

No. 700,572.

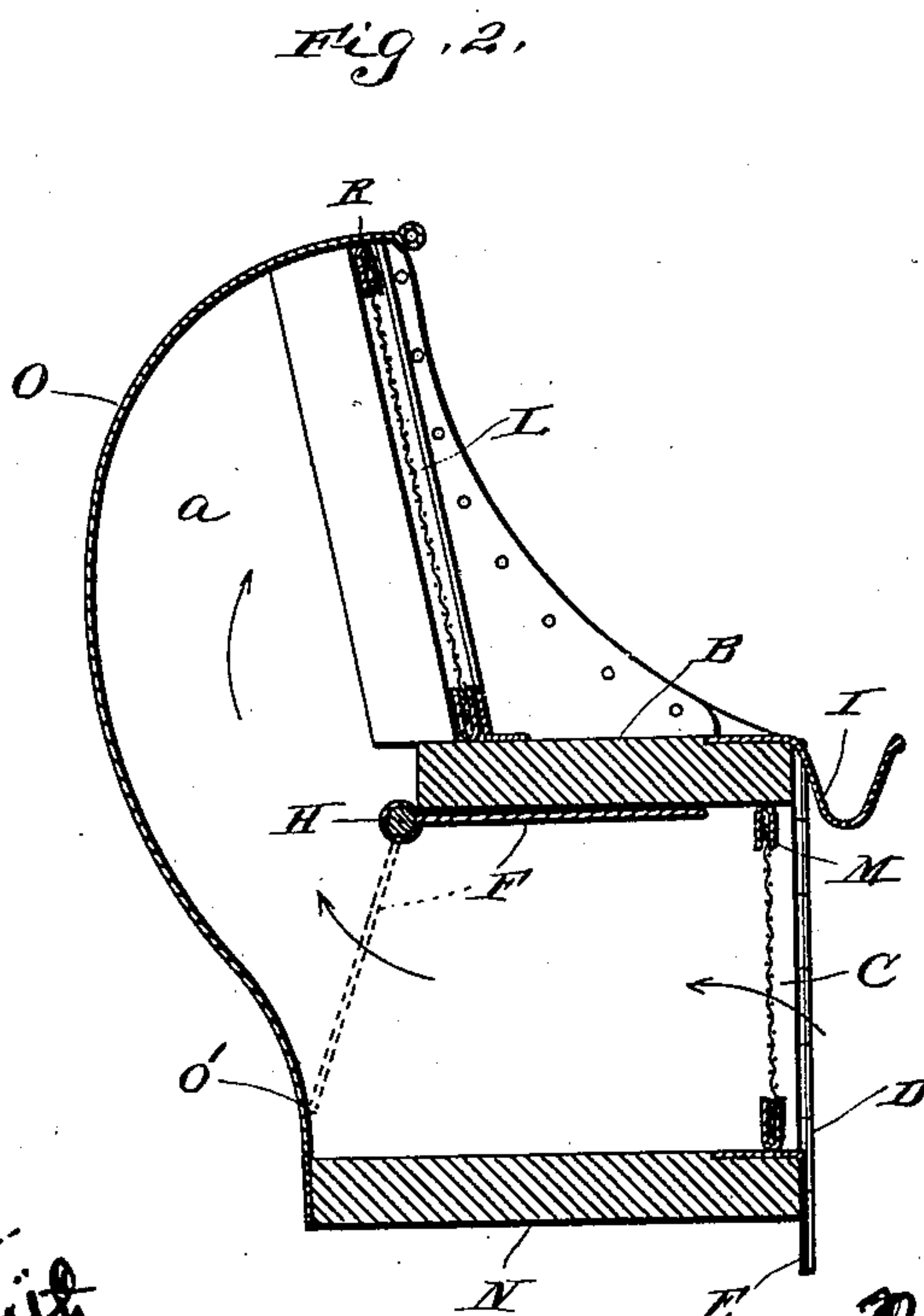
