

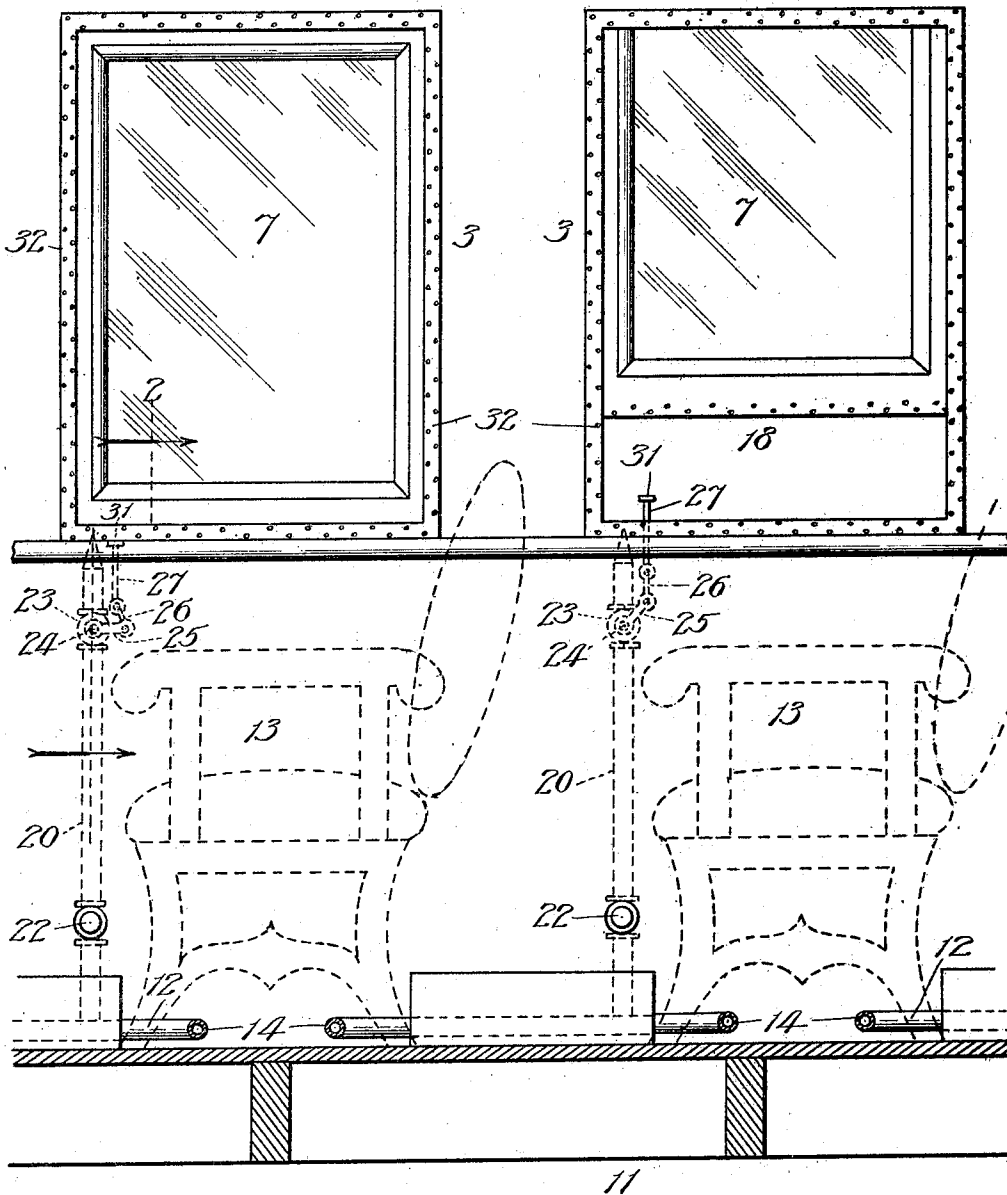
E. M. MATTHEWS.  
VENTILATING SYSTEM.  
APPLICATION FILED MAY 29, 1911.

999,385.

