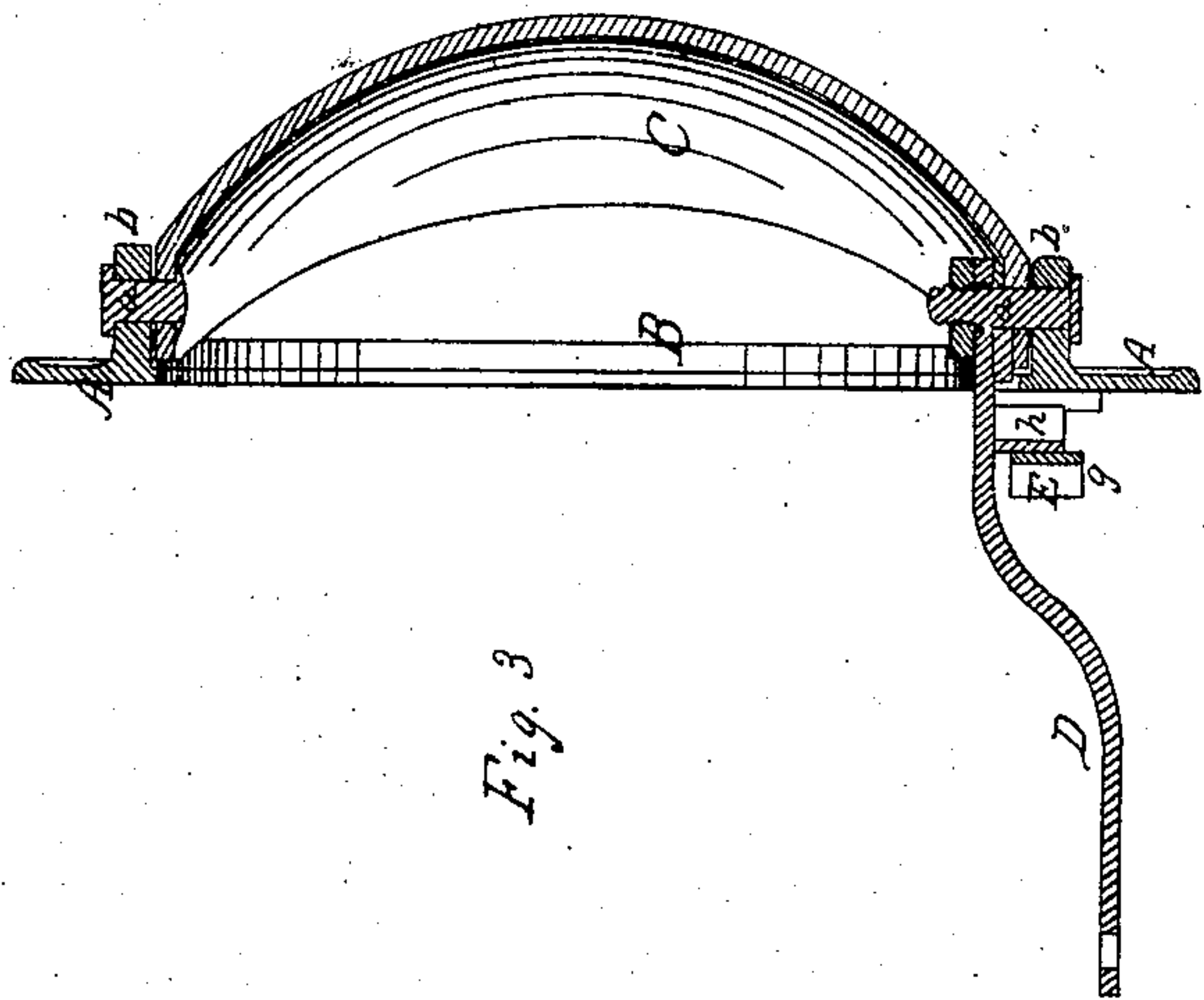


*M. G. Imbach.*

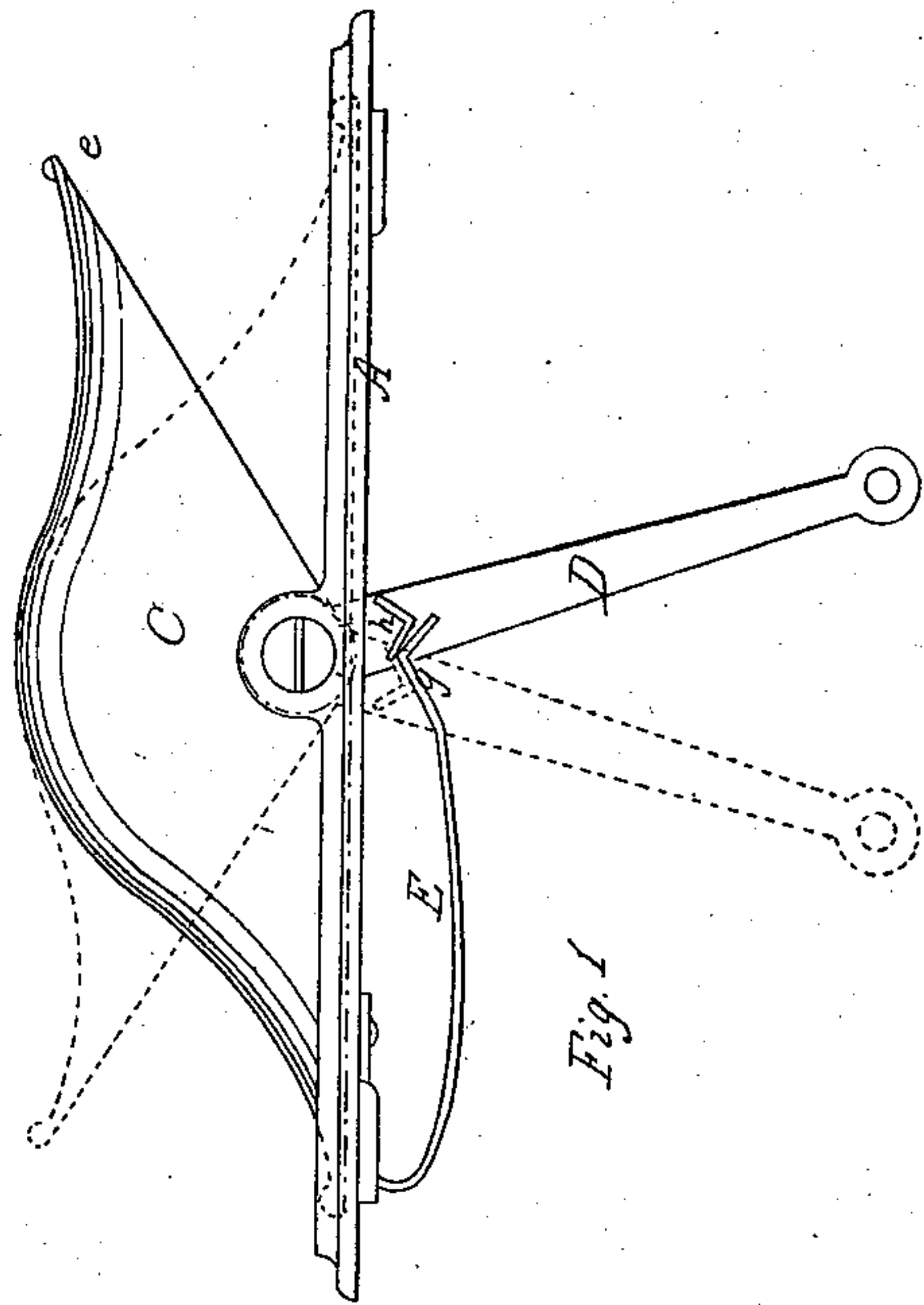
*Railroad-Car Ventilator.*

*N<sup>o</sup> 72203*

