(No Model.)

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C. CLUTHE.

VENTILATOR.

No. 345,117. Patented July 6, 1886.

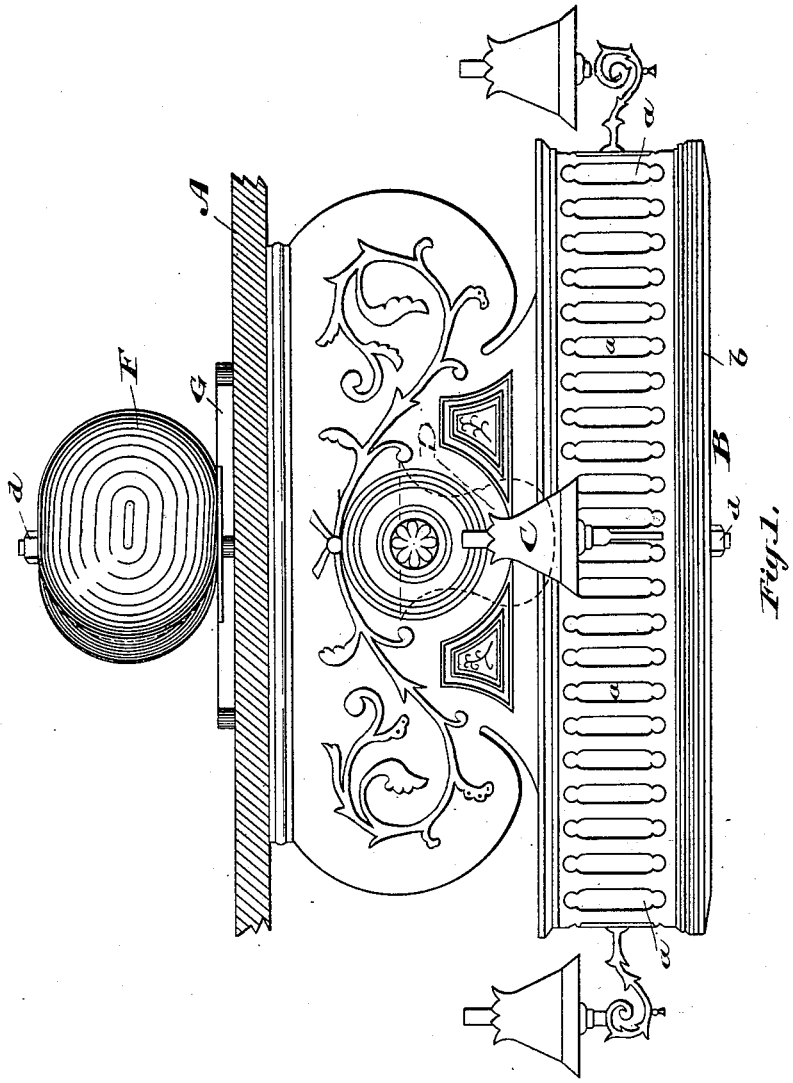

Fig. 1.

Witnesses.

James E. Maybee

J. M. Jackson

Inventor.

Charles Cluthe

by Donald C. Ridout & Co

Attys

(No Model.) 4 Sheets—Sheet 2.

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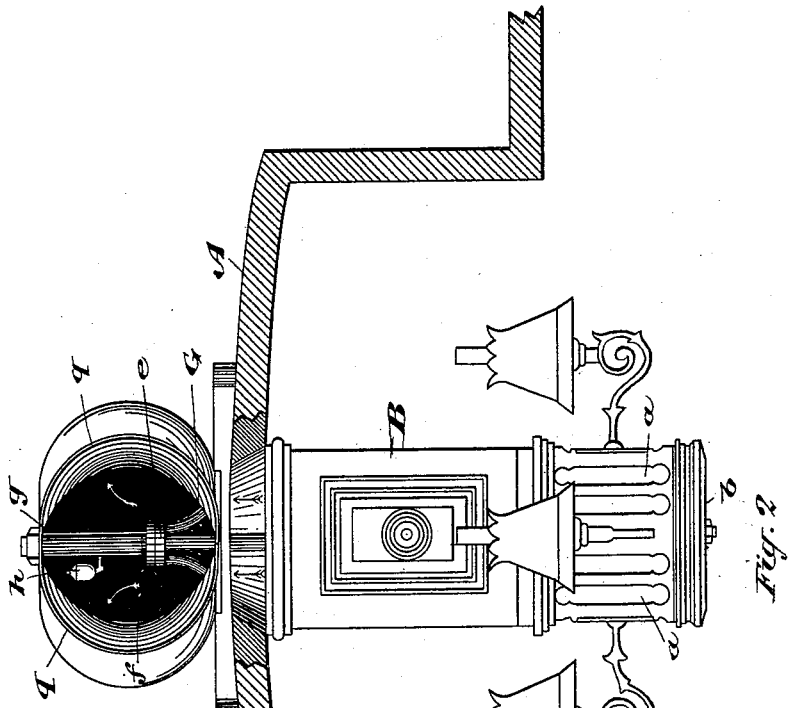

