

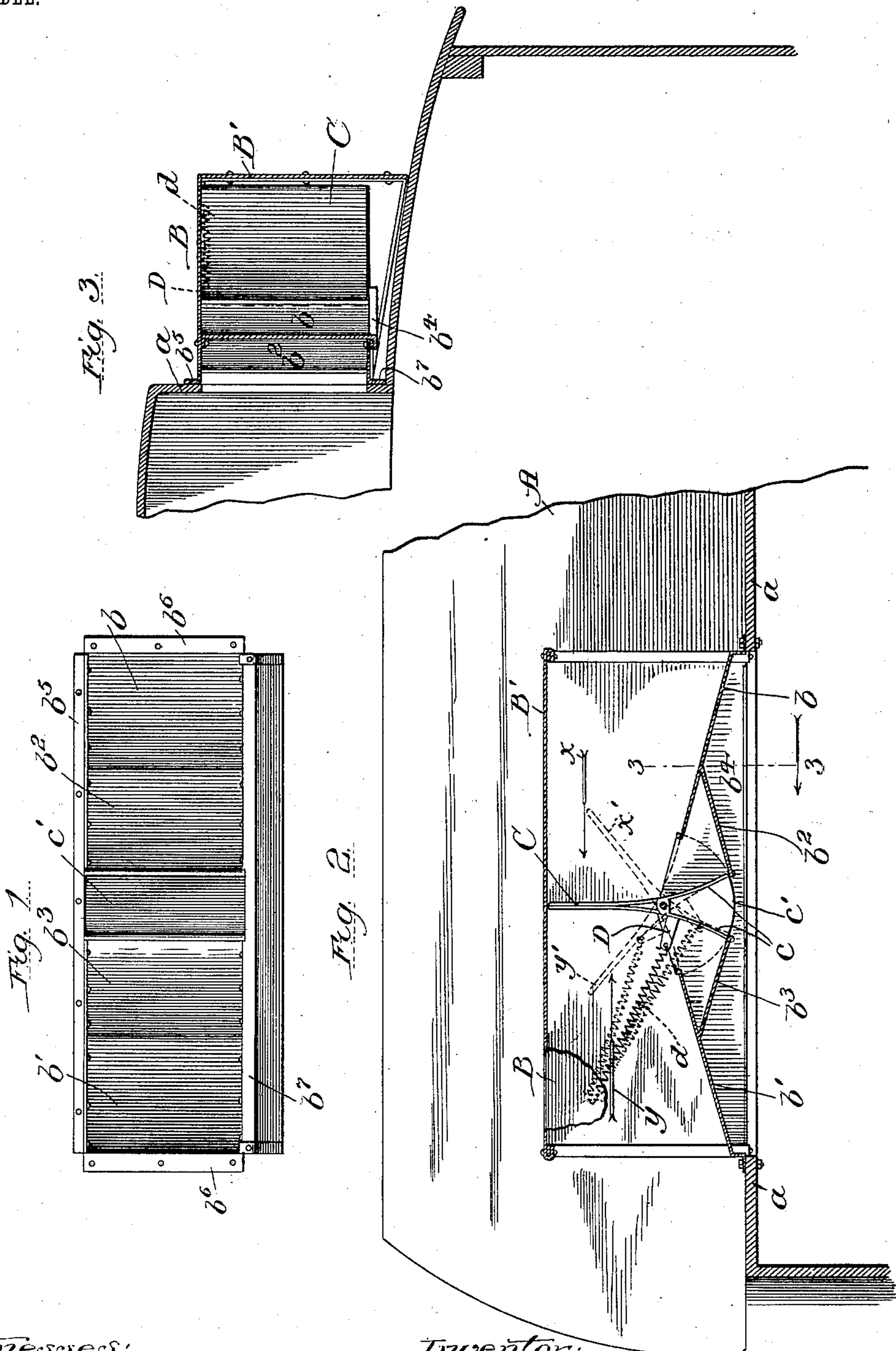
No. 755,565.

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W. P. COSPER.
VENTILATOR.

APPLICATION FILED APR. 18, 1902.

NO MODEL.



Witnesses:

Gute & Alter,
J. W. Angell

Inventor:

William P. Cosper,

By Charles M. Hill
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM P. COSPER, OF CHICAGO, ILLINOIS.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 755,565, dated March 22, 1904.

Application filed April 18, 1902. Serial No. 103,486. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. COSPER, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in ventilators and is shown embodied as a car-ventilator so constructed as to operate when the car is in motion to cause contaminated and smoke and dust laden air to be drawn therefrom, thereby causing a constant flow of fresh air into the car from other sources.

The object of this invention is to provide positively-acting automatic means for withdrawing the foul air from the car when the car is in motion and to positively close the ventilator when the car is at rest, thus preventing cold air flowing into the car there-
through.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a face view of a device embodying my invention, showing the same disassociated from the car. Fig. 2 is a fragmentary horizontal section of the same, showing a part of the car-top in section and in plan. Fig. 3 is a section taken on line 3 3 of Fig. 2.

