(No Model.)

S. LAZARUS.

MEANS FOR VENTILATING CARS.

No. 444,054. Patented Jan. 6, 1891.

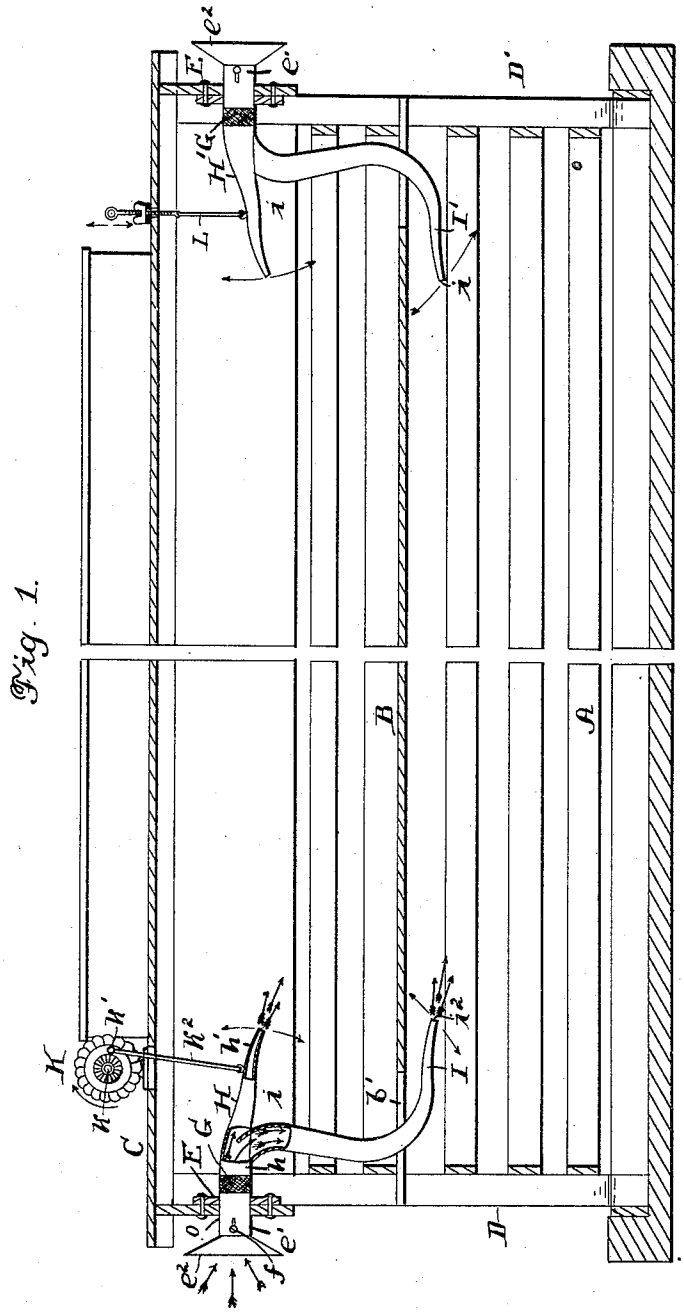

Fig. 1.

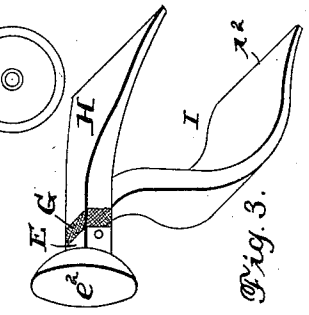

Fig. 3.

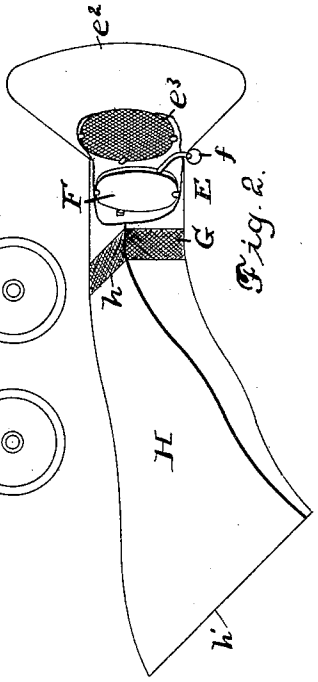

Fig. 2.

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UNITED STATES PATENT OFFICE.

SAMUEL LAZARUS, OF SHERMAN, TEXAS.

MEANS FOR VENTILATING CARS.

SPECIFICATION forming part of Letters Patent No. 444,054, dated January 6, 1891.

Application filed April 24, 1890. Serial No. 349,347. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL LAZARUS, a citizen of the United States, residing at Sherman, in the county of Grayson and State of Texas, have invented a new and useful Improvement in the Means for Ventilating Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification.

My object is, first, to ventilate cars or other vehicles in such a manner that the air-currents may be formed within and directed to any part of the car and the admission of the air regulated in quantity; second, to change the direction of the air-currents formed within the car and regulate their escape.

In the drawings, Figure 1 is a longitudinal sectional view of a car, showing an upper and lower compartment, the air-receiving pipes upon the outside of and also extending through the end wall at both ends of the car, and the vibrating air-distributers on the inside of the car connected with the receiving-pipes, and also the position of the deck in double-decked cars, and also showing an air-distributer extended beneath the lower deck. Fig. 2 is a view in perspective of the air-receiving pipe and single fan-shaped distributers removed from the car. Fig. 3 is a view of the air-receiving pipe and fan-shaped distributer and its auxiliary removed from the car.

