J. FRUMVELLER.

VENTILATOR.

APPLICATION FILED OCT. 31, 1913.

1,150,184.

Patented Aug. 17, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

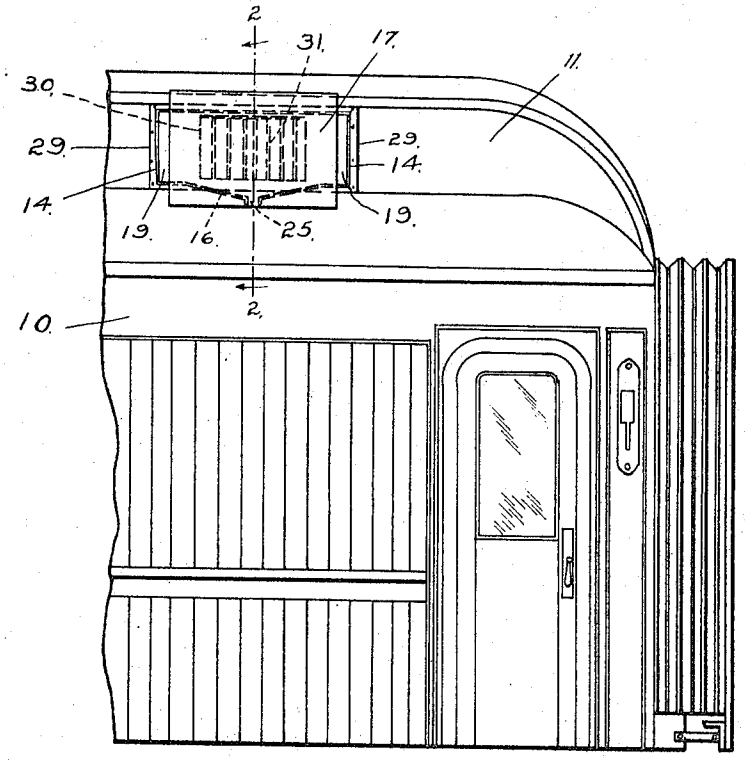
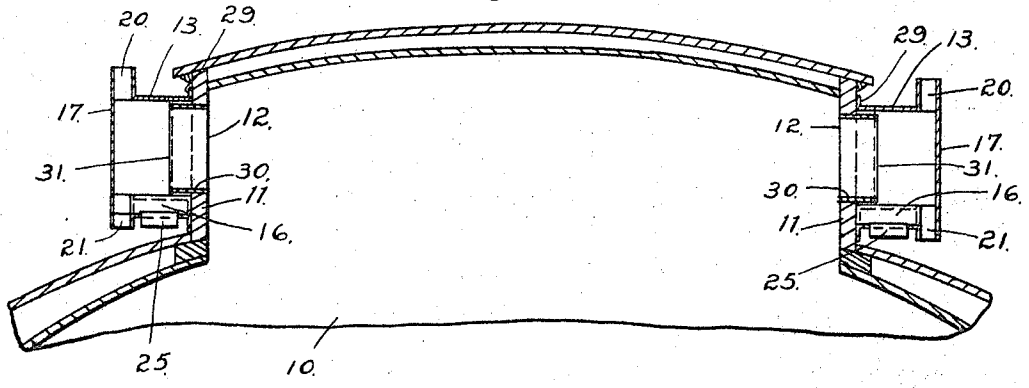


Fig. 2.



WITNESSES:

H. M. Gillespie

J. B. Lagorio

INVENTOR.

Joseph Frumveller

BY

Barnett & Truman

ATTORNEY.

J. FRUMVELLER.

VENTILATOR.

APPLICATION FILED OCT. 31, 1913.

1,150,184.

Patented Aug. 17, 1915.

2 SHEETS—SHEET 2.

Fig. 3.

