No. 683,173. Patented Sept. 24, 1901.

# J. H. FRANCIS.

## VENTILATOR.

(Application filed Feb. 23, 1901.)

(No Model.)

Fig. 1.

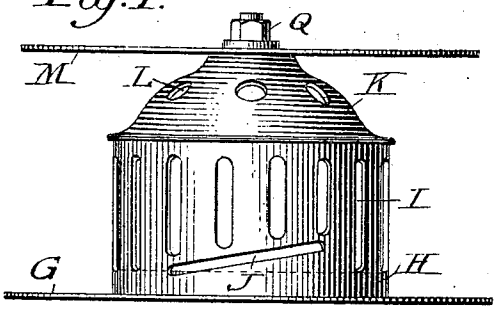



Fig. 2.

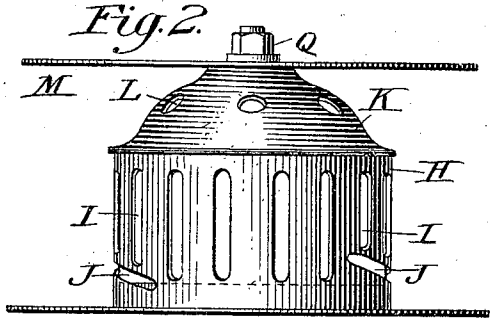



Fig. 3.

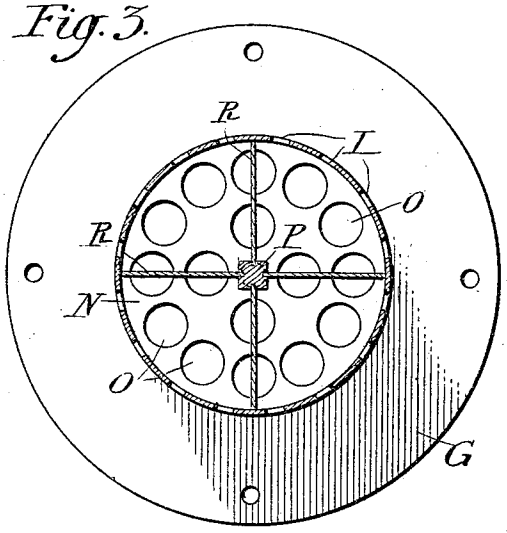



Fig. 4.

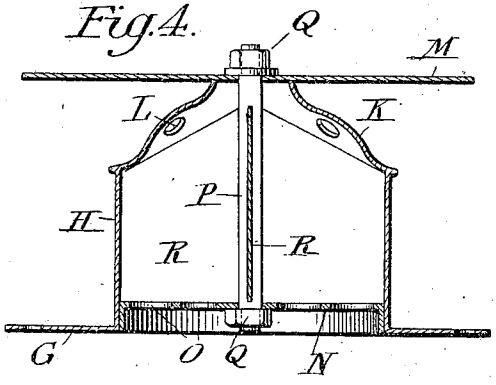



Fig. 6.

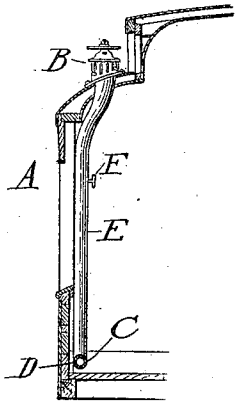
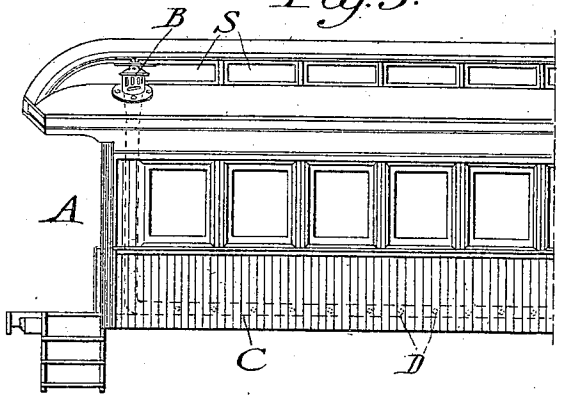



Fig. 5.




Witnesses:
D. W. Edelin.
Chas. H. Baker.

Inventor:
J. H. Francis.
By H. E. Stebbins, Atty.

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

# UNITED STATES PATENT OFFICE.

JAMES HENRY FRANCIS, OF NETTLETON, MISSISSIPPI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO PHIL BARBOUR JONES, OF NASHVILLE, TENNESSEE.

## VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 683,173, dated September 24, 1901.

Application filed February 23, 1901. Serial No. 48,615. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES HENRY FRANCIS, a citizen of the United States, residing at Nettleton, in the county of Lee and State of Mississippi, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

The object of my invention is the provision of means for ventilating buildings, steamboats, cars, &c., which shall be adapted to introduce pure air and to exhaust the foul or vitiated air, which shall be comparatively cheap in first cost and easily applied, and which withal will constitute a superior instrumentality for performing the desired functions.

With the above object in view my invention consists in certain novelties of construction and combinations of parts hereinafter set forth and claimed.

The accompanying drawings illustrate one example of the physical embodiment of my invention applied for ventilating a railroad-car and which constitutes the best of the several modes I have so far devised for the application of the principle.