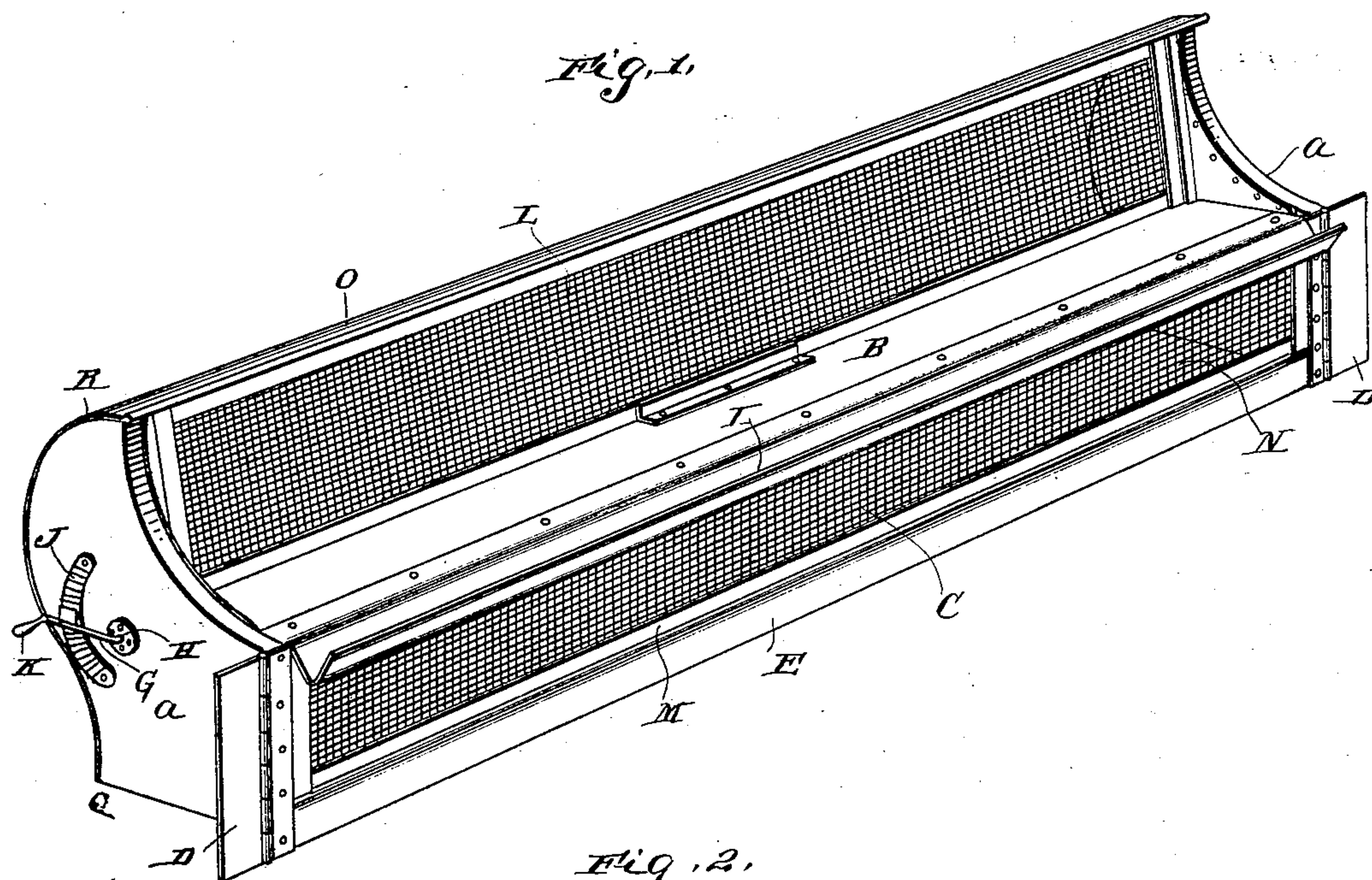
Patented May 20, 1902.