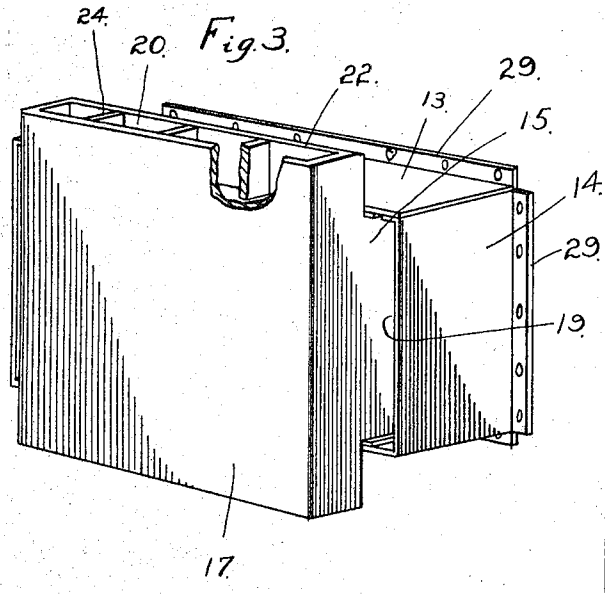


Fig. 4.

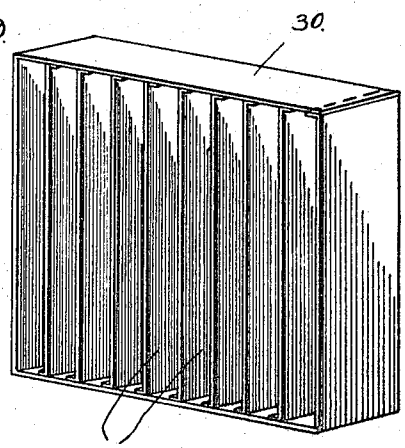


Fig. 5.

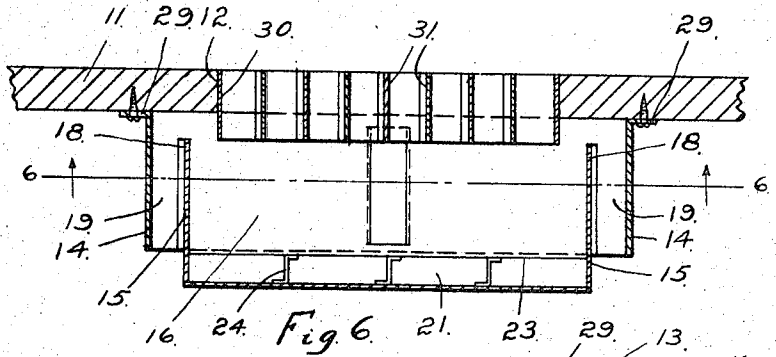
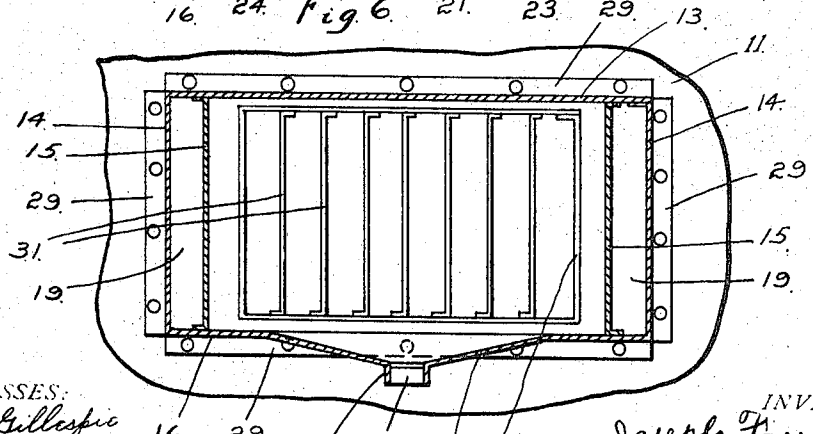


Fig. 6.



