No. 787,126. PATENTED APR. 11, 1905.

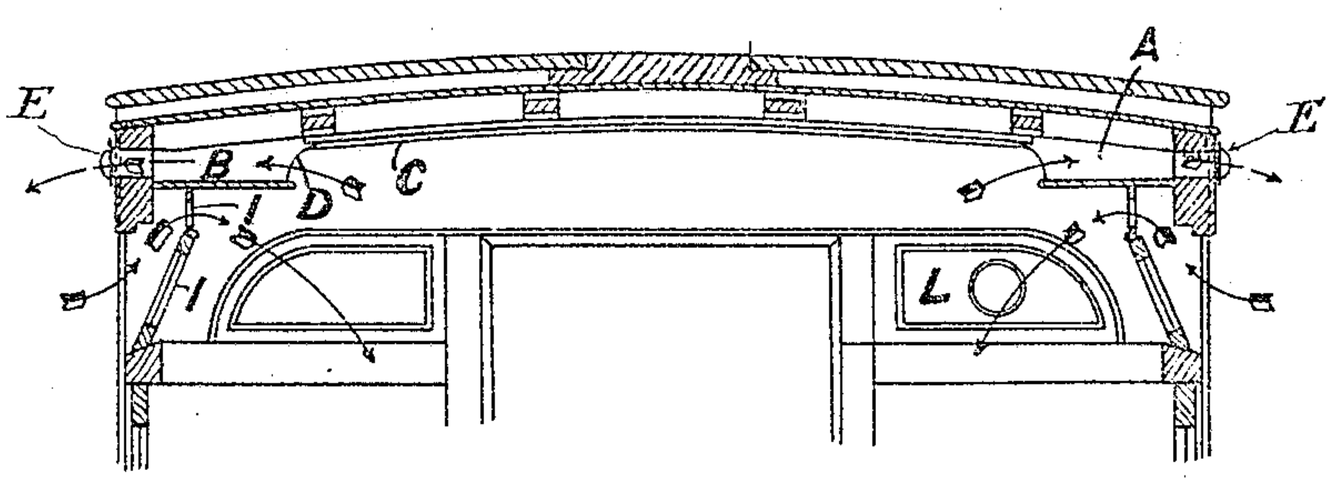
E. A. STANLEY & J. E. ANGER.

VENTILATING DEVICE FOR TRAM CARS OR OTHER VEHICLES.

APPLICATION FILED JAN. 4, 1904.

2 SHEETS—SHEET 1.

FIG. 1.



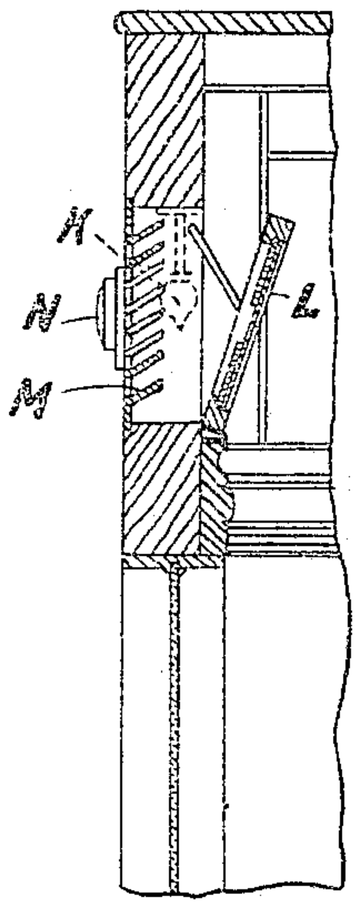


FIG. 3.

