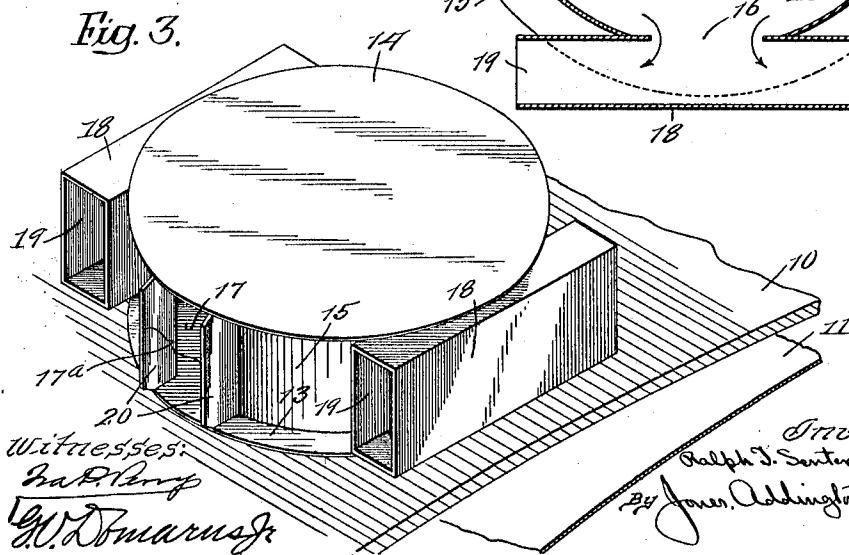
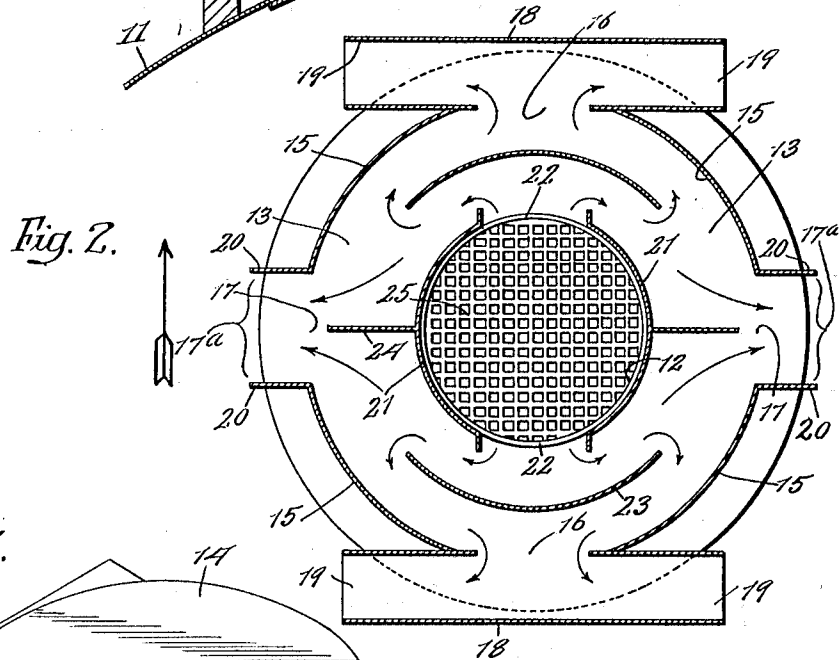
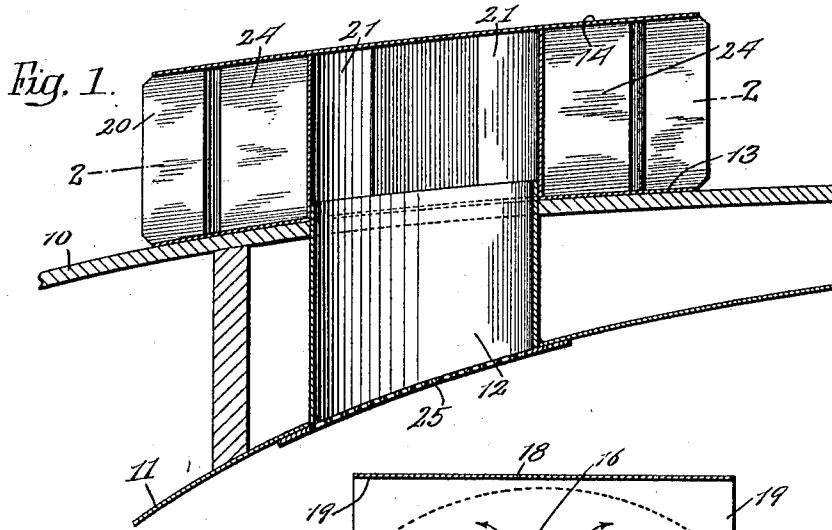


R. T. SENTER & L. A. KLING.
VENTILATOR.
APPLICATION FILED AUG. 2, 1911.

1,039,201.