WITNESSES:

H. M. Gillespie

J. B. Lagorio.

INVENTOR.

Joseph Frumveller

BY Barnett & Truman

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH FRUMVELLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO EGBERT H. GOLD, OF CHICAGO, ILLINOIS.

VENTILATOR.

1,150,184. Specification of Letters Patent. Patented Aug. 17, 1915.

Application filed October 31, 1913. Serial No. 798,508.

To all whom it may concern:

Be it known that I, JOSEPH FRUMVELLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

My invention relates to the ventilation of railway cars and the principal object of the invention is to provide, in a car ventilator of the type operating to withdraw foul air from the car by producing a vacuum or partial vacuum in the discharge passageways of the ventilator by air pressures against externally exposed surfaces, certain novel and improved arrangements and constructions whereby a very strong exhaust is produced through the device, back drafts and the entrance into the car of cinders, dust, rain, and the like, is prevented, and whereby the proper operation of the ventilator is secured and made certain regardless of the direction of the wind and the direction in which the car may be moving.

The invention has for a further object to provide such other novel and improved devices relating to ventilators as will be hereinafter described and claimed.

The invention is illustrated, in a preferred embodiment, in the accompanying drawings wherein—

Figure 1 is a fragmentary side elevation of the upper portion of a passenger car shown as fitted with a ventilator constructed in accordance with my invention. Fig. 2 is a cross sectional view taken on line 2—2 of Fig. 1; Fig. 3, a view, in perspective, of the ventilator with certain parts broken away, Fig. 4, a perspective view of the slatted structure forming part of the ventilator, the function of which is to prevent cinders and other foreign matter from entering the car through the exhaust opening, Fig. 5, a sectional plan of the ventilator shown as attached to the deck sash of the car, and Fig. 6, a vertical sectional view taken on line 6—6 of Fig. 5.

Like characters of reference designate like parts in the several figures of the drawings.

Referring to the drawings, 10 designates a railway passenger car of ordinary construction.

The deck sash 11 of the car is provided with the usual transom opening 12. The ventilator is placed over this opening. It consists, preferably of a box-like structure secured to the outside of the deck sash with its open side over the opening 12 and a slatted structure arranged in said opening. The outer structure may be said to consist of a top wall 13, end walls 14, 15, a bottom 16, and an outer imperforate face 17. The forward portion of this structure, that is, the part constituted by the end walls 15 and outer face 17, is narrower but has a greater vertical dimension than the back portion of the structure made up by the top 13, end walls 14 and bottom 16, the end walls 15 projecting within the back structure parallel with walls 14, as indicated at 18 so as to provide passageways 19 which lead into the interior of the ventilator. The forward portion of the structure is open at top and bottom, providing passageways 20, 21 leading into the interior of the ventilator from the top and bottom of the device respectively, these passageways being defined on the inside by walls or flanges 22, 23, respectively, the structure at these places being preferably braced by struts 24 which act also as deflecting vanes. The bottom 16 is preferably formed at the center with an opening 25 surrounded by a flange or collar 26, the bottom preferably being sloped toward the opening 25 as shown in Fig. 6. The bottom member 16, the top member 13 and end members 14 are formed with out turned flanges 29 by means of which the device may be secured to the deck sash of the car.

The slatted deflecting structure above referred to consists preferably of a frame 30, the shape and proportions of which may conform to the shape and proportions of the opening 12 in the deck sash, and of a plurality of slats or vanes 31 which are preferably vertically arranged. This structure fits into the opening in the deck sash and is

preferably made wide enough so that it projects into the outer or box-like structure above described.