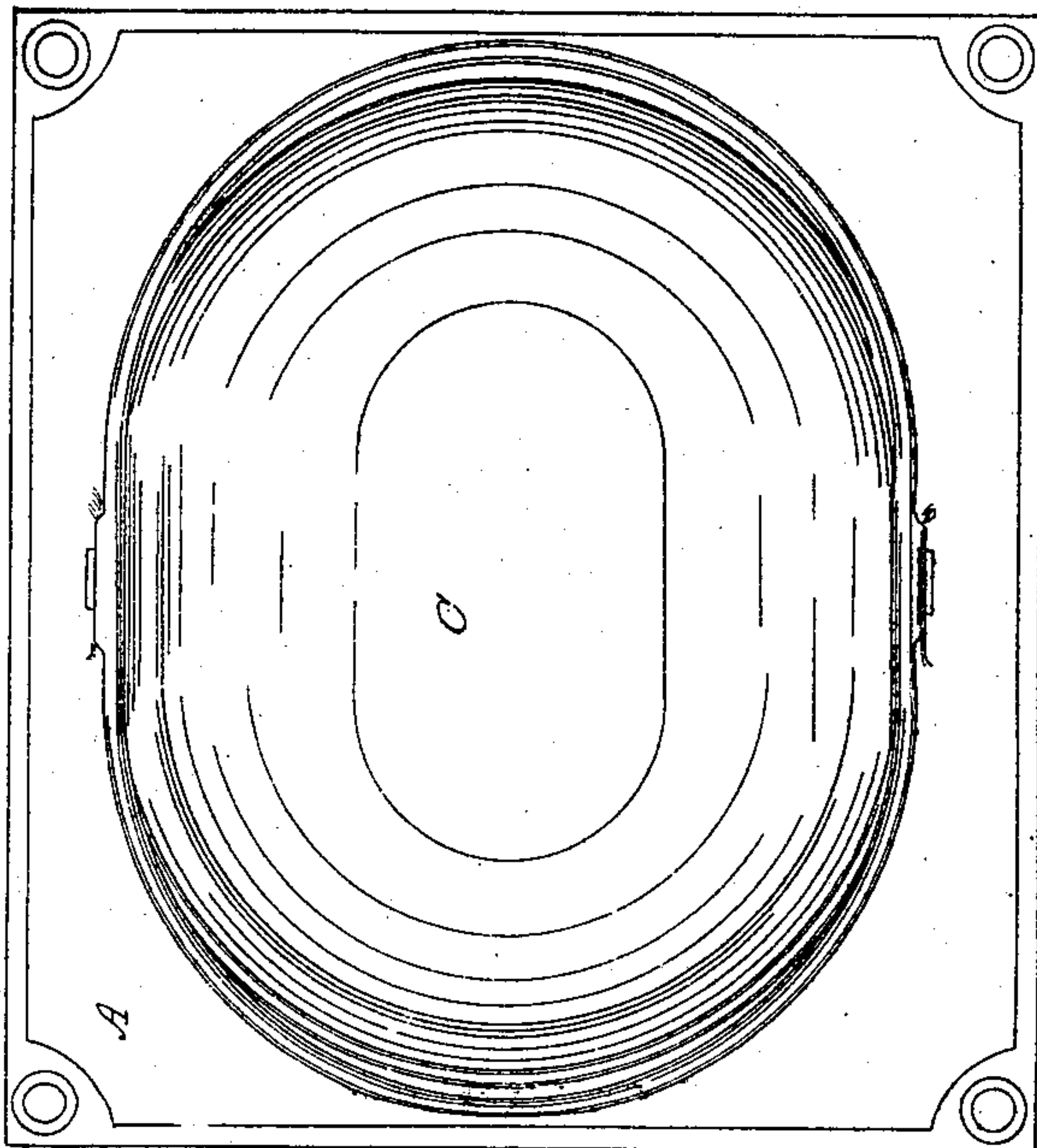
*Patented Dec. 17, 1867.*



*Fig. 3*



*Fig. 1*



*Fig. 2*

*Witnesses*

*John Eastbone Dr*  
*Richard J. Cunningham*

*Inventor*

*M. G. Imbach*  
*by his attorney*  
*B. S. Penwick*



# United States Patent Office.

MARTIN G. IMBACH, OF HARTFORD, CONNECTICUT, ASSIGNOR TO JAMES L. HOWARD, OF THE SAME PLACE.