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UNITED STATES PATENT OFFICE.

RALPH T. SENTER, OF BUFFALO, NEW YORK, AND LOUIS A. KLING, OF ELIZABETH, NEW JERSEY, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE NEAR-SIDE CAR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

VENTILATOR.

1,039,201.

Specification of Letters Patent.

Patented Sept. 24, 1912.

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To all whom it may concern:

Be it known that we, RALPH T. SENTER and LOUIS A. KLING, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, and at Elizabeth, in the county of Union and State of New Jersey, respectively, have invented new and useful Improvements in Ventilators, (Case C,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention pertains to ventilators, and especially to ventilators for use upon the roofs of passenger cars, particularly trolley cars and other cars which are run at a comparatively low speed.

It is the principal object of our invention to provide a ventilator which will have a considerable exhaustive power when the relative movement between it and the air is comparatively low; and it is a further object of our invention to provide a ventilator of this character which will be of a simple and durable construction, and which will satisfactorily meet the various practical requirements for such devices.

A ventilator constructed in accordance with our invention is described in the following specification and shown in the accompanying drawings, in which—

Figure 1 is a sectional elevation of the ventilator and a portion of the roof of the car; Fig. 2 is a sectional plan, the section being taken on the line 2—2 of Fig. 1; and Fig. 3 is a perspective view of the ventilator.

Referring to the drawings, 10 indicates the upper deck of a passenger car, which, with the lining 11, forms the roof of the car, the lining being spaced away from the deck in the ordinary manner. The deck 10 and lining 11 are formed with registering flue openings in which is mounted a cylindrical flue pipe 12, the upper end of which extends somewhat above the surface of the deck 10.

Surrounding the upper end of the flue pipe 12 and lying upon the deck 10, is a circular plate 13, between which and a corresponding circular plate 14 disposed immediately above it, are placed four arcuate vertical walls 15 disposed somewhat within the peripheries of the plates 13 and 14. These

walls 15 are so disposed as to provide a pair of apertures 16 opening toward the front and rear of the car, and a pair of apertures 17 opening toward the sides of the car. Mounted between the plates 13 and 14, and extending transversely across the apertures 16, with which they communicate, are two rectangular open-ended tubular boxes 18, the arrangement being such that the mouths 19 of the boxes open toward the sides of the car. The walls 15 are provided with outwardly extending flanges 20 on each side of the apertures 17, whereby a pair of rectangular mouths 17^a facing toward the sides of the car are provided at this point also. It will thus be seen that the top of the flue 12 is surrounded by an otherwise closed casing which is provided with four mouths 19 and two mouths 17^a, all of which mouths face toward the sides of the car. The effect of this construction is that when the car is moving, the air moving past the mouths 19 and 17^a will produce a suction within the casing formed by the plate 14 and the walls 15, with the result that air will be drawn out from the car through the flue 12.

A pair of curved walls 21 are placed between the plates 13 and 14, around the top of the flue 12. The walls 21 form an extension of the flue, and their ends are spaced apart so as to provide a pair of apertures 22, these apertures being in line with the apertures 16, *i. e.*, facing toward the front and rear of the car. The walls 21 are flanged outwardly at their ends in order better to direct the air currents.

In order that the air currents issuing from the flue may be split up and properly directed toward the apertures 16 and 17, a pair of curved baffle plates 23 are placed between the apertures 16 and 22; and a pair of transversely disposed walls 24, extending outwardly from the walls 21, are provided adjacent the apertures 17. The baffle plates 23 and the walls 24 have the effect of splitting the air currents issuing from the apertures 22, and turning them into the proper direction for enabling them to pass out through the mouths 19 and 17; so that, by this means eddy currents are to a large extent avoided.