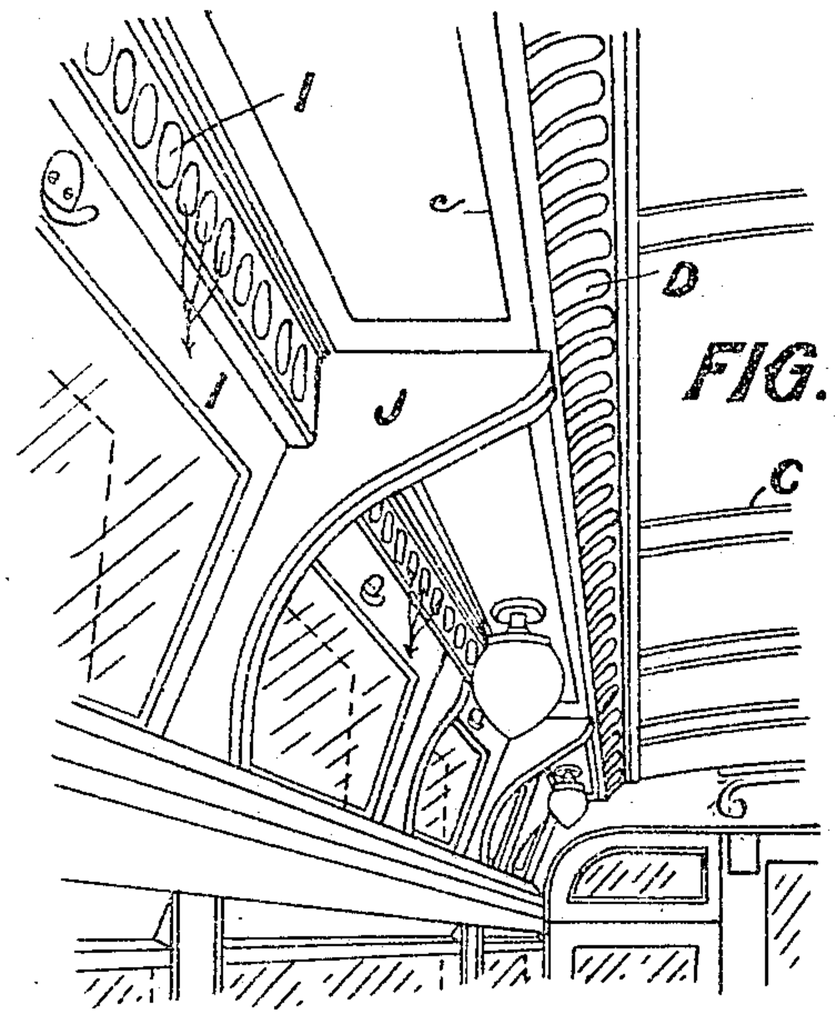


FIG. 2.

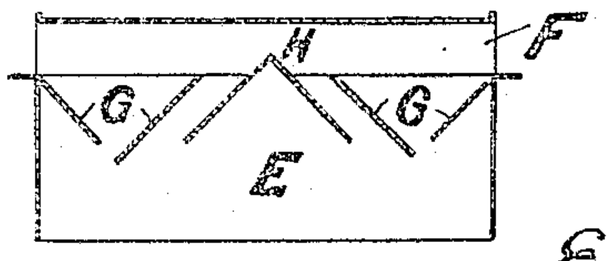


FIG. 4.

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2 SHEETS—SHEET 2.

Fig. 5.