Patented Aug. 1, 1911.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Chas. H. Bull.  
J. F. Chase

Inventor:

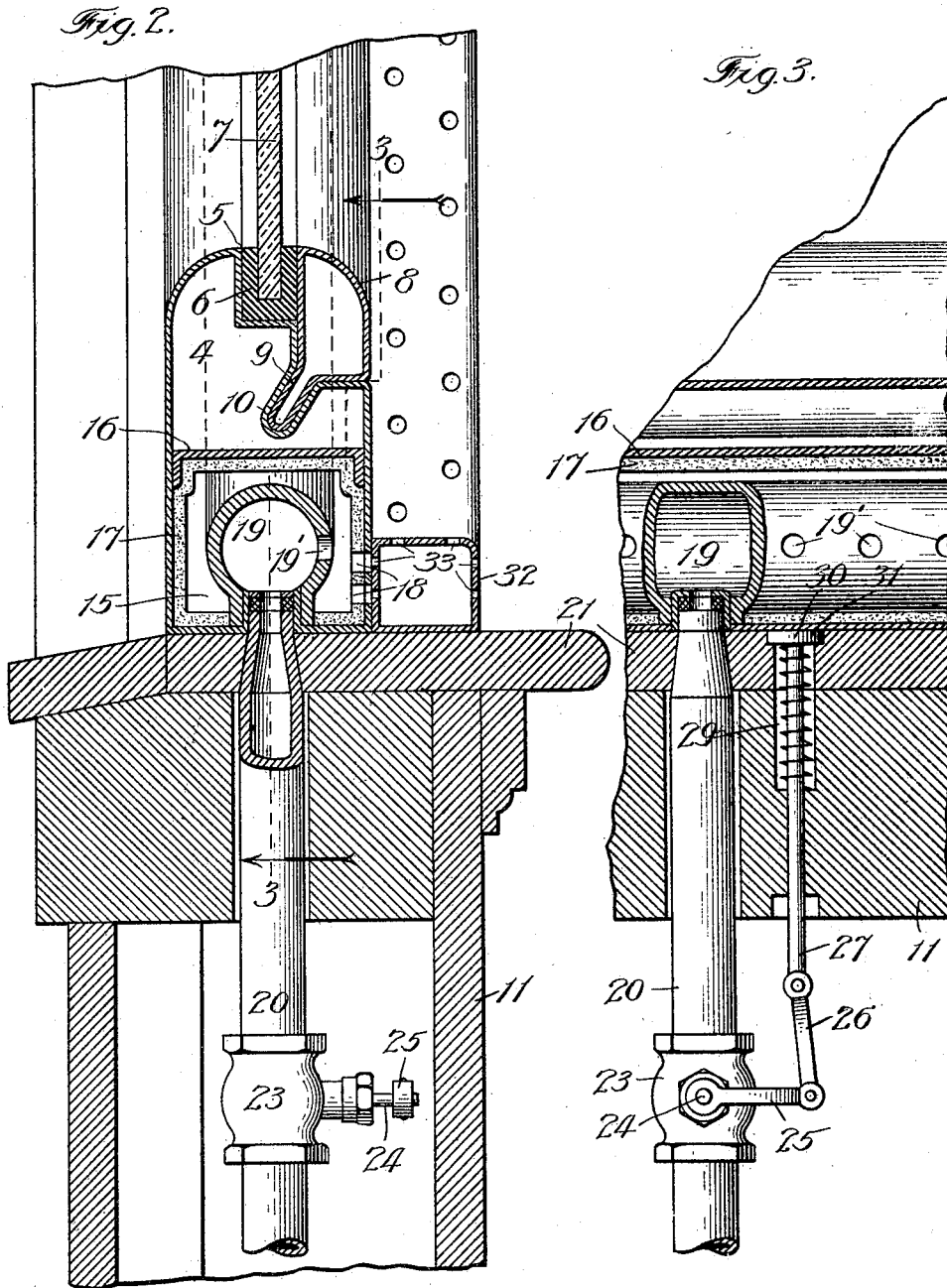
Edgar M. Matthews  
By D. D. Dyson, Secy, Critten & Wicks  
Attys.

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2 SHEETS—SHEET 2.



Witnesses:  
*Chas. H. Bull.*  
*G. F. Chase.*

Inventor:  
*Edgar M. Matthews*  
*By Dymally, Lee, Chilton & Wilson.*  
*Attys.*

# UNITED STATES PATENT OFFICE.

EDGAR M. MATTHEWS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO W. F. ROTHERMEL, OF CHICAGO, ILLINOIS.

## VENTILATING SYSTEM.

999,385.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed May 29, 1911. Serial No. 630,037.

*To all whom it may concern:*

Be it known that I, EDGAR M. MATTHEWS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Ventilating Systems, of which the following is a specification.

My invention is intended for use, more particularly in railway-cars which are provided with hollow sash for the windows; my object being to enable the window-sash to be utilized as the medium through which to ventilate the car by supplying it with cool, fresh air.

The invention is adapted, however, for interior ventilating systems generally, where the sash employed for the windows of the inclosure is hollow.

