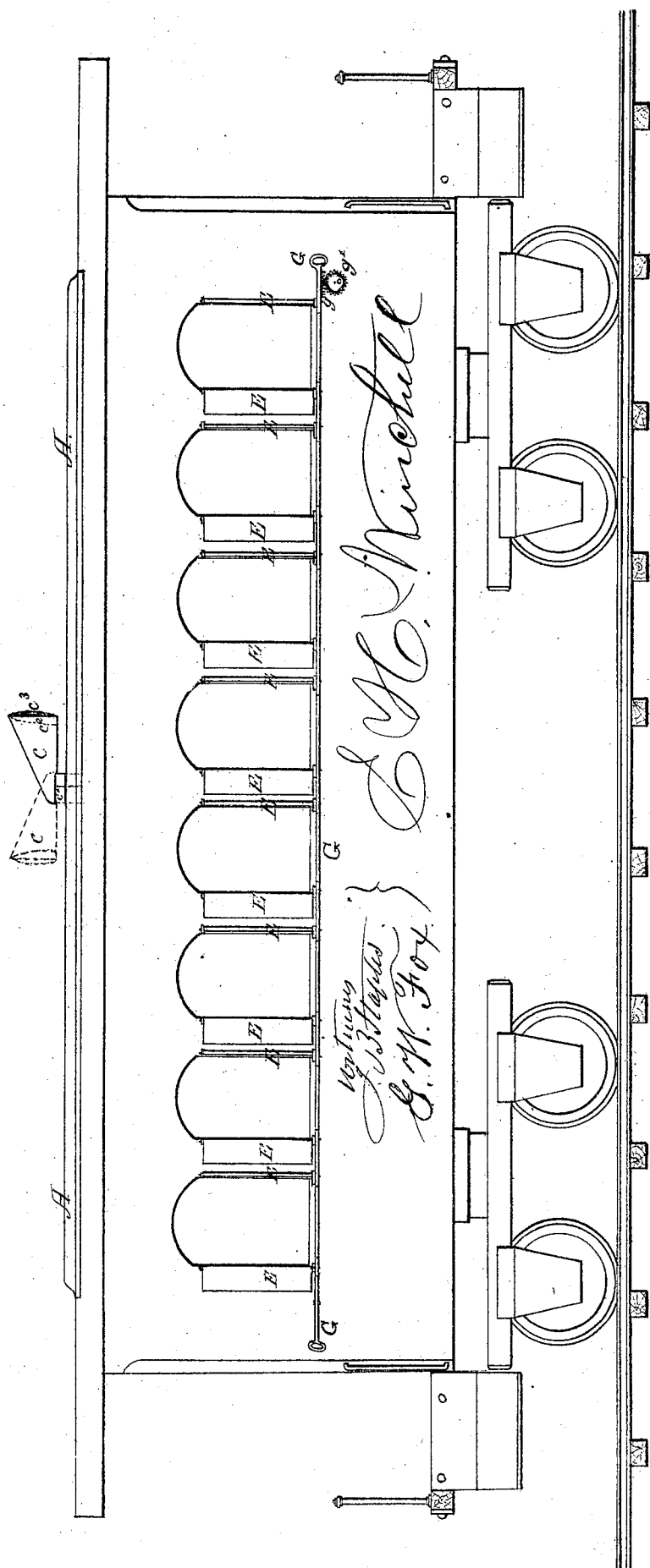


No. 119,809.
E. H. WINCHELL. Patented Oct. 10, 1871.
Improvement in Railroad Car Ventilators.

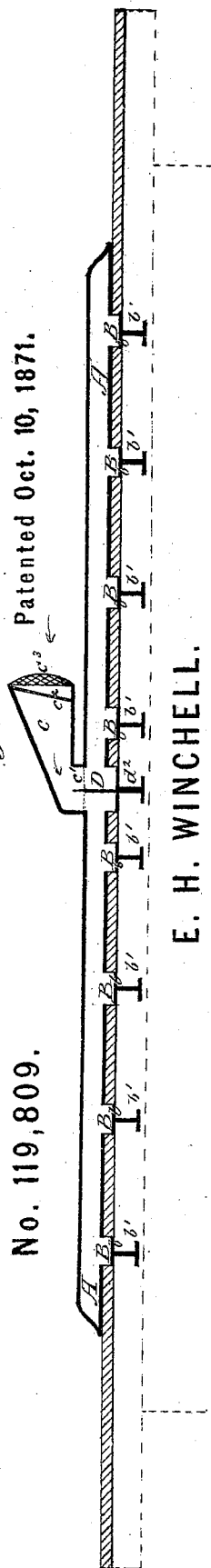
Fig. 1.
Side view showing position of Ventilators.



Showing section of Vertulabon 2 Sheets--Sheet 2.
on rag.

No. 119,809.

Patented Oct. 10, 1871.