H. M. SMITH.

VENTILATOR.

(Application filed Jan. 31, 1901.)

(No Model.)



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VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 700,572, dated May 20, 1902.

Application filed January 31, 1901. Serial No. 45,476. (No model.)

To all whom it may concern:

Be it known that I, HARRY M. SMITH, a citizen of the United States, residing at Black River Falls, in the county of Jackson and State of Wisconsin, have invented new and useful Improvements in Ventilators Especially Adapted for Use for Ventilating Railway-Cars, Street-Cars, and Rooms, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

The primary object of my invention is to provide a simple, cheap, and economical construction of ventilator which shall provide for ventilating a car or room and at the same time act as a preventive against any dirt entering a room, or in case the ventilator is used in connection with railway-cars to prevent coal, cinders, &c., from entering the interior of the car, but yet permitting sufficient air to enter to provide for thorough ventilation, the said air passing upwardly and circulating over the head of a person seated within the car or room.

A further object is to provide an improved construction whereby the ventilator is always under the control of the person within the car or room, permitting said person to readily obtain as much or as little air as desired.

With the above primary and other incidental objects in view the invention consists of the devices and parts or their equivalents, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a perspective view of my improved ventilator, and Fig. 2 is a cross-sectional view thereof.

Referring to the drawings, the letter N indicates the bottom piece of the casing of the ventilator, *a a* the end pieces thereof, and O the back piece, which latter throughout the greater portion of its surface is preferably curved or bulged outwardly in order to enlarge the interior back air chamber or space. Arranged a desired distance above the bottom piece and parallel therewith is a horizontal partition B. The end edges of this partition are secured to the end pieces *a* of the casing, and the inner edge of said partition terminates short of the back piece of the casing, so as to leave a considerable space between said inner edge of the partition and the back piece. Between the under side of

the horizontal partition and the upper side of the bottom piece N a lower opening C is provided at the outer side of the casing. This opening is covered by means of a screen composed of wire-netting or other suitable reticulated fabric, said wire-netting or fabric being secured in a frame M, which frame in turn is secured between the horizontal partition and the bottom piece of the casing and between the end pieces of said casing by any desirable means, the screen and its frame extending the entire length and width of the opening C. Between the upper edge of the back piece O of the casing and the inner edge of the horizontal partition is formed another opening L, which is likewise covered by a wire-netting or other reticulated fabric secured in a frame R, which frame in turn is secured between the upper edge of the back piece and the inner edge of the horizontal partition and between the end pieces of the casing by any desirable means, the screen and the frame completely filling up the length and width of said opening.

Extending parallel with and longitudinally of the inner edge of the horizontal partition B is a rock-shaft H, said shaft being journaled in the end pieces of the casing and having one end extending outside of the end piece and being formed or provided with a crank G, which crank at its extremity is provided with a handle K. The crank is adapted to work over a toothed segment J, and said crank is provided with a suitable dog or other locking device adapted to engage with the teeth of the segment, and thereby hold the crank in the position to which it may be turned. Mounted upon the shaft H, within the casing, is a gate-valve F. In Fig. 2 this valve-gate is shown in full lines as turned upwardly against the under side of the partition B, the crank G having been turned to the proper position to secure this adjustment and held in such position by the engagement of the dog carried thereby with the toothed segment. In this position of the valve a full volume of air is permitted to pass through the opening C and into the casing. In dotted lines in Fig. 2 the gate-valve is shown as turned down to the limit permitted by contact of its free edge with the back of the casing, the point of contact being indicated by the letter O'.

In this adjustment the air from the outside is completely cut off from entering the interior of the car or room.

The letters D D indicate hinged leaves adapted to prevent dust from sifting in the space between the ends A of the casing and the sides of the window-frame. These leaves are hinged to the outer straight edges of the end pieces *a*. When the ventilator is being placed in position within a window-frame, the wings D will be turned at angles other than right angles to the end pieces *a a* and inserted into the vertical grooves in which the window slides, when the ventilator will be moved laterally until the wings D stand at right angles to ends *a a*. These wings may be of any desirable material; but I prefer to make them of metal.

Secured to the outer edge of the bottom piece N and depending therefrom, below the under side of said bottom piece, is a plate E, also preferably of metal and extending the entire length of the bottom piece. This projecting plate E fits the drop of the sill and serves to prevent dust and rain from getting beneath the ventilator.

Extending longitudinally of the outer edge of the partition B is a substantially V-shaped receptacle I, the inner edge thereof being flanged inwardly and extended a short distance over the top of the partition B. This flange forms a means of securing the receptacle to the partition. This receptacle or channel is preferably of metal of sufficient thickness to stand the weight of the window, which is pulled downwardly when the ventilator is positioned, and the lower bar of the window-sash fits in said receptacle. The peculiar V-shaped formation is given thereto for the reason that my device is more especially adapted for use in connection with car-windows, and the lower bar of car-window sashes is usually beveled slightly.

In the use of my invention the casing is positioned in the manner hereinbefore described, and the window is pulled down, so that its lower edge rests in the receptacle I. It will of course be understood that the opening C of the casing is outermost. The air will then take the course indicated by the arrows in Fig. 2—that is to say, it will pass through the wire-covered opening C, thence into the space between the partition B and the bottom N, thence upwardly into the space in the upper portion of the casing, thence through the wire-covered opening L into the space between the casing and the window, finally escaping upwardly over the upper portion of the back piece of the casing and into the interior of the car or room. It will of course be evident that by turning the crank G the valve F is caused to be adjusted, and thereby limit the amount of air passing through the ventilator and into the car or room, and by turning said valve to the dotted-line position in Fig. 2 the supply of air may be entirely cut off.