The operation of the ventilator above described is as follows: When the car is in motion drafts are created across the open ends of the passageways 19 at the side of the imperforate outer face 17 and also to a certain extent across the ducts or passages 20, 21 although these latter ducts are preferably made somewhat narrow so as to avoid the danger of dust, cinders, and the like, getting into the car. These drafts tend to create a vacuum in the interior of the ventilator which results in exhausting the air from the car through opening 12 in the deck sash. The wind blowing across these openings will effect the same result produced by the artificial draft due to the movement of the car. The construction of the device is such that cinders, dust, rain, and the like cannot be blown into the car through the exhaust passages. If any such foreign matter should get into the interior of the ventilator it will be baffled by the deflecting vanes 31 and discharged out of the ventilator through the opening 25. The forward or outer portion of the ventilator is made to project above the back portion in order that the exhaust passageway leading into the ventilator through the top opening in such forward portion of the ventilator may be affected by a wind or draft sweeping across the top of the car; the purpose of my invention being to provide a ventilator so constructed that it will operate to produce an exhaust from the car regardless of the direction of the wind or air draft in the vicinity of the ventilator.

While I have described my invention as embodied in certain preferred constructions, it will be understood that modifications might be made without departing from the spirit of my invention. Therefore I do not intend to limit the invention to the particular devices, constructions and arrangements shown and described except so far as certain of the claims are specifically so limited.

I claim:

1. A ventilator comprising a box-like structure, having an open side adapted to communicate with an opening in the wall of a compartment to be ventilated, and an open outer side, a second box-like structure having imperforate ends and an imperforate outer face and telescoped within but projecting from the open outer side of said first-named box-like structure so as to provide exhaust passages at opposite sides thereof leading between said structures from the interior thereof to the external air, said second box-like structure being provided with openings at the top and bottom of the projecting portion thereof and communicating with the open side of said first-named box-like structure.

2. A car ventilator comprising a box-like structure, provided with an opening adapted to communicate with an opening in the wall of a car and having imperforate top, and end walls, of a second box-like structure telescoped within said first-named structure and communicating with the interior thereof, said second structure having an imperforate outer face, two oppositely arranged imperforate walls and two perforate walls providing exhaust passages communicating with the interior of said first-named structure, said perforate and imperforate walls projecting beyond said first-named structure, the two box-like structures being of such relative dimensions as to also provide passages at opposite ends thereof between the two structures, said passages extending from the interior of said structures outwardly in a direction at an angle to said first-named passages.

3. A ventilator comprising a box-like structure having an open side adapted to communicate with an opening in the wall of a compartment to be ventilated, and an open outer side, a second box-like structure having imperforate ends and an imperforate outer face and telescoped within but projecting from the open outer side of the first named box-like structure both outwardly therefrom and above and below the same, so as to provide exhaust passages at opposite sides thereof leading between said structures from the interior thereof to the external air, said second box-like structure being provided with openings at the top and bottom of the projecting portion thereof and communicating with the open side of said first named box-like structure.

4. A ventilator comprising a box-like structure having an open side adapted to communicate with an opening in the wall of a compartment to be ventilated, an open outer side and a hopper-like bottom formed with a discharge opening, a second box-like structure having imperforate ends and an imperforate outer face and telescoped within but projecting from the open outer side of said first named box-like structure so as to provide exhaust passages at opposite sides thereof leading between said structures from the interior thereof to the external air, said second box-like structure being provided with openings at the top and bottom of the projecting portion thereof and communicating with the open side of said first named box-like structure.

5. The combination with a car having a substantially vertical wall provided with an opening therein, of a ventilator comprising a box-like structure having an open side adapted to communicate with the opening in said wall, and an open outer side, a second box-like structure having an open inner side, imperforate end faces and an imperforate

outer face, and being telescoped within but projecting from the outer open side of said first named box-like structure so as to provide exhaust passageways at opposite sides thereof leading between said structures from the interior thereof to the external air; the projecting portion of said second box-like structure being open at the top and bottom, and means arranged in the opening in said car wall for obstructing drafts into the car through the ventilator.

JOSEPH FRUMVELLER.

Witnesses:
L. A. FALKENBERG,
G. Y. SKINNER.