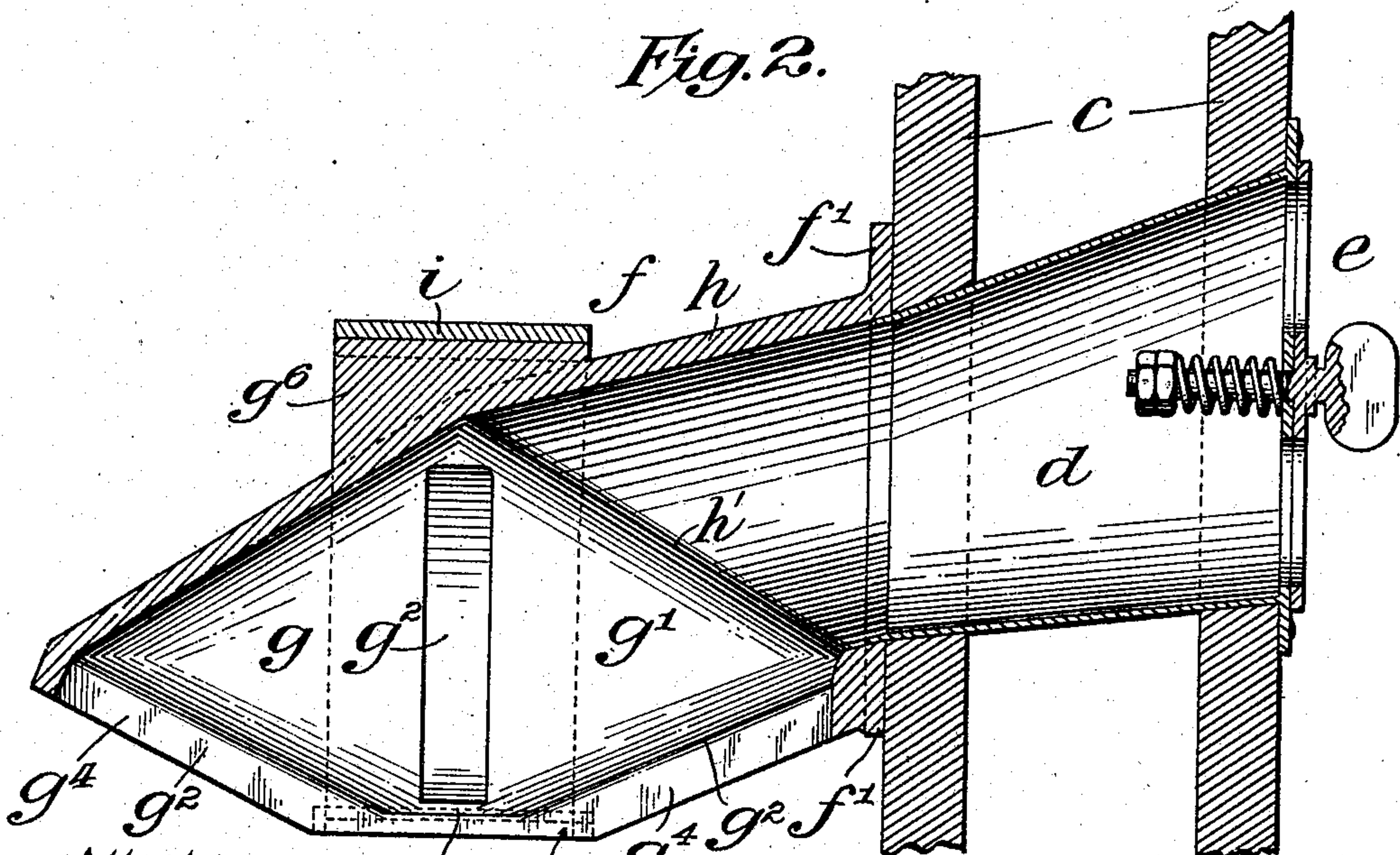
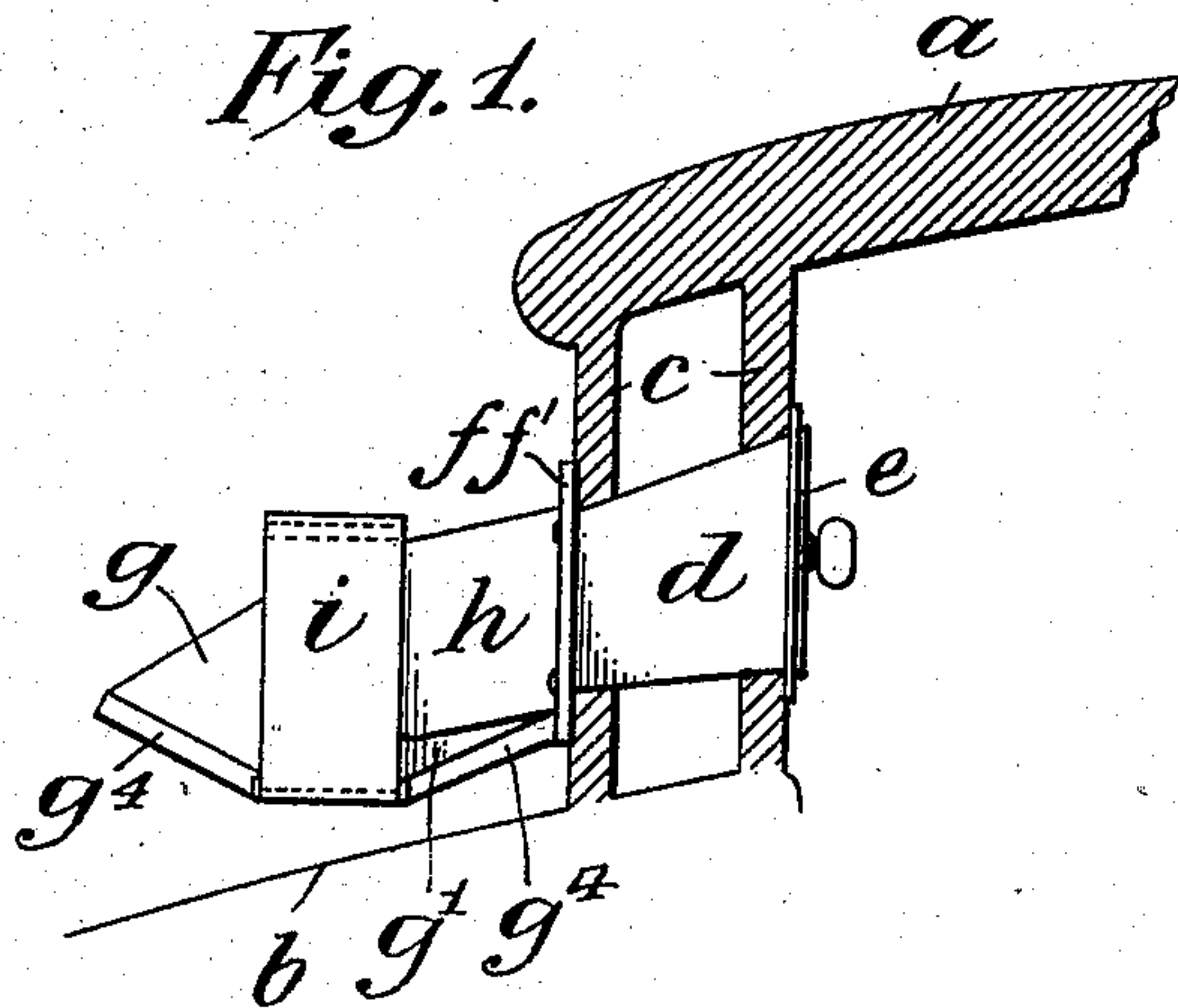