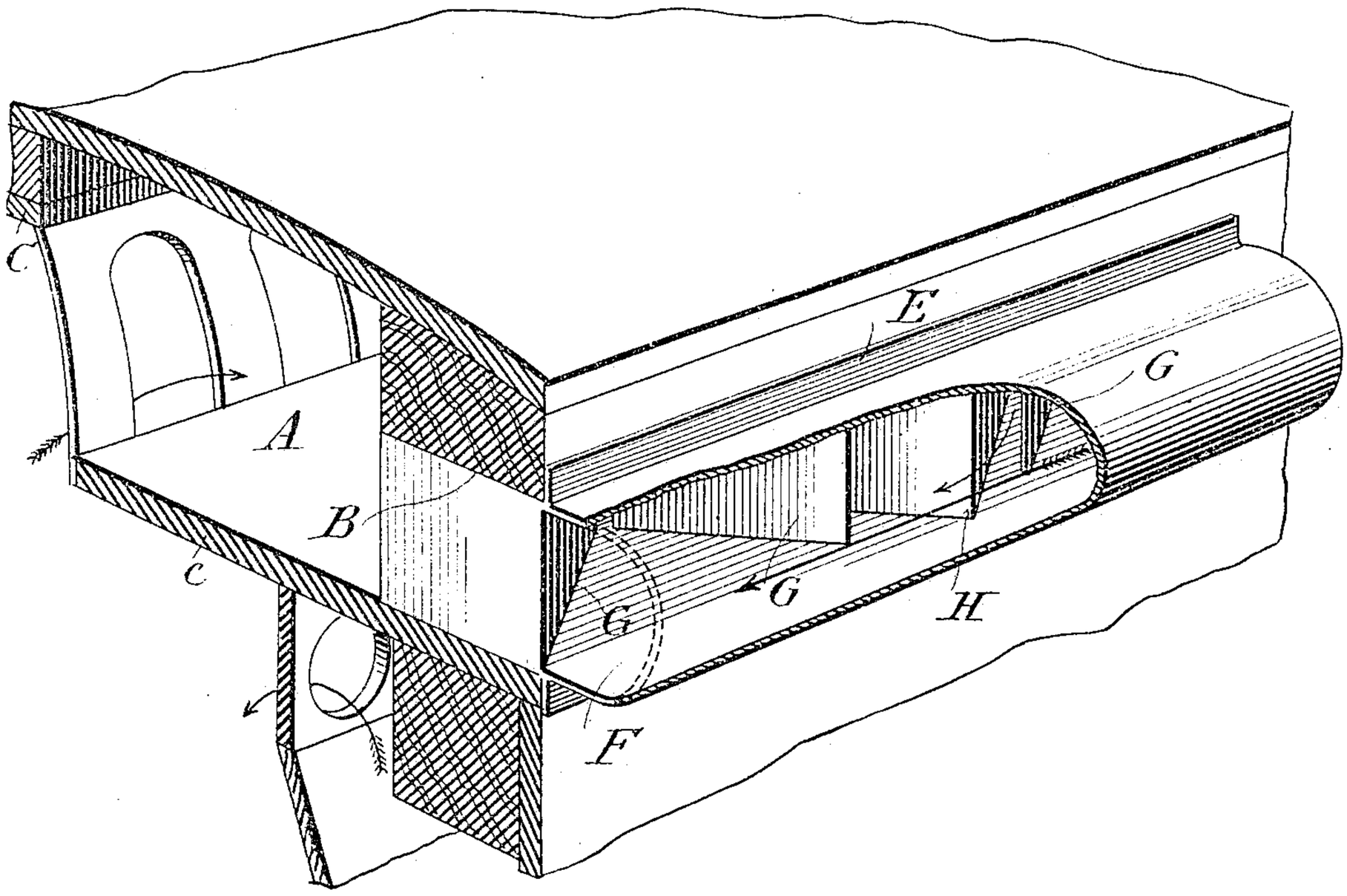
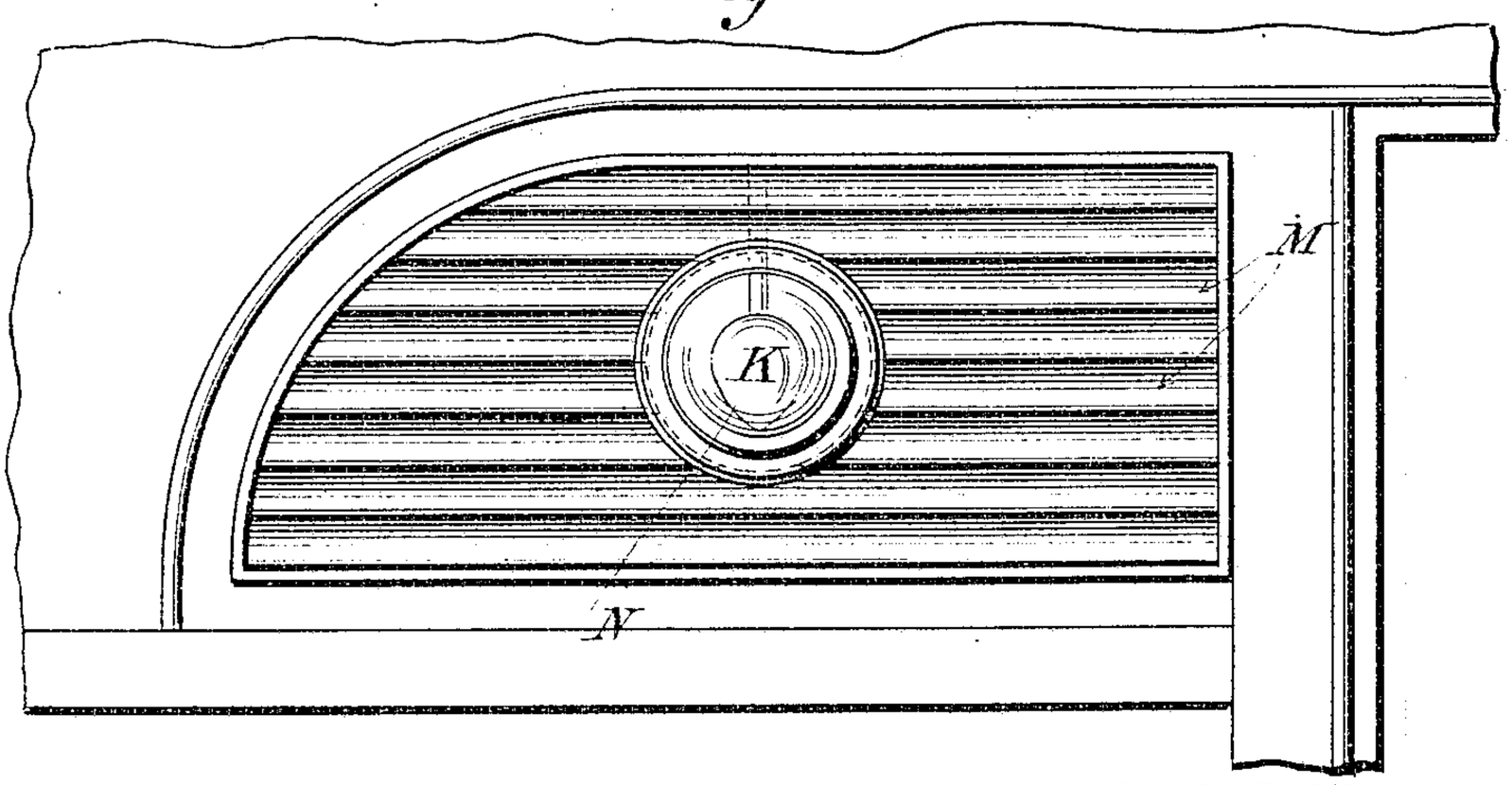


