W. C. BETTS.

RAILROAD CAR VENTILATOR.

No. 110,950. Patented Jan. 17, 1871.

Fig. 1

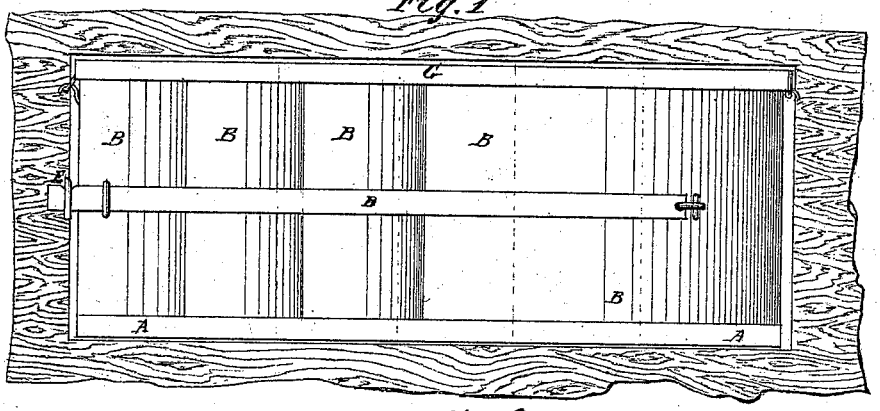


Fig. 2

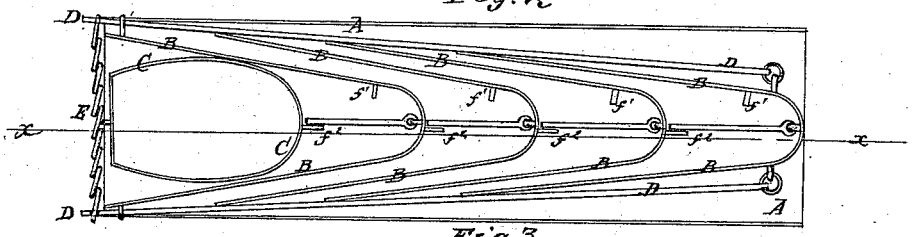


Fig. 3

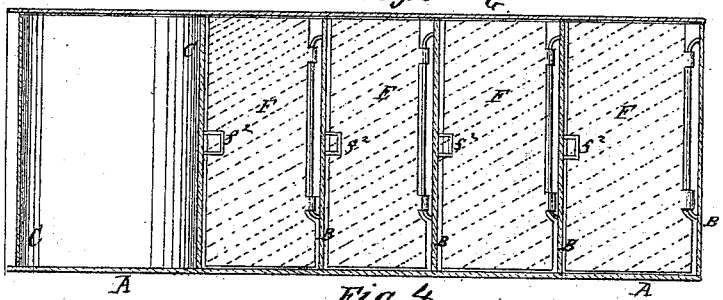
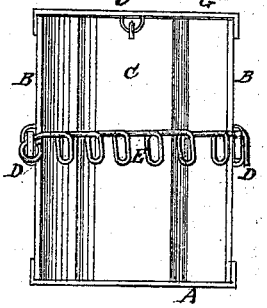


Fig. 4



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Letters Patent No. 110,950, dated January 17, 1871; antedated January 7, 1871.

IMPROVEMENT IN RAILROAD-CAR VENTILATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM C. BETTS, M. D., of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Car-Ventilator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 is a side view of one of my improved ventilators as attached to a car-body.

Figure 2 is a top view of the same, the top plate being removed.

Figure 3 is a vertical longitudinal section of the same, taken through the line *x x*, fig. 2.

Figure 4 is an end view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to car-ventilators, and consists in a series of bent or U-shaped spring plates, which are provided with adjusting-bars whereby they may be adjusted to regulate the size of the spaces or openings between them; and

The invention also consists in combining with such plates perforated swinging valves or partitions, which are designed to arrest the dust that may accummulate in the angle of the plates.

The construction of the plates also enables them to change the direction of the entering currents of air, so that they may be discharged against the body of the air within the car in the same direction in which the car is moving.

The ventilator may be placed in the sides or top of the car, and may be placed in the openings in which the ordinary ventilators are placed. The outer side of the ventilators may project, and the inner side be flush with wall of the car-body; or the inner side may project and the outer side be flush with the surface of the wall, or both sides may be flush or both project slightly, the latter arrangement being preferable.

