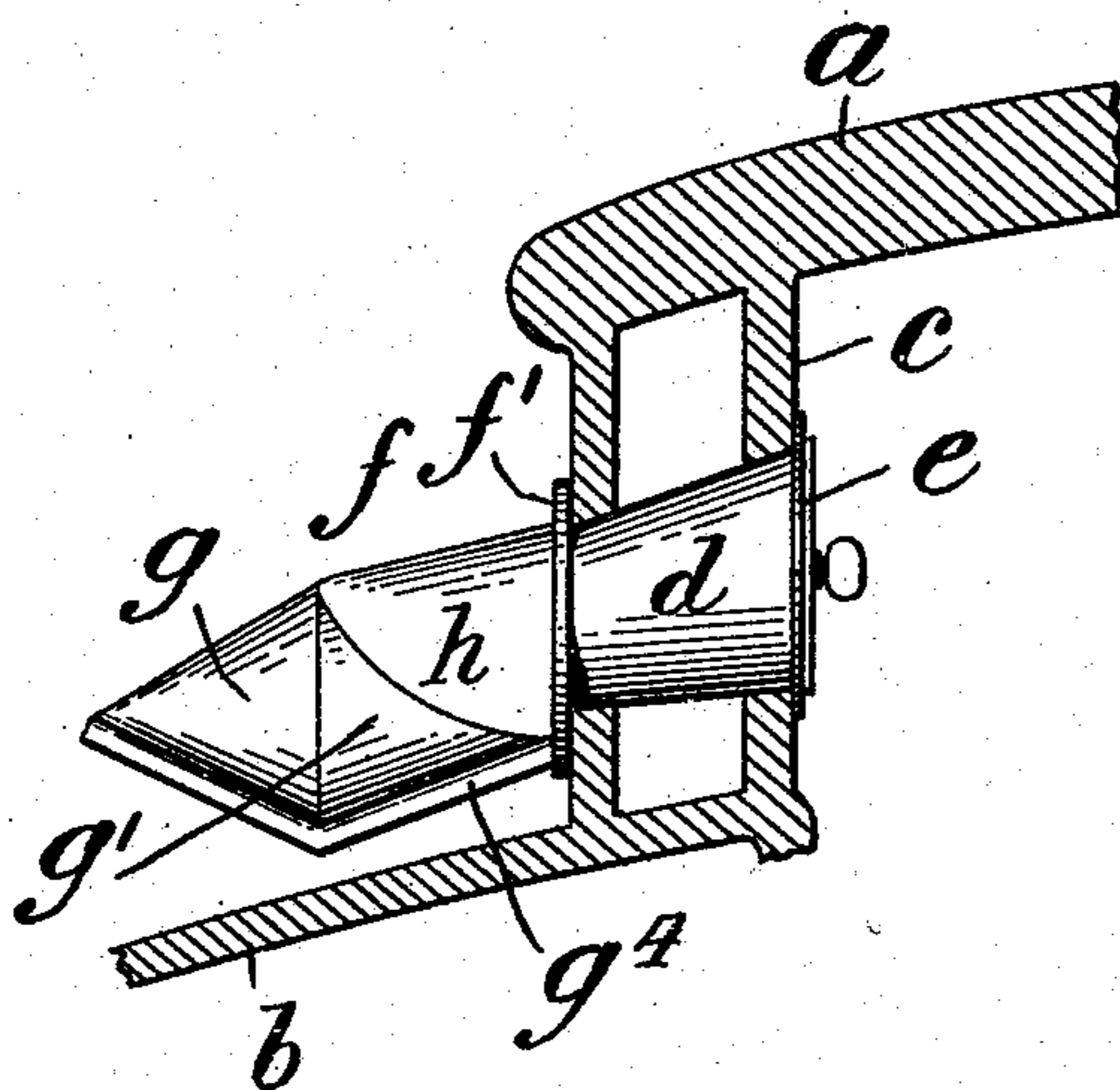


J. E. WARD.  
VENTILATOR FOR RAILWAY CARS.  