*Letters Patent No. 72,203, dated December 17, 1867.*

## IMPROVEMENT IN RAILROAD-CAR VENTILATORS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, MARTIN G. IMBACH, a resident of Hartford, in the State of Connecticut, have invented a new and useful Improvement in Reversible Ventilators for Railroad-Cars, &c.; and that the following is a full, clear, and exact description and specification of my said invention.

The object of my invention is to enable the position of the deflector of a ventilating-aperture to be reversed in position with certainty and facility. Previous to my invention, a deflector turning upon pivots has had its positions reversed by means of a handle or lever, and this arrangement answers a good purpose when each deflector is reversed separately; but it is desirable that a number of such deflectors should be reversible simultaneously, and to this end they have been connected in a series or gang by cords. In this case it is impracticable to adjust all the deflectors and the connecting-cords so accurately that each deflector of the series will be always moved to the desired extent, and held there, as a slight difference in the length of some one or more of the connecting-cords, or a slight difference in the length of the levers which communicate between the connecting-cords and the deflectors, will vary the extents of movement of the deflectors. In order to obviate this defect, I have combined the deflector of the ventilator with a spring in such manner that when force is applied to reverse the position of the deflector, the spring is flexed; and when the deflector has been moved a part of the required distance, the spring, reacting upon the deflector, completes the movement, whether the force applied to the deflector is adequate for the purpose or not. Hence, each deflector of a connected series will be moved to the required extent to complete its reversal in position with certainty, even though the connecting-cords vary considerably in length, or the adjustment of the connecting-levers or their equivalent in different deflectors of the series be unequal.

In order that my invention may be fully understood, I will proceed to describe the best mode which I have thus far devised of embodying it in practice, referring to the accompanying drawings and to the letters and figures marked thereon—

Figure 1 representing an elevation of the exterior of a ventilator-frame with a reversible deflector,

Figure 2 representing a top view of the same, and

Figure 3 representing a vertical section of the same, with the ventilator reversed half way.

The ventilator-frame A is constructed with a ventilating-aperture, B, and is fitted at its exterior with a reversible deflector, C, which, in this case, is a double-mouthed hood arranged to oscillate upon two pivots *a a*, which connect it with ears *b b*, projecting from the ventilator-frame A. This deflector has a lever, D, secured to it for the purpose of reversing the position of the deflector, or moving it from the position in which it is drawn in black lines, in fig. 2, to that in which it is represented in red lines therein, and *vice versa*, so that the mouth *e*, which was open in one position, is closed in the other. The spring E, for completing the reversal of the deflector, is riveted at one end of the ventilator-frame, and its other end, *g*, is V-formed, and is arranged to act upon a V-formed projection, *h*, secured to the operating-lever D. The central line of the V-formed end of the spring E is opposite the centres of the pivots *a a*, upon which the deflector C turns, and the central line of the V-formed projection *h* corresponds with that of the operating-lever D. Hence, when the operating-lever D is moved for the purpose of reversing the position of the deflector C, the spring E is flexed during the first half of the movement by the action of one incline of the projection *h* upon the corresponding incline of the spring end *g*, but as soon as the operating-lever is a little more than half way, the other incline of the spring end *g*, bearing against the corresponding other incline of the projection *h*, permits the force of the spring to become available in moving the lever D and the deflector the required distance to complete their reversal in position. In practice, the lever ends of a number of deflectors at one side of a railroad-car are connected by cords, and the end cord is pulled to reverse the deflector; and as each deflector is provided with its appropriate spring, each is shifted by that spring to its reversed position as soon as its lever D has been moved a trifle past its half-way or central position by the pull of the cord. The spring, in addition to moving the deflector, acts as a stop to hold it in its position until a reversal is required, thereby obviating the necessity of fastening the cord or the deflector by a special device.

I do not claim any one of the members individually of which my combination is composed ; nor do I restrict my invention to the peculiar form or construction of the members, as these may be greatly varied without a substantial deviation from my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of a reversible deflector with a spring for moving the same, substantially as beforeset forth.

In testimony whereof, I have hereto set my hand, this 2d day of November, A. D. 1867.

M. G. IMBACH.

Witnesses :

ALBERT L. BURKE,

GEO. C. BARNES.