Fig. 2

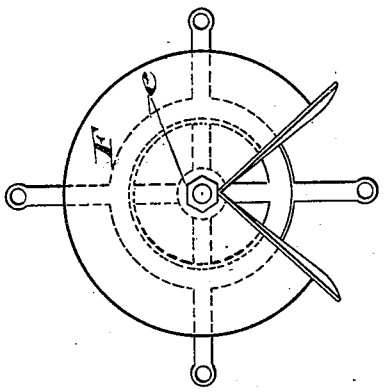

Fig. 3

Witnesses.

James E. Maybee

J. M. Jackson

Inventor.

Charles Cluthe

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Attys

(No Model.)

4 Sheets—Sheet 3.

C. CLUTHE.

VENTILATOR.

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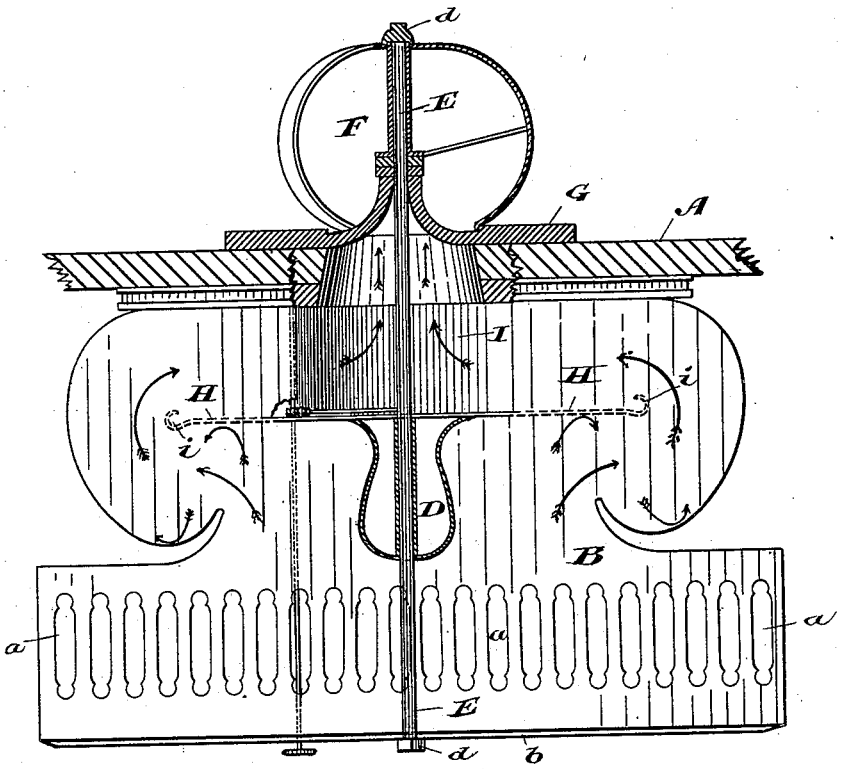