Fig. 6.



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No. 787,126. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

ETHELBERT ADOLPHUS STANLEY AND JOHN EDWARD ANGER, OF PRESTON, ENGLAND.

VENTILATING DEVICE FOR TRAM-CARS OR OTHER VEHICLES.

SPECIFICATION forming part of Letters Patent No. 787,126, dated April 11, 1905.

Application filed January 4, 1904. Serial No. 187,650.

To all whom it may concern:

Be it known that we, ETHELBERT ADOLPHUS STANLEY, general manager, and JOHN EDWARD ANGER, general superintendent, citizens of the United States of America, and residents of Preston, in the county of Lancaster, England, (whose post-office address is the Electric Railway and Tramway Carriage Works, Strand Road, Preston aforesaid,) have invented certain new and useful Improvements in Ventilating Devices for Tram-Cars or other Vehicles, (for which application has been made in Great Britain, No. 10,526, dated May 8, 1903,) of which the following is a specification.

This invention has for its object to improve the ventilation of tram-cars and other vehicles.

In the accompanying drawings, Figure 1 is a cross-section through the roof of the car; Fig. 2, a perspective view of the interior of the car; Fig. 3, a sectional view of the device for producing an exit-current of vitiated air; Fig. 4, a vertical section (fragmentary) through the inlet-ventilator at end of car. Fig. 5 is a perspective sectional view, on an enlarged scale, showing the device for controlling communication between the ventilating-boxes and the outside. Fig. 6 is an elevation, on an enlarged scale, of the signal-lamp and the air-admission louvers behind the same.