APPLICATION FILED MAR. 8, 1909.

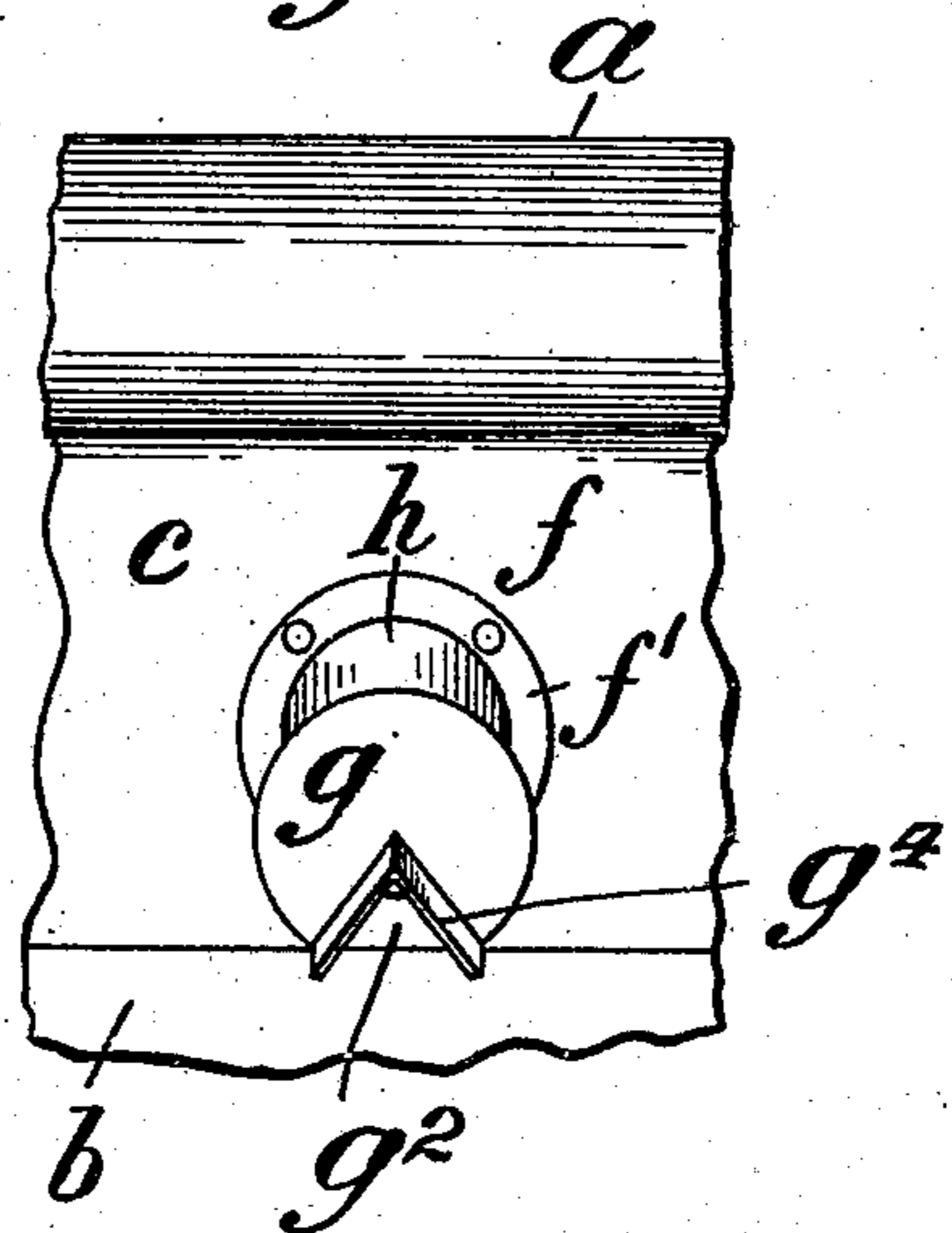
936,686.

Patented Oct. 12, 1909.