As shown in said drawings, A indicates the car-top; *a*, the vertical riser beneath the deck, provided with one or more transom-apertures in the usual manner. Rigidly secured on the top of the car, with its front face covering one of said transom-apertures, is the ventilator-casing, comprising a top and side walls B and B', respectively. Within said casing, pivotally secured near the center thereof, is the gate, which in the construction shown comprises a sector-shaped closure and on the opposite side of the pivot has a broad vane or tail C. Said gate may conveniently be constructed of sheet metal of a width approximately equal to the height of the casing and

folded, as shown in Fig. 2, to provide the rearwardly-directed tail of a length approximately equal to the distance from the pivot to the side wall B', thus when the gate is in its closed position forming a partition across the casing or housing. The ends *c* of said sheet beyond the pivot diverge to a distance equal to the width of the opening into the car, and the extremities are connected by a sheet of metal *c'*, which is curved concentric with the axis of the gate and adapted in one position to entirely close the opening into the car. On the inner side of the casing and extending obliquely inwardly toward the axis from each end thereof adjacent to the riser are the inclined side walls *b b'*, respectively. Rigidly secured on said inclined walls *b b'*, respectively, intermediate of the ends are the walls, also of metal, (indicated by *b² b³*,) which extend obliquely inwardly toward the car and are of sufficient length as to approximately coincide with the inner extremities of the gate when the same is closed. A bottom sheet *b⁴* is provided, to which the lower margins of the inclined walls are secured, thus confining the orifice to the space between the inner ends of the walls *b b'*.

D indicates a laterally-extended arm rigidly secured on the gate near the axis thereof and conveniently near the top thereof and affording attachment for the spring *d*. The other end of said spring is secured to the top of the casing at a point which permits the spring to be in approximately radial alinement with the axis when the gate is in its closed position. Attaching means adapted to afford means for securing the ventilator on a car are provided by turning up the sheets forming the top of the casing to provide a flange *b⁵* and providing similar flanges *b⁶* on the ends of the casing. A like flange *b⁷* is provided on the margin of the bottom sheet *b⁴*.

The operation is as follows: With the car moving in the direction indicated by the arrow *x* the gate assumes the position shown in the dotted line indicated by *x'*, owing to the pressure exerted by the air passing through the open ends of the ventilator forcing said gate laterally, as shown. In this position it is obvious that the orifice is entirely open, and

inasmuch as a strong current of air is passing over the outer end of the tail the air on the inner side of the gate-tail is rarefied, materially lowering the pressure and causing the
 5 air from the car to flow outwardly through the orifice, to be carried outwardly by the current of air passing through the ventilator. Should the train be moving in the direction indicated by the arrow y , the gate assumes
 10 the position indicated in dotted lines in y' , and in the same manner the current of air flowing past the outer end of the gate acts to rarefy the air below the same and produces a tendency for the air to flow from the car out-
 15 wardly through the aperture. The moment, however, that the car comes to rest the tension of the spring d is exerted to bring the gate to its normal position, or that shown in full lines in Fig. 2, in which the passage into
 20 the ventilator from the car is entirely closed by said gate. If preferred, the inclined walls $b b'$ may be made sufficiently long to provide a stop at the inner end, against which the gate abuts when fully open, thus limiting the de-
 25 gree of opening the gate.

Obviously many details of construction may be varied without departing from the principles of this invention.

I claim as my invention—

30 1. A ventilator embracing a casing having open ends and an apertured double side wall adapted to be rigidly secured on the side of a car with the opening in the side wall opening into the car, a gate pivotally secured in the
 35 ventilator, means for normally holding the same in position to close the side aperture and a broad tail integral with the gate and acting to hold said gate open when the car is in motion.

40 2. In a ventilator, a sector-shaped gate pivoted at its apex, means acting normally to hold said gate in a closed position, and a broad tail on the gate extending beyond the pivot and subject to air-currents acting to open the gate,
 45 said air-currents passing the tail acting to exhaust the air from the compartment to be ventilated.

3. In a device of the class described, the combination with an open-ended casing, adapted to
 50 be secured longitudinally of a car, and opening into the same through one of its sides, of a gate pivoted in the casing in position to normally close said side opening, a relatively broad tail secured on the gate on the opposite
 55 side of the pivot therefrom and acting when

the car is in motion to open the gate and means acting to close the gate when the car is at rest.

4. The combination with a casing, open at its ends, of an inwardly-inclined side wall having a vertical aperture therethrough, outwardly-directed partitions integral with said
 60 side wall, a vertical opening between said partitions, means for attaching the casing to a car or the like with the opening in said side communicating with the interior of the car, a
 65 sector-shaped gate pivoted in the casing, means acting to hold said gate normally in position to close said opening between the partitions, a tail on said gate extending beyond the pivot in the path of the air-current caused by the
 70 motion of the car and actuated thereby to open the gate, said inwardly-inclined wall acting as a stop for the gate when in its open position.

5. In a ventilator, a casing provided with
 75 open ends and a side having an aperture therethrough, a sector-shaped gate pivoted to normally close said aperture in the side, inclined walls extending from the ends of said apertured side wall inwardly into radial distances
 80 with the pivot and forming at their inner ends stops for the gate when in its open position, a broad integral tail on said gate extending beyond the pivot into the path of the air-current produced by the car when in motion and
 85 a spring engaged on the gate and casing and acting to close the gate when the car stops.

6. The combination with a car having ventilator-openings therein, of a gate pivoted to
 90 close one of said openings when the car is at rest and a broad tail secured on the gate and extending normally at approximately right angles with the car and adapted to be actuated to open the gate by the air-currents produced
 95 by the car's motion.

7. In a ventilator an apertured wall communicating with a car, a pivoted gate, means adapted normally to hold the gate in position
 100 to close said aperture, means for opening the same operated by the air-current caused by the motion of the train which also acts to exhaust the air from the car.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM P. COSPER.

Witnesses:

C. W. HILLS,
 ALFRED C. ODELL.