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VENTILATOR FOR CARS.  
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1,056,989.

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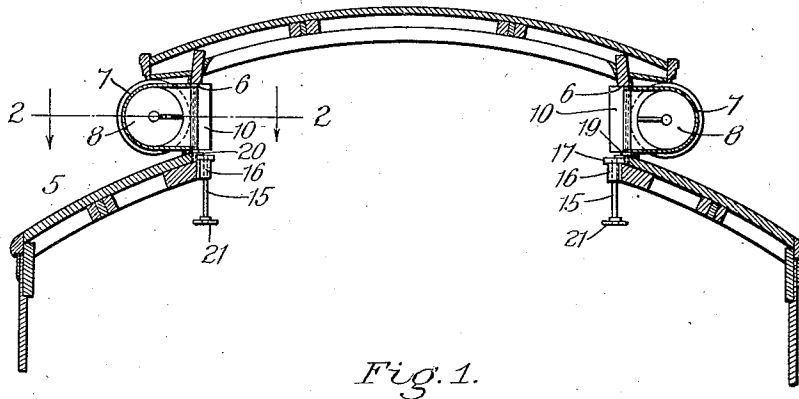


Fig. 1.

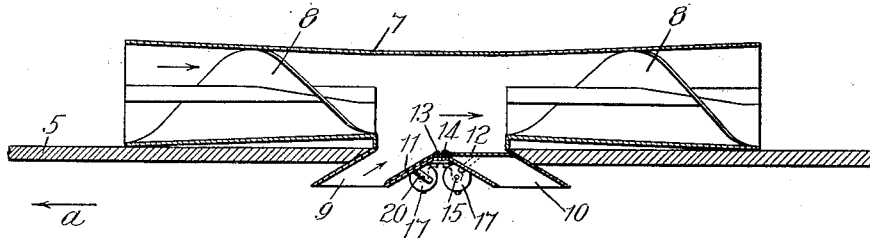


Fig. 2.

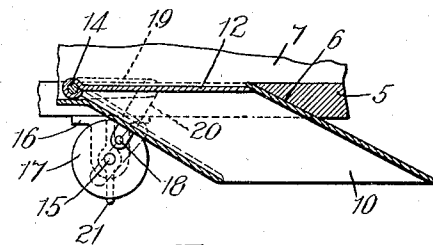


Fig. 3.

Witnesses.  
Franklin E. Low.  
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Inventor.  
Robert A. Hammond  
By his attorney,  
Charles S. Gooding.

# UNITED STATES PATENT OFFICE.

ROBERT A. HAMMOND, OF SANDWICH, MASSACHUSETTS.

## VENTILATOR FOR CARS.

1,056,989.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed February 12, 1912. Serial No. 677,050.

*To all whom it may concern:*

Be it known that I, ROBERT A. HAMMOND, a citizen of the United States, residing at Sandwich, in the county of Barnstable and State of Massachusetts, have invented new and useful Improvements in Ventilators for Cars, of which the following is a specification.

This invention relates to ventilators for cars and the like, the object being to provide a device capable of creating a rotating current of air transversely of the exterior of a window or an opening formed in said car whereby a current of air will be drawn outwardly through said opening.

Another object of the invention is to provide means adapted to open and close the opening adjacent to said air rotating means and to set said means in a predetermined position.

The invention consists in the combination and arrangement of parts whereby the above objects and other objects hereinafter appearing may be attained, as set forth in the following specification and particularly pointed out in the appended claims.

Referring to the drawings: Figure 1 is a sectional elevation of a portion of a car embodying my invention. Fig. 2 is a section, partly in plan, taken on line 2, 2 of Fig. 1. Fig. 3 is a detail sectional plan view of one of the air conductors and gate therefor.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 5 is a car having openings 6, 6 preferably located in the walls of the upper deck portion of said car. A casing 7 is disposed transversely of and connected with said opening and extends longitudinally of said car. Said casing is preferably open at each end and gradually decreases in diameter from said ends inwardly to substantially midway of said ends and is provided with screws 8, 8 located therein at opposite sides of said opening 6 which preferably terminate adjacent to said opening. A pair of air conductors 9 and 10 are connected with said opening 6 and extend inwardly therefrom, one toward the front and the other toward the rear of said car, and are provided with gates 11 and 12 respectively which are pivoted at 13 and 14 and adapted to be swung upon their pivots by means preferably operable from the interior of said car, said means preferably consisting

of a rod 15, journaled in a bearing 16 and provided with a crank disk 17 and crank pin 18. Arms 19 are secured to the lower ends of each of the pivots 13 and 14 and are connected by links 20 to their respective disks 17.