Similar letters of reference indicate corresponding parts in all the figures.

A represents the lower deck of the car, and B the upper deck.

C is the roof of the car, and D represents one end and D′ the other of the body of the car.

In the end portion D of the car, a short distance below the line of roof C, and through the transverse opening e, is inserted a short section of pipe E, upon one end portion e' of which, outside of the car, is attached a dished air-receiver or scoop e^2. Upon said end portion e' of the pipe E, and covering the same, is a fine screen e^3. Between the screen e^3 and the other end of the pipe E, and within said pipe, is a pivoted pipe-closing damper F, with which is connected an operating-lever f, which lever extends transversely through said pipe. To the other end portion of the pipe E is attached one end of a flexible connection or elastic sleeve G, and to the other end portion of the sleeve G is attached the narrow end portion h of the extended fan-shaped distributer H, through which extends the fan-shaped opening h', and which distributer extends within the upper compartment of the car. To the under side portion of the distributer H, a short distance from the flexible connection G of the pipe E, is attached the upper narrow end i of a fan-shaped distributer I, which is similar to distributer H, and the other end i^2 of said distributer I extends in a downward direction through the longitudinal opening b^2 in the deck B of the car and is bent in a curved line of direction and extended the proper distance beneath the deck B and within the lower compartment of the car.

On the roof of the car is a motor K, having a driving-shaft k and a crank k' on said shaft, to which crank is connected one end of a wire rope or link k^2, the other end of which rope is connected with the vibrating distributer H. Through the other end of the car D′ is inserted in the same manner and nearly in the same horizontal line a similar ventilating apparatus, as hereinbefore described, with the upper distributer H′ and lower distributer I′, to which are pivotally connected the lower end of an adjustable rod L, a portion of the upper end of which is screw-threaded and passes through the screw-threaded swivel-nut in the roof C of the car.

The air in motion, either created by the movement of the vehicle or car or in any other manner, enters the concentering pipe E, thence passes to the distributers H I, and is deployed and distributed in all directions under such degree of force as the position of the damper E, which controls the admission of the air, is changed. The air so supplied to the car becomes heated, therefore rarefied, and seeks an exit from the distributer H at one end of the car and also from the car at the other end, and the fan-shaped distributers H I being of a sufficient width to gather the air air-currents are formed within the car and the distributers H I are vibrated by the action of the motor K, and the movements of the said

air-distributers are made to fan the air and create currents first near the roof C in the upper compartment and also near the deck B of the lower compartment and in opposite directions toward the respective decks B A. The position of the distributers H′ I′ at the other end of the car is then adjusted in either one or the other positions described by the vibrating fan-distributers H I, and the currents so formed are deployed and circulated along the deck of the car, which are taken from the overheated air in the top of the car or vitiated air near the decks A B and ejected from the vehicle or car through the distributers H′ I′. The car or vehicle may then be reversed and the end portion D′ presented to the opposing wind, and the distributers H′ I′ adjusted in position, and the currents of air made to rapidly change their direction in seeking an exit through the vibrating distributers H I. In this manner stock may be carried in cars and the pure air admitted and the currents thus formed beneath the stock and overheating of the stock prevented.

In ventilating cars and vehicles of all kinds the sides and ends may be open or closed. When used to transport stock, the stock obstructs in a measure the admission of the air when the sides of the car are open, and it therefore becomes foul. The distributers, however, diffuse the air which is admitted through the pipe E, and the cool air-currents in passing from the distributer draw the overheated air in an upward direction and circuitously from the deck B in the direction of the opening h' in the said distributer, and said distributer may also be extended in length therefor.

In ventilating passenger-cars one distributer, as seen in Fig. 3, is sufficient for overhead ventilation, and the position of such distributers may be changed to that near the deck, if preferred, and the air-currents carried in the direction of the decks from the upper portion of one end of the car to the lower portion of the other end of the car.

The screen e^3 is made of fine wire, which prevents foreign matter from entering the car through the air-distributing receiver, and the damper F not only serves to regulate the admission of the air in quantity but also prevents sand in sand-storms, which may pass through the screen, from entering the receiver.

Having fully described my invention, what I now claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the body of a vehicle having its walls provided with a suitable pipe-opening, of an air-receiving pipe provided with a screen upon its outer end, a hollow fan-shaped air-distributer having an opening within said walls connected with the inner end of said air-receiving pipe, and a pipe-closing damper in said receiving-pipe between said screen and said air-distributer, as and for the purpose described.

2. The combination, with the body of a vehicle having its walls provided with a suitable pipe-opening, of an air-receiving pipe, a hollow fan-shaped air-distributer provided with an opening within said walls, an intermediate flexible sleeve connected with the inner end of said receiving-pipe and also with said air-distributer, and means for vibrating said air-distributer, in the manner described.

3. The combination, with the body of a vehicle having its walls provided with suitable pipe-openings at each end and air-receiving pipes in said openings, of hollow fan-shaped air-distributers having openings within said walls and arranged at each end of the body of said vehicle, flexible sleeves connected with each respective air-distributer and air-receiving pipes, and means, substantially as described, for vibrating one air-distributer and adjusting the position of the other, as and for the purpose described.

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