Figure 1 illustrates an air-receiver adapted for use in connection with buildings or railroad-cars. Fig. 2 is a similar view to that shown in Fig. 1, but turned at right angles and illustrating the oblique slots in the sides of the cylindrical portion thereof. Fig. 3 is a horizontal sectional view of Fig. 1 shown in plan. Fig. 4 is a perpendicular section of Fig 2 shown in elevation. Fig. 5 illustrates the half of an ordinary passenger-coach with my ventilating means applied thereto. Fig. 6 is an end view in section of Fig. 5, showing one-half of the car in cross-section.

Referring to the several figures of the drawings, the letter A designates an ordinary passenger-coach, only one-half of which is shown, inasmuch as the half omitted is of substantially identical structure.

B designates the air-receiver as a whole; C, a pipe extending along one side of the car and below the line of the windows.

D represents a series of holes made on one side of pipe C and facing the wall of the car, so that the air which is discharged from the pipe will strike against the surface of the inside of the car.

E is a pipe which leads from the air-receiver to the distributing-pipe C and is of the general shape illustrated in Fig. 6.

F is a valve in pipe E for regulating the admission of air from the receiver.

G is the flange of the receiver, by which it is secured to the roof of the car.

H is the cylindrical portion of the receiver.

I represents perpendicular slots made in the cylindrical portion of the receiver.

J represents oblique slots, one on each side of the cylindrical portion.

K is the top of the receiver; L, a series of holes in the top of the receiver.

M is a horizontal shield for preventing snow, rain, and dust from entering the holes L in the top.

N is a plate fitting within the lower portion of the cylindrical part and provided with a flange.

O represents holes in the plate.

P is a threaded bolt; Q, nuts which clamp the shield and plate N together.

R represents air-deflectors, of which in this instance four are shown, located within the cylindrical portion of the receiver and secured to the bolt P in any desirable way, and S designates the ordinary adjustable transoms which are used in connection with the clearstory of the well-known type of passenger-car.

The operation of the ventilator is as follows: When the car is in motion, air passes in through the perpendicular slots of the receiver, strikes against the deflectors R, and is forced downwardly through the holes O into the pipe E and thence along the pipe C and out into the car, the air as it passes from said pipe C striking against the inside of the wall below the windows. The foul air is expelled through the transoms S at the top of the car, and there is thus present a continuous movement of air from the bottom toward the top and outwardly therefrom to the ex-

ternal atmosphere. It is of course to be understood that the other half of the car (not shown) is similar to that illustrated in Fig. 5 and that both air-receivers operate to receive and convey air downwardly into the pipe C at the same time.

While I have illustrated and described only one application of my system of ventilation, and that to a railroad passenger-car, I do not wish to restrict the scope of my invention to such embodiment, inasmuch as it can be applied with equal facility and benefit to buildings and steamboats. When applied to buildings, the deflectors R, being located at right angles to each other, will insure the downward passage of the air into the building or pipe in whatever direction the external air may be moving.

Modifications and changes may be introduced in the practical application of my invention which will not constitute substantial departures, and all such alterations I propose to embrace within the scope of my claims.

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

1. An air-receiver comprising a cylindrical body portion H made of metal and having slots I; a top K; a securing-flange G; a flanged plate N seated within the cylindrical body portion H, said plate being provided with holes O; a shield-plate M; and deflectors R supported by bolt P; the said bolt P being passed through the flanged plate N and shield M and the parts clamped together by a nut.

2. The combination with a car, of a pipe C extended along one side thereof and located adjacent the floor and side wall below the windows, said pipe having a series of holes D through the side of the pipe which faces the wall; two perpendicular pipes E one at each end of the pipe C and extending from said pipe C to the roof of the car; and two air-receivers B one at each end of the car and located over the open ends of pipes E, each of said air-receivers comprising a metallic body portion H having slots, a top K, a perforated plate N, and a bolt P, and deflectors R supported by bolt P; two of said deflecting-plates being located in a plane parallel with the length of the car, and the other two plates being located in a plane at right angles to the plane of the other two plates; whereby when the car is in motion the air will pass through the slots I, strike two of the deflecting-plates R of each air-receiver and be delivered downwardly into pipes E E and thence to pipe C simultaneously from opposite ends of the car.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES HENRY FRANCIS.

Witnesses:

W. B. FEEMSTER,

R. W. HANSELL.

Correction in Letters Patent No. 683,173.

It is hereby certified that Letters Patent No. 683,173, granted September 24, 1901, upon the application of James Henry Francis, of Nettleton, Mississippi, for an improvement in "Ventilators," was erroneously issued to the inventor, said Francis and Phil Barbour Jones, as owners of the entire interest in said invention; whereas said Letter Patent should have been issued to the inventor *James Henry Francis, and Benjamin Barry Coffey and Phil Barbour Jones, jointly*, said Coffey and Jones being the assignees by mesne assignments of two-thirds interest in said patent, as shown by the record of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 5th day of November, A. D., 1901.

[SEAL.]

F. L. CAMPBELL,
*Assistant Secretary of the Interior.*

Countersigned:

F. I. ALLEN,
*Commissioner of Patents.*