The operation of the device hereinbefore described is as follows: Assuming that the car is moving in the direction of the arrow "a" with the gates 11 and 12 in the positions illustrated in Fig. 2 and held in such positions by turning the rods 15 until the axes thereof and the axes of the pivotal connections at the opposite ends of the links 20 are in alinement with each other, or in other words until the crank pins 18 are on their dead centers. A current of air will be conducted into and through the casing 7 transversely of the opening 6 and outwardly through the opposite end of said casing, and in its passage through said casing said current of air will be brought into contact with the screw 8, whereupon said current will be rotated and by means of the decreasing area of said casing toward said opening the movement of said current of air will be slightly accelerated and thereby a vacuum will be formed at the mouth of the conductor 9 which will draw the air from the interior of said car outwardly through said conductor and be discharged at the rear end of the casing 7, the gate 12 at this time being closed to prevent the air from being turned inwardly through the conductor 10. The gates 11 and 12 are independently controlled in order to permit one of said gates to be closed and the other opened or both closed as the condition of the air within said car may demand. Upon the movement of the car in the direction opposite to that indicated by the arrow "a" and provided it is still necessary to ventilate the same, the gate 11 is closed and gate 12 opened by the instrumentalities hereinbefore described and a similar action of the air takes place through the conductor 10, to that described in relation to the conductor 9.

I have shown my invention as embodied in double air rotating devices and air conductors all of which are connected with one opening, but I do not wish to be understood as confining the invention to this construction as it will be obvious that the device might be separated with one half connected with one opening and the other half con-

5 nected with another opening, and further-  
more it will be seen that said device may  
be attached to a window at the side of the  
car or an opening in the roof of the car  
without departing from the spirit of the in-  
vention.

Having thus described my invention what  
I claim and desire by Letters Patent to se-  
cure is:

10 1. A car having an opening adjacent to  
the roof thereof, in combination with a gate  
located in said opening, means adapted to  
control the movements of said gate, a casing  
disposed transversely of and connected with  
15 said opening, and extending longitudinally  
of said car, a screw located in said casing  
and terminating adjacent to the edge of said  
opening, adapted to direct the rotating cur-  
rent of air transversely of said opening  
20 whereby when said gate is open a current  
of air will be induced outwardly through  
said opening and discharged at the rear end  
of said casing.

25 2. A car having an opening adjacent to  
the roof thereof, in combination with a cas-  
ing disposed transversely of and connected  
with said opening, and extending longitudi-  
nally of said car, a screw located in said  
casing and terminating adjacent to the edge  
30 of said opening, a gate adapted to cover  
the mouth of said opening, and means to  
control the movements of said gate from the

interior of said car and lock them in a pre-  
determined position.

3. A car having an opening adjacent to 35  
the roof thereof, in combination with an  
air conductor extending inwardly from said  
opening toward the forward end of said  
car, a second air conductor extending in-  
wardly from said opening toward the rear 40  
of said car, means adapted to create a rotat-  
ing current of air transversely of the mouths  
of said conductors in either direction, a  
gate adapted to cover the mouth of each  
of said conductors, and means to set said 45  
gates in a predetermined position.

4. A car having an opening adjacent to  
the roof thereof with a casing disposed  
transversely of the exterior of said opening,  
longitudinally of said car, and at each end 50  
thereof and screws located within said casing  
at opposite sides of said opening and ter-  
minating adjacent to said opening, whereby  
a rotating current of air is created trans-  
versely of the mouth of said opening, by 55  
the movement of said car in either direction.

In testimony whereof I have hereunto  
set my hand in presence of two subscribing  
witnesses.

ROBERT A. HAMMOND.

Witnesses:

FRANKLIN E. LOW,  
SYDNEY E. TAFT.

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