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 VENTILATOR FOR RAILWAY CARS.  
 APPLICATION FILED AUG. 13, 1908.

911,689.

Patented Feb. 9, 1909.  
 2 SHEETS—SHEET 1.



Attest:  
 E. J. Kruger  
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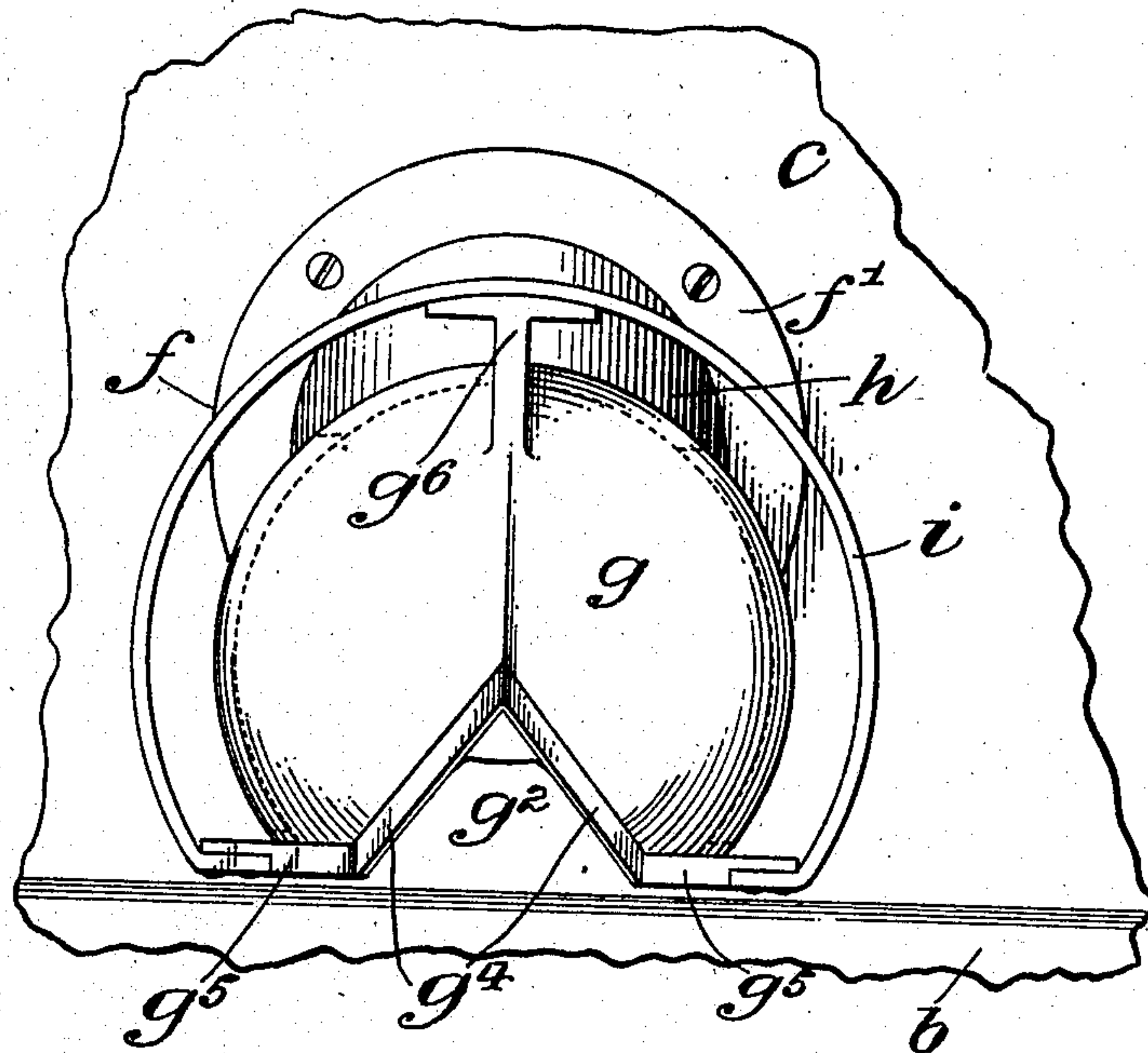
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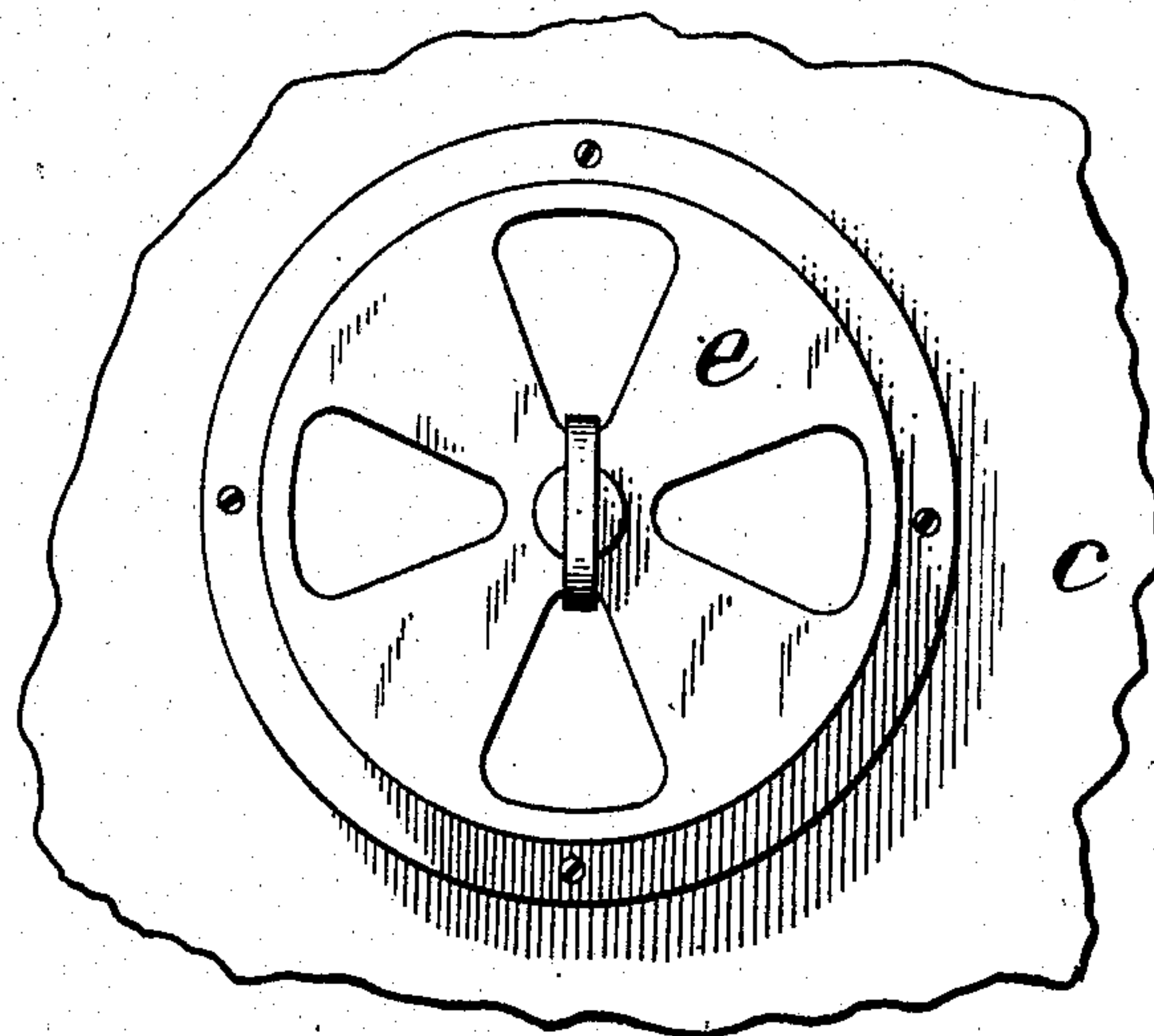
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*Fig. 3.*