It will be seen from the foregoing description that my invention is capable of thoroughly ventilating a car and at the same time will keep out coal, cinders, or dust. It is at all times under the control of a person seated within a car or room, and said person is thereby enabled to secure as much or as little air as desired merely by raising or lowering the valve F. The ventilator can be made to fit any style of window without the necessity of altering the window frame or casing. It is furthermore simple and durable and contains very few parts liable to get out of order.

The parts of the ventilator can be made of any desirable material; but I prefer that the back piece be of suitable metal and that the bottom piece N, end pieces *a a*, and horizontal partition B be made of wood.

What I claim as my invention is—

1. In a ventilator, the combination with a casing consisting of a bottom piece, end pieces, and a back piece, said back piece having its upper edge bent over slightly, of a horizontal partition arranged above the bottom piece, and extending from end to end of the casing, and having its inner edge terminating short of the back piece, and beneath the bent-over upper edge of said back piece, a lower opening being formed between the under side of the horizontal partition and the upper side of the bottom piece for the entrance of the external air into the casing, and an upper opening being formed between the upper side of the partition and the bent-over upper edge of the back piece, the latter opening adapted for the escape of the air from the casing into the structure to be ventilated.

2. In a ventilator, the combination with a casing consisting of a bottom piece, end pieces, and a back piece, said back piece having its upper edge bent over slightly, of a horizontal partition arranged above the bottom piece and extending from end to end of the casing, and having its inner edge terminating short of the back piece, and beneath the bent-over upper edge of said back piece, a lower opening being formed between the under side of the horizontal partition and the upper side of the bottom piece for the entrance of the external air into the casing, and an upper opening being formed between the upper side of the partition and the bent-over upper edge of the back piece, the latter opening adapted for the escape of the air from the casing into the structure to be ventilated, and a device carried at the outer edge of the horizontal partition, and adapted for supporting the lower edge of a window.

3. In a ventilator, the combination with a casing consisting of a bottom piece, end pieces, and a back piece, said back piece having its upper edge bent over slightly, of a horizontal partition arranged above the bottom piece and extending from end to end of the casing, and having its inner edge terminating short of the back piece and beneath the bent-over

upper edge of said back piece, a lower opening being formed between the under side of the horizontal partition and the upper side of the bottom piece for the entrance of the external air into the casing, and an upper opening being formed between the upper side of the partition and the bent-over upper edge of the back piece, the latter opening adapted for the escape of the air from the casing into the structure to be ventilated, a rock-shaft at the inner edge of the horizontal partition, said shaft having one end extended outwardly and provided with a hand-crank, a gate-valve within the casing and mounted on the rock-shaft, and means carried by the end of the casing for locking the hand-crank thereto in adjusted position.

4. In a ventilator, a casing consisting of a bottom piece, end pieces, a back connected to the bottom piece and having its upper edge extending forward of the back of said bottom piece, and a partition extending longitudinally of said casing and from the front thereof toward said back; all arranged so that air may enter said casing between the bottom and the partition and leave between the partition and the upper edge of the back.

5. In a ventilator, a casing consisting of a bottom piece, end pieces, a back connected to the bottom piece and having its upper edge extending forward of the back of said bottom piece, a partition extending longitudinally of said casing and from the front thereof toward the back; all arranged so that air may enter said casing between the bottom and the partition and leave between the partition and the upper edge of the back; and a gate within said casing whereby the passage of air

through said casing may be wholly or partially choked as desired.

6. In a ventilator, a casing consisting of a bottom, ends and a back having its upper edge extending slightly toward the front of said casing, a partition arranged above the bottom and extending longitudinally thereof with its inner edge terminating short of the back and beneath the upper edge of the back; said parts arranged to form an opening for air admission between the partition and the bottom and an opening for air escape between the partition and the upper edge of the back; movable means in said casing for wholly or partially choking the passage of air through the ventilator, and mechanism for holding said means in different positions.

7. In a ventilator, a casing consisting of a bottom, ends and a back having its upper edge extending slightly toward the front of said casing, a partition arranged above the bottom and extending longitudinally thereof with its inner edge terminating short of the back and beneath the upper edge of the back, said parts arranged to form an opening for air admission between the partition and the bottom and an opening for air escape between the partition and the upper edge of the back; and movable means in said casing for wholly or partially choking the passage of air through the ventilator.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY M. SMITH.

Witnesses:

CHAS. F. HILLE,
C. C. DUNN.