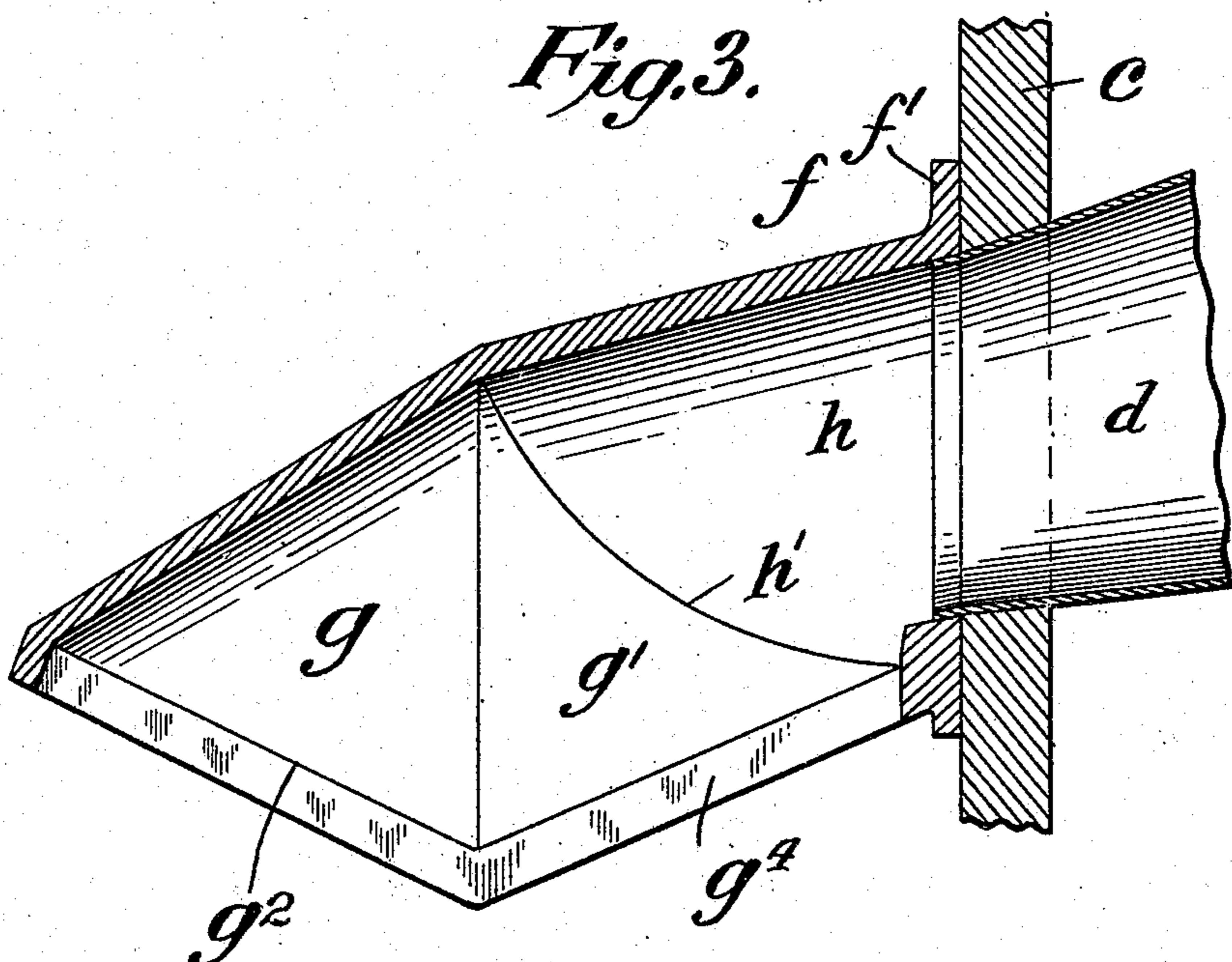
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Attest:  
*Ellis Kruger*  
*Edgewood Green*

Inventor:  
by *John E. Ward*  
*Reading, Penn. & Co.*  
Att.

# UNITED STATES PATENT OFFICE.

JOHN E. WARD, OF NEW YORK, N. Y., ASSIGNOR TO WARD EQUIPMENT COMPANY, OF  
NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## VENTILATOR FOR RAILWAY-CARS.

936,686.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed March 8, 1909. Serial No. 481,910.

*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, of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof.