The curved plates B are designed to form recesses to receive the dust stopped by the perforated valve-plates F and change the direction of the entering currents of air, so that they may be discharged against the body of air within the car in the same direction in which the car is moving. But the especial reason for the inward extension of the plates B is to adapt the ventilator for use as an outlet-ventilator when the car is moving in the opposite direction.

A is the base-plate of the ventilator, to which are attached the middle parts of the plates B, the ends of each succeeding plate overlapping the sides of the preceding plate, as shown in fig. 2.

The plates B are made elastic, so that when left free they may spring outward and leave a space between them and the sides of the other plates, to allow the air to pass through freely.

C is a curved plate attached to the lower or base-plate A, and the sides of which are overlapped by the ends of the next plate B.

D are bars which extend along the outer sides of the curved plates B, and the rear ends of which are pivoted to the rear plate B near its rear end, or to some other convenient supports.

The forward ends of the bars D pass through keepers attached to the outer sides of the ends of the forward plate B, so that, by adjusting the forward ends of the bars D at a greater or lesser distance apart, the size of the passages between the plates B may be adjusted at will, or said passages may be entirely closed when desired.

The ends of the bars D are connected and held in position by the catch or connecting-rods E, which are pivoted to the end of the outer bar, and are made of wire sufficiently heavy, and bent into loops at suitable or equal distances apart, which loops serve as catches to catch upon the forward end of the inner bar, as shown in figs. 2 and 4.

The catch or connecting-rod E also serves as a handle for operating the outer bar in adjusting the plates B. The connecting-bar E may be used with advantage for various other purposes, as, for instance, for connecting and operating the slats of my window-ventilator, or the slats of a window-blind.

The bars D may be extended the entire length of the car, so that all the ventilators upon each side of the car may be adjusted at once and by the same movement of the said bars.

F are valves made of finely-perforated sheet-metal, and hinged, at their rear edges, to the middle part of the concave sides of the plates B, as shown in figs. 2 and 3.

The valves F are provided with stops f^1 attached to the concave sides of the outer parts of the plates B to prevent said valves opening outward so far that the current of entering air cannot get behind the said valves and close them.

The valves F are also provided with stops f^2, attached to the middle part of the convex sides of the plates B, for the valves F to bear against and prevent them from swinging any farther inward.

By this construction the entering air closes the valves F upon the stops f^2 and holds them there, the said valves stopping nearly all the dust, and, at the same time, dividing the air up and preventing its blowing into the car in a strong current.

G is the top plate of the ventilator, which I prefer

to make detachable, so that it may be removed to allow the collected dust to be conveniently removed from the ventilator.

In applying my ventilators to cars, the ventilators upon the two sides of the cars are arranged in reversed positions, so that the ventilators upon one or the other side of the cars may always have their openings forward, the openings of the other set of ventilators being rearward.

The set of ventilators with their openings forward always serve as ingress-ventilators, and the set with their openings rearward serve as egress-ventilators.

By this construction and arrangement, as the car moves forward either end foremost, its motion causes the air to pass into the outer ends of the passages between the plates B which air forces the valves F back against the stops f^2, and, passing through said valves, enters the car. As the car moves forward the forward movement of the egress-ventilators through the air tends to form a vacuum at the outer ends of the passages between the plates B, which causes the air to pass out from the interior of the car.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The combination of a series of curved elastic plates B with the bottom plate A and top plate G, to form an adjustable ventilator, substantially as herein shown and described.

2. The pivoted perforated plates or valves F and stops f^1 f^2 in combination with the curved elastic plates B, substantially as herein shown and described, and for the purpose set forth.

3. The pivoted bars D, in combination with the free ends of the curved elastic plates B, substantially as herein shown and described, and for the purpose set forth.

4. The wire catch or connection-rod E, constructed substantially as herein shown and described, and for the purposes set forth.

5. An improved car-ventilator, formed by the combination of the base-plate A, top plate G, curved elastic plates B, pivoted perforated valve-plates F, stops f^1 f^2, adjusting-bars D, and catch or connecting-rod E, with each other, substantially as herein shown and described, and for the purpose set forth.

The above specification of my invention signed by me this 25th day of May, 1870.

WILLIAM C. BETTS.

Witnesses:

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JAMES T. GRAHAM.