Referring to Figs. 1, 2, and 3, we place (as applied to tram-cars) along each side of the car, above the ordinary inlet-ventilators, one or more ventilating-boxes A. These boxes extend along the whole length of the car, and at intervals openings B are provided communicating with the outside. The boxes are formed by stopping short a part of the paneling C of the roof, thus obtaining a greater height for the boxes A than would otherwise be the case. The paneling *c* of the bottom of the box A is located somewhat below the paneling C of the roof, and the space D between the forward edge of the bottom of box A and the edge of the roof-paneling C is left open or fitted with perforated metal or other suitable material, so that the impure air in the car can freely enter into the boxes A and out through the openings B to the outside of the car. By using these boxes A therefore a drop-ceiling at sides is formed with recess or clearstory at center. In each of these openings is placed a device so arranged as to induce when the car is in motion an exit-current of vitiated air. It consists of a metal box E, fitting into each opening B, aforesaid. One end of this metal box is open to the ventilating-box A, aforesaid, while on the outside is a mouth or passage-way F, located in the direction in which the vehicle travels—that is, longitudinal—so that a current of air can freely pass through it when the car is in motion. Inside the metallic box E are vanes or louvers G, placed in a sloping position with suitable spaces between. These are arranged so as to slope in opposite directions on each side of the center, and at the center there is a ridge H, which projects somewhat into the longitudinal mouth or passage-way. The slope of the vanes or louvers is such that when the car is in motion the suction of the atmosphere passing through the mouth or passage-way F will have the effect of drawing the air out of the car through the ventilating-boxes and out between the vanes or louvers, the ridge H, above mentioned, being designed to act as a kind of shield which prevents the air-current flowing down the louvers into the ventilating-boxes from the outside. Whichever way the car is traveling the same effect will result, owing to the slope of the vanes or louvers G being reversed on one side of the ridge H to what it is at the other.

J represents brackets which support the boxes A at intervals.

The mode of action is as follows: Fresh cool air is admitted through the ordinary inlet-ventilators I and elsewhere and descends in the car, and as it becomes heated or vitiated it rises and passes into the ventilating-boxes A at each side, the current of air flowing through the mouths or passage-ways B on the outside setting up an induced current of air when the car is in motion, thus withdrawing the vitiated air and permitting the fresh air to flow in and supply its place. This insures a constant discharge of foul air, while preventing any draft taking place.

K is the signal-lamp, which is provided at each end of the car in the open space between the framing. At the rear of this I provide a glazed door L, which can be opened or closed. Adjacent the lamp K, I provide a series of louvers M, which permit of fresh air being admitted through the door L into the interior of the car, those at one end of the car acting when the car travels in one direction and those at the other end acting when it travels in the other direction. The louvers M are interrupted directly in front of the lamp K, so as to form a circular opening in the louver-frame, so as not to form any obstruction to the rays of light passing through the lens N. This inlet-ventilator can be opened or closed by the glazed door L.

We declare that what we claim is—

1. In a ventilating device for tram-cars and other vehicles, air-inlet openings in the sides of the car below the roof, a car-ceiling made with longitudinal ventilating-boxes placed along the interior of the roof longitudinally at each side immediately above the inlet-openings and somewhat below the paneling of the roof, apertures for admitting air from the car interior to the boxes, and apertures for leading air from the boxes to the outside of the car; said boxes forming a narrow drop-ceiling with ventilating-orifices.

2. In a side-wall ventilator for cars, the combination with a metallic conduit having a passage-way longitudinal with the direction in which the vehicle travels, and sloping louvers at each side of the center, of a ridge-piece projecting into the passage-way at the center so as to act as a check to prevent the air-current flowing down the sloping louvers.

3. In a ventilating device for tram-cars and other vehicles, the combination with the box or chamber at the ends of the car adapted to receive the signal-lamp, of downwardly-sloping louvers on the outside for admitting air to the chamber, said louvers being formed with an opening directly opposite the lamp to admit the rays of light through the lens, and a hinged door for closing the louvers.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

ETHELBERT ADOLPHUS STANLEY.
JOHN EDWARD ANGER.

Witnesses:
JAMES HASLAM,
THOMAS ECCLES GILL.