This invention relates to ventilators of the so-called "torpedo" type, adapted for use upon American railway cars, as set forth in Letters Patent of the United States, No. 911,689, dated February 9, 1909, and it has for its object to improve and simplify the construction of ventilators as shown in said Letters Patent and particularly to increase the suction from the car outward through the ventilator. In the construction shown in said Letters Patent, the two conical members of the torpedo ventilator have their bases separated by an opening and a wind break band surrounds the bases. It is found, however, not only that the cost of construction can be reduced by bringing the bases of the conical members together and dispensing with the surrounding wind break band but that through the presentation of an angular surface rather than the surface of a flat band to the air through which the ventilator is moved, and with the continuation of the flange around the opening in the underside of the conical members below the margin of the opening, so that it shall act upon the air, the suction of the ventilator, as it moves through the air with the car, is considerably increased.

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

Figure 1 is a view, partly in section and partly in elevation, illustrating the application of the improved torpedo ventilator to a railway car of the American type. Fig. 2 is a view in elevation from the left hand in Fig. 1. Fig. 3 is a detail view in section in the vertical plane of the longitudinal axis of the ventilator, on a larger scale, showing also a portion of the car roof.

Railway cars of the American type, to which the present improvement is applied, have the center portion *a* of the car roof raised above the main portion *b*, the space between the portions *a* and *b* of the roof be-

ing closed by a vertical wall *c*, which is usually double as shown. In the ventilation of such a car with the improved 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. As described in said Letters Patent, the tube *d* 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 through the monitor roof of the car shall be facilitated and so that any water which may enter the tube as well as any cinders, shall be discharged outside the car.

The ventilator hood *f* is provided with a flange *f'* by means of which it may be secured to the walls *c* about the projecting end of the sleeve *d*. It comprises two generally conical members *g* and *g'* which are placed base to base, the bases meeting without any opening between them. A connecting tube *h* connects the tube *d* with the ventilating hood and is formed as an integral part thereof, an opening *h'* being formed through the upper wall of the member *g'*. In the underside of the double conical hood is an opening *g<sup>2</sup>*, doubly V-shaped and extending from near the apex of one member to the apex of the other. A flange *g<sup>4</sup>* is extended downwardly entirely around the opening *g<sup>2</sup>*, forming a wind deflector on all sides of the opening, even at its widest part, which, as the ventilator is moved through the air with the car, strongly deflects the air currents downward so that they act with a powerful aspirating or suction effect upon the air within the hood and thus upon the air within the car. This effect of the deflecting surface, which is greatest at the widest part of the opening, is promoted and assisted by the prow-like form of the ventilator which is secured by bringing the bases of the conical members together without a flat surrounding surface, this prow-like form dividing the air currents and causing them to spread outwardly as they move downwardly (that is, the movement of the air and ventilator being relative) and thus with the desired aspirating effect throughout the entire length of the opening upon that side which is in advance as the car moves. It is found that with this construction the air in the car is much more quickly changed than with a construction

in which the bases of the conical members are separated by an opening and said opening is covered by a flat wind break band.

I claim as my invention:

5 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 hood secured to said vertical  
10 wall and communicating with the interior of the car by means of a passage extending through said wall, said ventilator hood comprising two hollow conical members arranged with their bases in contact through-  
15 out their entire extent whereby a continuous and a pointed or prow-like surface is presented to the air; and comprising also a connecting tube the walls of which merge with the wall of one of said conical members  
20 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  
25 being cut away to thereby provide an unobstructed opening in the under side of the ventilating hood, said opening being widest at the bases of said conical members and the edges of which opening extend to the apices  
30 of said 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 35 through said vertical wall and terminating at the exterior surface thereof; and a ventilator hood secured to said vertical wall and communicating with the outer end of said tube, said ventilator hood comprising 40 two hollow conical members arranged at right angles to said vertical wall and with their bases in contact throughout their entire extent whereby a continuous and a pointed or prow-like surface is presented to 45 the air; and comprising also 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 50 members and the tube which extends through the vertical wall as aforesaid; the lower portion of the walls of said conical members being cut away to thereby provide an unobstructed opening in the under side of the 55 ventilating hood, said opening being widest at the bases of said conical members and the edges of which opening extend to the apices of said conical members; said ventilator hood having a depending flange formed 60 upon said conical members and surrounding said opening.

This specification signed and witnessed this 6th day of March, A. D., 1909.

JOHN E. WARD.

Signed in the presence of:

ELLA J. KRUGER,  
AMBROSE L. O'SHEA.