Fig. 3

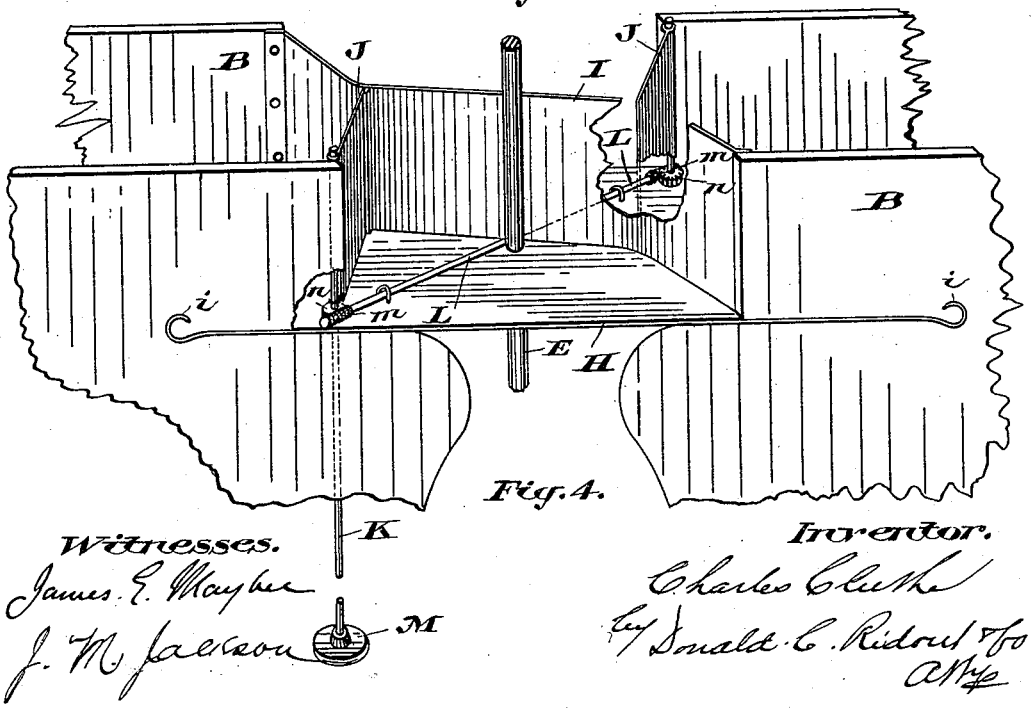

Fig. 4.

Witnesses.
James E. Mayhew
J. M. Jackson

Inventor.
Charles Cluthe
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(No Model.) 4 Sheets—Sheet 4.

C. CLUTHE.

VENTILATOR.

No. 345,117. Patented July 6, 1886.