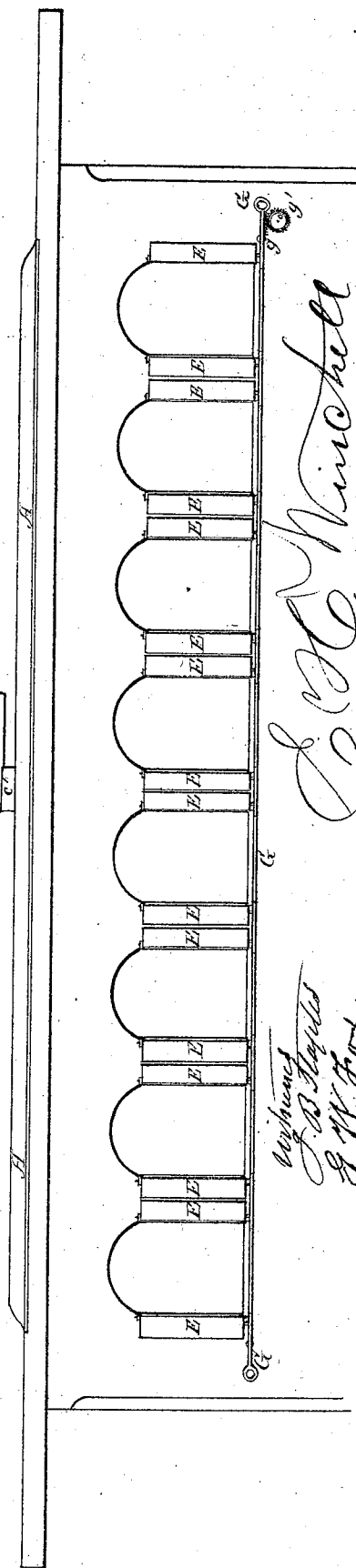
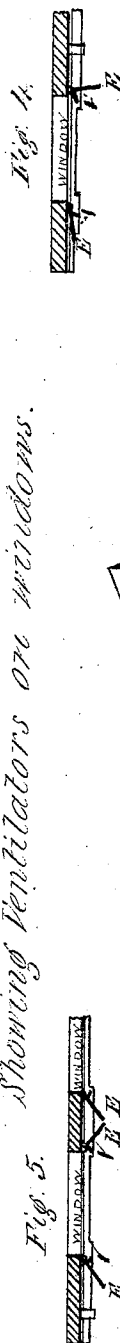


E. H. WINCHELL.

Improvement in Railroad Car Ventilators.

Fig. 3.

Showing Ventilators are windows.



Unbanned
J. B. Hayles
G. W. Fox.

L. C. Mitchell

UNITED STATES PATENT OFFICE.

EDWIN H. WINCHELL, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILROAD-CAR VENTILATORS.

Specification forming part of Letters Patent No. 119,809, dated October 10, 1871.

To all whom it may concern:

Be it known that I, EDWIN H. WINCHELL, of the city, county, and State of New York, have invented new and useful Improvements in Railroad-Car Ventilators and Dust-Deflectors; and that the following is a full and exact description of the same, reference being had to the drawing accompanying and making part of this my specification.

The nature of my invention consists, first, in a device and apparatus of a novel construction, placed upon and in the roof of the car, by which fresh air is introduced into the interior along the entire length of the car-body by means of a reversible conical funnel or hood, and distributed through adjustable registers or valves; and, secondly, in a peculiar construction of air-and-dust-deflectors or leaves on either side of the car-windows, and so constructed and arranged as to deflect outward and away from the windows the currents of air and dust produced in the rapid movement of the car, the deflectors being movable on their vertical axes so as to present a flat surface to the air and dust, and facing its current in either direction of the car; and, also, so as when the deflectors are not operating to fold or close with their outer edges at a very obtuse angle between the windows of the car, the two parts of my invention operating, when the windows of the car are open, to produce a current or currents of air outward through the windows, and thus together preserve the air pure and fresh within the car, and, by the outward current, to keep the exterior air and dust from entering in at the windows.

Figure I of the drawing represents a side elevation of the car, and of the ventilating apparatus on the roof, and the deflectors between the windows, the latter in position for deflecting the air and dust. Fig. II represents the ventilating apparatus in the roof by a vertical longitudinal section through the central axis of the apparatus. Fig. III represents a side elevation of the car-body, and the ventilating apparatus, and of the deflectors, the latter being in the position required when not operating and the windows closed. Fig. IV is a vertical or top view of window and deflecting-leaves in position to act as deflectors. Fig. V is a vertical or top view of window and the leaves when not in operation as deflectors, but closed at an obtuse angle between the windows.

In all the figures similar letters represent similar parts.