*Fig. 4.*



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 Attys.



# UNITED STATES PATENT OFFICE.

JOHN E. WARD, OF NEW YORK, N. Y.

## VENTILATOR FOR RAILWAY-CARS.

No. 911,639.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed August 13, 1903. Serial No. 448,272.

To all whom it may concern:

Be it known that I, JOHN E. WARD, a citizen of the United States, residing in the borough of Manhattan, of the city of New York, in the State of New York, have invented certain new and useful Improvements in Ventilators for Railway-Cars, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

The so called "torpedo" ventilator, which consists substantially of two conical members with their bases slightly separated and their common axis disposed transversely with respect to the longitudinal axis of the railway car or carriage, a ventilating shaft rising from the roof of the carriage upon the top of which the conical members are placed, and a wind-break band surrounding the bases of the conical members, is much used in England and elsewhere on railway carriages of the English type. Such a ventilator, however, has not been applied successfully hitherto to railway cars of the American type. It stands too high when applied to the raised monitor top of the car roof and is not effective when applied to the lower portion of the monitor roof, while the height of the vertical side of the monitor top is not sufficient to permit the torpedo ventilator, as hitherto constructed, to be applied thereto.

It is the object of this invention to so modify and improve the construction of the torpedo ventilator as to permit it to be applied to the vertical portion of the raised monitor roof of a railway car of the American type, to secure a degree of efficiency which the ordinary torpedo ventilator would not have if it could be applied to such vertical portion, and to guard more effectively against the entrance of water, cinders and the like into the car through the ventilator.

The invention will be more fully explained hereinafter with reference to the accompanying drawings in which it is illustrated and in which—

Figure 1 is a view, partly in section and partly in outline, illustrating the application of the improved torpedo ventilator to a railway car of the American type. Fig. 2 is a detail view in section on the plane of the longitudinal axis of the ventilator, showing also a portion of the car roof. Figs. 3 and 4 are respectively an outside and an inside end view of the ventilator, showing also a portion of the car roof.

Railway cars of the American type, to the ventilation of which the present improvement is applied, have the central portion *a* of the car roof raised above the main portion *b*, as shown in Fig. 1, the space between the portions *a* and *b* of the roof being closed by a vertical wall *c*, which is usually double, as shown. In the ventilation of such a car with the modified torpedo ventilator, the ventilating openings are formed in the vertical wall *c* of the roof, a sleeve *d* being extended through the wall *c* and provided with a regulator *e*, of ordinary construction, at its inner end.