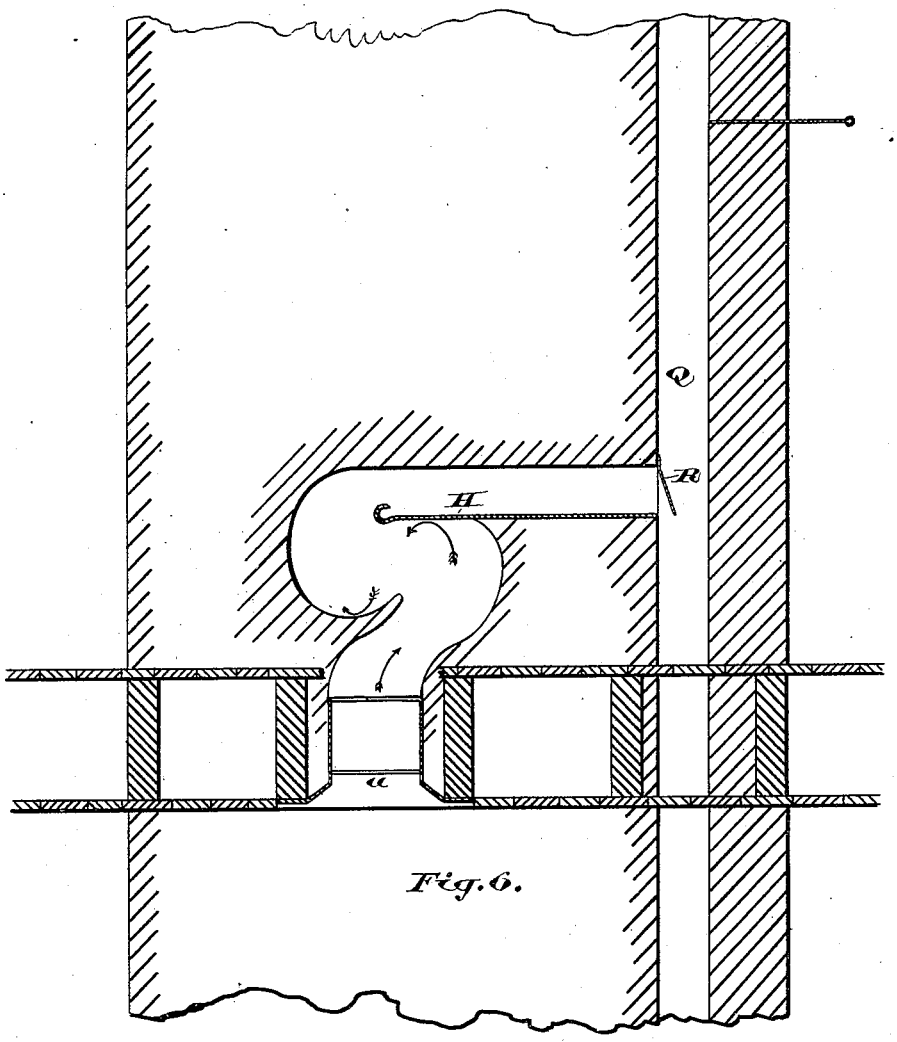

Fig. 6.

Witnesses.
James E. Maybee
J. M. Jackson

Inventor:
Charles Cluthe
by Donald & Ridout & Co.
Attys.

UNITED STATES PATENT OFFICE.

CHARLES CLUTHE, OF TORONTO, ONTARIO, CANADA.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 345,117, dated July 6, 1886.

Application filed February 13, 1886. Serial No. 191,860. (No model.) Patented in Canada March 2, 1886, No. 23,521.

To all whom it may concern:

Be it known that I, CHARLES CLUTHE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, manufacturer, have invented an Improved Ventilator, of which the following is a specification.

The object of the invention is to design a simply-adjusted ventilator which will draw off the foul air without producing any appreciable draft within the apartment; and it consists, essentially, of a hollow casing suspended from the ceiling of the car and having a series of openings around its base leading into a chamber formed within the casing, and which chamber has a horizontal partition extending across the full width of the chamber, but leaving an open space at either end, so that the air entering the holes in the base of the case must pass around either one end or the other of the partition in order to reach the upper portion of the chamber, from which it escapes through a revolving ventilator placed on the roof of the car, the whole being arranged and operating substantially as hereinafter more particularly explained.

Figure 1 is an outside side elevation of my improved ventilator applied to a railroad-carriage. Fig. 2 is an end view of the same. Fig. 3 is a sectional side view. Fig. 4 is a perspective sectional detail showing partition and doors. Fig. 5 is a detail of bracket G. Fig. 6 is a sectional view of my ventilator.

In the drawings like letters of reference indicate corresponding parts in each figure.

For illustrating my invention I have chosen its application to a railroad-carriage; but of course it will be understood that my ventilator will be of great value for ventilating all kinds of apartments.

A represents the roof of the carriage, and B the casing within which the ventilating-chamber is formed. It will be noticed that I utilize the base of the casing B for the support of the lamps C, which are fed with oil from the reservoir D, contained within the casing. A series of ornamental openings, *a*, are made around and through the base of the casing B, the bottom *b* of which is closed.

E is a bolt or rod extending from the bottom *b* to the top of the revolving ventilator F, a nut, *d*, being screwed onto each end of the rod E, as indicated, so as to support the bottom *b* and hold the revolving ventilator F in position. A suitable bracket, G, is supported on the roof A, and has a bearing-collar, *e*, formed on its top, to receive the bearing-collar *f*, attached to or forming part of the sleeve *g*, to which the ventilator F is attached. An oil-cup, *h*, is attached to the sleeve *g*, so that the bearing between the two collars *e* and *f* may be kept constantly lubricated.