It will be noted that the tubular boxes or hollow members 18 form laterally extending mouths for the openings of the casing which

surrounds the flue extension. Consequently, the openings 16, as well as the openings 17, have their mouths directed toward the sides of the car and transverse to the line of its movement, thus presenting flat surfaces to the air currents. Further, it will be noted that the flanges forming the mouths for the openings 17 project beyond the ends of the tubular boxes 18. As the result, in whichever direction the car may be moving the air currents will first strike the flat surface presented by the forward tubular box 18, will be deflected about the ends of this box and across the mouths formed thereby and will then impinge against the flanges forming the laterally extending mouths for the opening 17 and be diverted across these mouths, thus producing a strong suction action at all the openings and causing an efficient ventilation within the car.

During the use of the ventilator, cinders and other foreign particles are liable to find their way through the ventilator into the flue 12, and in order to prevent such particles from entering the car, I provide the flue 12, at its lower end, with a screen or grille 25 (Fig. 1).

In cars of the type in which the sash, when raised, enters the roof of the car the flue pipe 12 may be omitted between the deck and lining, to allow for the movement of the sash.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a ventilator, a flue having an extension provided with openings facing the front and rear of the car, and a casing surrounding such flue extension, said casing having openings facing the sides of the car and also having laterally projecting flanges at the sides of said openings.

2. In a ventilator, a flue having an extension provided with openings facing the front and rear of the car, a casing surrounding such flue extension, said casing having openings facing the sides of the car, and means for directing the air currents issuing from such flue extension toward the openings of said casing.

3. In a ventilator, a flue having an extension provided with an opening facing one end of the car, a casing surrounding such flue extension and having an opening in alinement with the opening thereof, and a hollow member having an opening facing toward the side of the car, said hollow member communicating with said casing through the opening in the latter.

4. In a ventilator, a flue having an extension provided with an opening facing one end of the car, a casing surrounding such flue extension and having an opening in alinement with the opening thereof, a hollow member having an opening facing

toward the side of the car, said hollow member communicating with said casing through the opening in the latter, and a baffle plate interposed between the opening of said extension and the opening of said casing.

5. In a ventilator, a flue having an extension provided with an opening facing one end of the car, a casing surrounding such flue extension and having an opening in alinement with the opening thereof and a second opening facing toward the side of the car, and a hollow member having an opening facing toward the side of the car, said hollow member communicating with said casing through the first-named opening thereof.

6. In a ventilator, a flue having an extension provided with an opening facing one end of the car, a casing surrounding such flue extension and having an opening in alinement with the opening thereof and a second opening facing toward the side of the car, a hollow member having an opening facing toward the side of the car, said hollow member communicating with said casing through the first-named opening thereof, and a baffle plate interposed between the first-named opening of said casing and the opening of said flue extension.

7. In a ventilator, a flue having an extension provided with openings facing the front and rear of the car, a casing surrounding such flue extension and having openings in alinement with the openings thereof and other openings facing toward the sides of the car, hollow members having openings facing toward the sides of the car, said hollow members communicating with said casing through the first-named openings thereof, baffle plates interposed between the openings of said flue extension and the first-named openings of said casing, and deflector plates extending from said flue extension opposite to the second-named openings of said casing.

8. In a ventilator, a flue having a cylindrical extension provided with openings facing the front and rear of the car, a cylindrical casing surrounding such flue extension and having openings in alinement with the openings thereof and other openings facing toward the sides of the car, hollow box-shaped members having openings facing toward the sides of the car, said hollow members communicating with said casing through the first-named openings thereof, and arcuate baffle plates interposed between the openings of said flue extension and the first-named openings of said casing.

9. In a ventilator, a flue having an extension provided with an opening, a casing surrounding said flue extension and having openings therein, said last mentioned openings having laterally projecting mouths and said mouths projecting unequal distances

from the longitudinal center of the ventilator.

10. In a ventilator, a flue having an extension provided with openings both toward the front and rear of the car, a casing surrounding said extension and having openings in the front and rear walls thereof and in the side walls thereof, all of said openings in said casing having laterally projecting mouths, the mouths for the openings in the side walls of said casing pro-

jecting laterally beyond the ends of the mouths for the openings in the front and rear walls of said casing.

In witness whereof, we have hereunto subscribed our names, each in the presence of two witnesses.

RALPH T. SENTER.
LOUIS A. KLING.

Witnesses:

JOS. H. KLEIN,
WM. A. BARR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."