The tube *d*, in the improved construction, is preferably not cylindrical nor is its axis horizontal, but the tube or sleeve is slightly flaring toward the inner end and is inclined downwardly toward the outside, so that the draft through the tube and the suction of foul air from the monitor roof of the car shall be facilitated and so that any water which may enter the tube shall be discharged outside the car as well as any cinders that may have found lodgment on the floor of the tube. To or against the outer end of the sleeve is secured the ventilator hood *f*, it preferably having a flange *f'* by means of which it may be secured to the wall *c*. The hood *f* is conveniently formed as a casting, comprising two members *g* and *g'* which are generally conical in form and are placed base to base, but with a space *g<sup>2</sup>* between their bases. A connecting tube *h* connects the tube *d* with the ventilating hood and may be formed as an integral part thereof, an opening *h'* being formed through the upper wall of the member *g'*. In the underside of each member *g*, *g'*, is an opening *g<sup>2</sup>*, generally triangular in outline and extending from near the apex of each member to its base, the two openings *g<sup>2</sup>* merging in a common intermediate space *g<sup>3</sup>*. An opening of large area is thus formed in the underside of the hood. A flange *g<sup>4</sup>*, substantially vertical, depends from the margin of each opening *g<sup>2</sup>* for the purpose of insuring better suction downward through the opening as the hood moves rapidly through the air with the car. At each side of the opening *g<sup>3</sup>* is a lip *g<sup>5</sup>* which forms a support for the lower ends of a band *i* which encircles the bases of the conical members but stands away therefrom, this band forming a wind-break to prevent the movement of the air within the hood through the openings *g<sup>2</sup>* and facilitat-



ing the suction of air outward through such openings as the car moves. A support  $g^6$  may be secured to or form a part of the conical members  $g, g'$ , to support the band  $i$  at the top. It will be observed that the band  $i$  does not entirely surround the members  $g, g'$ , but is interrupted at the bottom so as to leave the openings  $g^3$  unobstructed.

It will now be seen that not only is the modified hood capable of application to the car of the American type, but that it can be applied readily and without much expense and that it is so formed that if necessary it can stand very close to the main portion  $b$  of the roof, while all of the advantages of the torpedo ventilator are retained and, through the provision of a large, entirely unobstructed opening in the underside and of the flanges  $g^2$  depending from the margin of such opening, the suction effect of the old form of torpedo ventilator is greatly increased and the ventilation of the car is improved accordingly.

I claim as my invention:

1. The combination with a railway car having a roof with a raised central portion and a vertical wall connecting said raised portion with the lower portion of the roof, of a ventilator head secured to said vertical wall and communicating with the interior of the car by means of a passage extending through said wall, said ventilator head comprising two hollow conical members arranged with their axes in line, and a connecting tube the walls of which merge with the wall of one of said conical members and which tube forms a communication between the interior of said conical members and the passage which extends through the vertical wall as aforesaid, the lower portion of the walls of said conical members being provided with an unobstructed opening widest at the bases of said members and the edges of which opening extend to the apices of said conical members, and a band supported by

and extending about the bases of said conical members and disposed over and at a distance from the annular opening between said members, the ends of said band terminating adjacent the sides of the opening formed in the lower portion of said conical members.

2. The combination with a railway car having a roof with a raised central portion and a vertical wall connecting said raised portion with the lower portion of the roof, of a downwardly inclined tube extending through said vertical wall and terminating at the exterior surface thereof; and a ventilator head secured to said vertical wall and communicating with the outer end of said tube, said ventilator head comprising two hollow conical members arranged with their axes in line and at right angles to said vertical wall, and a downwardly inclined connecting tube the walls of which merge with the wall of one of said conical members and which tube forms a communication between the interior of said conical members and the tube which extends through the vertical wall as aforesaid, the lower portion of the walls of said conical members being provided with an unobstructed opening widest at the bases of said members and the edges of which opening extend to the apices of said conical members, a depending flange formed upon said conical members and surrounding said opening, and a band supported by and extending about the bases of said conical members and disposed over and at a distance from the annular opening between said members, the ends of said band terminating adjacent the sides of the opening formed in the lower portion of said conical members.

This specification signed and witnessed this 10th day of August, A. D., 1908.

JOHN E. WARD.

Signed in the presence of—  
W. B. GREELEY,  
AMBROSE L. O'SHEA.