H is a horizontal partition extending across the full width of the casing B, but stopping short of the full length of the said casing, the ends of the partition being curved, as indicated, for the purpose hereinafter specified, and the casing B is curved inwardly at both ends *i*, so as to form a break in the air-passage at each end of the casing between its base and the uppor portion of the chamber formed therein. As I have said, the ends of the partition H are bent upwardly, and it will be noticed that they extend beyond the curved end *i*. The portion of the chamber in the casing B above the partition H is divided by the diagonal partition I, (see Fig. 4,) so that the rear of the chamber is separated from its forward portion, so that the upward draft through the casing enters in two divisions into the revolving ventilator F. A hinged door, J, is placed on each side of the partition I, the hinges or spindles of the said doors being connected together, so that the two may be opened and closed simultaneously. This is effected, preferably, by extending one of the spindles K to the bottom of the casing B and placing a handle on the said spindle K. A horizontal rod, L, extends across the casing, and is provided with worms *m*, and engage with the worm-pinions *n*, placed upon and attached to the spindles K of the doors J. In this way the doors may be opened and closed simultaneously, and the opening in the casing increased, decreased, or cut off altogether, as circumstances may require.

Although I do not wish to confine myself to the peculiarly-shaped ventilator F, I shall proceed to describe briefly its construction, reserving to myself the right to alter my ventilating device by the substitution of some oth-

er form of the revolving portion of it. The ventilator F consists of a hollow ball with an open bottom, which fits immediately over the center opening of the casing B. An opening is also formed in the side of F, with flanges *q* on either side of its opening.

In order to explain the effect of my improved ventilator, I may mention that if a ventilator F were placed over a hole made in the top of the car an upward current would make a disagreeable and otherwise objectionable draft within the apartment, and it is to prevent this disagreeable draft that my invention is specially designed.

On reference to Fig. 3 it will be seen that air which enters the openings *a* will naturally be drawn toward the ventilator, but is first checked by impinging against the bottom of the partition H, and is also checked in passing around the curved ends *i*, and is further checked by the doors J, which may be fully or partially opened, according to the strength of the upward current desired, the partition I effectually separating the two upward currents, which finally escape through the revolving ventilator F.

In order to prevent cinders entering into the casing B, I sometimes place a netting over the opening between the said casing and the revolving ventilator F. If this screen is not placed in the position stated, any cinders entering the ventilator F will drop down on the partition H, the curved ends of which prevent them falling through; but in the event of a large accumulation of cinders which might fall over the said ends the cinders so falling over will drop into the recesses formed at each end of the casing by the curved ends *i*.

With the view of cleaning the cinders out, I form a hand-hole in the casing B. Any suitable means may be provided for indicating the position of the hinged doors.

By providing a casing, B, with openings *a* near its bottom, the air from the apartment is withdrawn some distance away from the ceiling of the car, leaving a warm stratum of air always at the top of the apartment, which tends to maintain an even temperature.

In Fig. 6 I show my ventilator adapted to connect with the ventilating-shaft of a house. In this application I prefer one large opening, *a*, instead of a series of openings, as shown in the other figures, and of course dispense with the revolving ventilator F, arranging the ventilator so that it will connect with the air-shaft Q, at which point I place a hinged partition or valve, R, designed to prevent any downward gusts in the air-flue from entering the apartment.

What I claim as my invention is—

1. A casing, B, having a series of openings, *a*, made in it near its base, and an opening at its top leading through the roof or ceiling of the apartment, in combination with a horizontal partition, H, located substantially as and for the purpose specified.

2. A casing, B, having a series of openings, *a*, made in it near its base, and an opening at its top leading through the roof or ceiling of the apartment, in combination with the partition H and diagonal partition I, substantially as and for the purpose specified.

3. A casing, B, having a series of openings, *a*, made in it near its base, and an opening at its top leading through the roof or ceiling of the apartment, in combination with the partition H, diagonal partition I, and hinged doors J, substantially as and for the purpose specified.

4. A casing, B, having a series of openings, *a*, made in it near its base, and an opening at its top leading through the roof or ceiling of the apartment, in combination with the partition H, diagonal partition I, and hinged doors J, operated by the spindles K, connected together by the rod L, worms *m*, and worm-pinion *n*, substantially as and for the purpose specified.

5. In a ventilator, a chamber provided with a horizontal partition, H, having an upwardly-curved end, an inlet to said chamber below said partition, and an outlet above the same, substantially as described.

6. In a ventilator, a chamber, a horizontal partition, H, dividing the same into two parts, an inlet into said chamber below said partition, and an outlet therefrom above said partition, combined with a hinged partition above said horizontal partition, substantially as and for the purpose specified.

Toronto, February 8, 1886.

CHAR'S CLUTHE.

In presence of—
CHARLES C. BALDWIN,
CHAS. H. RICHES.