The construction and operation of my improvements are as follows: Upon the roof of the car I place a flattened tube or chamber, A, Figs. I, II, III, which extends along the whole length of the body of the car. Upon the under side of the chamber A are circular openings, B, Fig. II, corresponding with similar openings in the roof, and forming air-passages into the car. These openings correspond in number with the numbers of rows of seats across the car. Each opening is provided with a valve or register, *b*, opened and shut by means of a stem, *b'*, beneath the roof of the car, and within reach of the passengers. Upon the chamber A is placed the hood or hollow cone C, having a collar by which it is connected with and opens into the chamber A. This collar is equally divided by a diaphragm-plate, *c*, Fig. II. The hood and collar are made to turn upon bearings surrounding air-opening corresponding with the collar in the chamber A, so that the hood may be reversed to face the opposite end of the car. Across the chamber A, directly under the collar of the hood, is a fixed dividing-plate, D, Fig. II, which divides the chamber into two parts, and when the hood and collar are turned in the line of the car in either direction the dividing-plate in the collar and in the chamber A exactly correspond, so that the currents of air which pass into the hood are divided and equally distributed to the two parts of the chamber A. The hood is provided with a stem, *d'*, projecting down into the car, so as to be turned in the desired direction from within. The interior of the hood is provided with a wire-gauze, *e'*, to prevent dust or cinders from entering. This gauze may be placed in semispherical shape on the outer front of the hood, as at *e'*, Fig. III, for more effectually throwing off cinders and dust, or the gauze may be applied both ways within and without.

The leaves or air-and-dust deflectors for the windows are constructed and arranged and operate as now to be described. The leaves or deflectors E, Figs. I, III, made of strong frames, within which is set a plate of glass to fill it, are fixed upon each side of the windows in a vertical position, and vibrate upon gudgeons working in brackets affixed upon the side of the car at top and bottom, so that the inner edges of the frames are close to and extend the length of the vertical sides of the windows. The breadth of the frames will vary from three and one-half to five inches

according to the size of the windows; about one-third the width of the window may be taken as the fair average breadth of the leaves. These leaves are operated and made to act as deflectors or otherwise by a horizontal rod or plate, G, which is attached to the car by suitable bearings, within which it is made to slide the required space for moving the deflectors, by means of a suitable gearing, such as a rack or pinion, g g' , Figs. I, III, and which is to be under the control of the conductor and not of the passengers. Each leaf or deflector has a bracket or arm bent out from its lower edge horizontally, having at its extremity a vertical pin, which passes into a suitable opening in the adjusting-plate G, and is thus hinged to it. The deflectors are so set and connected with the adjusting-plate G that, when a leaf or deflector is turned by the plate G so as to stand out at a right angle to the side face of the air, all the other deflectors on all the windows on the corresponding sides will stand out at the same angle, and the opposite leaves on the opposite sides of the windows will lie nearly flat to the face of the car, and be turned away from the direction in which the car is moving. When the deflectors are not in use for carrying off and outward the air-currents and dust, the conductor slides the plate G and fixes it in position. When the leaves stand with their outer edges together, their sides forming together an obtuse angle between the windows, as shown in Fig. V in top view in horizontal section, the position of the deflectors when operating as such is shown in Fig. IV, in similar view and section. The arm at the lower edge of the deflector, by which it is hinged to the adjusting-plate G, is seen in top view at 1 1 in Figs. IV, V, and in end view or elevation at 1 1, Figs. I, III.

This operation of the above-described devices is as follows: The hood being set with its opening toward the direction in which the car is moving, the air is, by the rapid motion of the train, forcibly introduced into the chamber A, and thence into the car, and regulated by the valves and equally distributed by means of the dividing-plates in the collar and across the air-chamber A, as described. By setting the deflectors E

as shown in Figs. I and IV, the deflectors on that side of each window toward the direction of the movement of the car, standing straight out from the face of the car, carry the currents of air and dust and cinders passing the line of the windows off and outwardly away from the windows. The windows may then be kept open without dust or air entering the window, the air making its exit from within out of the window, and supplied from the apparatus on the roof. The atmosphere within the car is thus kept pure and in circulation, and passengers may sit at the open windows without being incommoded by the entrance of dust and cinders, or by too strong a current of air from without. When the deflectors are at the position seen in Figs. III, IV, the windows being closed, the effect will be still in some slight degree to divert dust from the windows, and, in cold weather, prevent accumulations of snow and frost upon the closed windows of the car.

Having thus described my invention and improvements and the operation of the same, what I claim therein as my invention, and for which I desire Letters Patent, is—

1. The combination of a reversible hood or funnel, having a dividing-plate, c^1 , in the movable collar, with the flattened air-chamber and the fixed dividing-plate D, constructed in the manner, and operating for the purposes described.

2. The device and operation of sliding plate G on the side of a railroad car, for the purpose of adjusting and holding in place deflectors E at the sides of the window in the angles and positions and for the purposes shown.

3. The deflectors or leaves E, constructed in manner and for the purposes shown.

4. The combination of hood and air-chamber on the roof, constructed substantially as described, with or without the dividing-plates c^1 and D, with the deflectors at the windows, constructed and operating substantially as described.

E. H. WINCHELL.

Witnesses:

J. B. STAPLES,
G. W. FOX.

(166)