In the accompanying drawings, Figure 1 is a broken sectional view of a passenger-car, showing the interior thereof in side elevation, with two windows equipped with my improvement, the sash of one window being closed and that of the other raised; Fig. 2 is an enlarged section on line 2, Fig. 1, and Fig. 3 is an enlarged section on line 3, Fig. 2.

While my invention is designed to be employed in connection with any construction of hollow window-sash, I have selected for illustrating it the sash shown and described in Letters Patent No. 977,415, granted to me November 19, 1910, which need not, therefore, be described in detail herein, but the general construction of which may be described as follows:

A suitable sheet-metal blank, for a hollow sash 4 of rectangular shape, is bent to form top, bottom and side rails, with a recess 5 about the inner edge of the sash for seating trough-shaped rubber cushions 6 in which the window-pane 7 is confined about its edges, being clamped in place by hollow metal beads 8 fastened in position to bear against the inner sides of the cushion. The beads, which are also formed from a sheet-metal blank of proper shape, are provided with tongues 9 to fit in inclined sockets 10 formed in the rails.

The car 11 is equipped with any suitable pipe-system for the circulation of air, that shown comprising pipes 12 running along the sides near the floor of the car and connected under the car seats 13 with coils 14.

The pipe-system may be that used in cold

weather for the circulation of steam to heat the car, to be converted into an air-conducting system for my present purpose.

In the sash 3 of each window, or of as many windows as may be desired, is a chamber 15, formed by a flanged plate 16 extending lengthwise through each rail, the chamber being packed about its walls with a suitable insulating lining 17, preferably asbestos, to prevent the metal sash from becoming corroded by moisture in the air. Perforations 18 are provided through the inner faces of the chamber for the escape of air from it. An air-pipe 19 containing outlet-openings 19<sup>1</sup> is housed in the chamber 15, and is fed with air from a pipe 12 through a branch-pipe 20 rising from the pipe 12 through the window-stool 21 into the pipe 19. The pipe 20, which is shown to be equipped with a valve 22 for permanently opening or closing the supply of air to the sash, also contains a rotary valve 23 for temporarily opening and closing the same by lowering and raising the sash. To that end the valve 23 has its stem 24 provided with a handle 25 carrying a link 26 on its outer end, which is pivotally connected with the lower end of a vertically-reciprocable push-rod 27 extending from it through the stool 21, with a spring 29 confined about it for raising it to close the valve 23, the rod terminating at its upper end in a head 30 fitting a recess 31 in the stool when the head is depressed, to countersink it. The head is in the path of the lower sash-rail, whereby when the sash is down to close the window the rod 27 is depressed to open the valve 23 (the valve 22 being normally open when my improved system is in use and normally closed when it is out of use), permitting air to circulate through the pipe 19 to discharge through the perforations 19<sup>1</sup> into the chamber 15 and thence out through the perforations 18. Adjacent to the chamber 15 is provided, to extend about its inner face, as usual, a stop 32, which in the present case is formed hollow of sheet-metal and provided with perforations 33 through its wall adjacent to the chamber, to register with the perforations 18, and with similar perforations 33 in its opposite wall and top to discharge into the car the air which enters it from the chamber 15.

The air passed through the pipe-system

to the hollow window-sash and thence into the inclosure to be ventilated may be forced by any suitable blower or suction mechanism, which is not herein shown, since it  
 5 may be that in common use for forcing cold air into hotel, theater and other public buildings.

What I claim as new and desire to secure by Letters Patent is—

10 1. In combination with an inclosure, a hollow window-sash forming an air-passage closed on its outer side and provided with perforations in its inner side, and means for supplying cool air to said passage, for the  
 15 purpose set forth.

2. In combination with an inclosure, a hollow window-sash forming an air-passage closed on its outer side and provided with perforations in its inner side, a perforate  
 20 air-pipe in said passage, and means for supplying cool air to said pipe, for the purpose set forth.

3. In combination with an inclosure, a hollow window-sash forming an air-passage  
 25 closed on its outer side and provided with perforations in its inner side, a perforate air-pipe in said passage, means for supplying cool air to said pipe, a valve-equipped connection between said means and pipe  
 30 for supplying the air to the latter, and a spring-pressed rod connected with the valve-stem and extending into the path of movement of the sash for the purpose set forth.

4. In combination with an inclosure, a  
 35 hollow window-sash forming an air-passage therein closed on its outer side and provided with perforations in its inner side, a perforate air-pipe in said passage, means for supplying cool air to said pipe, and a hollow  
 40 stop for the sash at the inner side thereof having perforations communicating with said air-passage in the sash and the inclosure whereby the cool air from said air-passage enters the inclosure through said stop, for  
 45 the purpose set forth.

5. In combination with an inclosure, a hollow window-sash forming an air-passage therein closed on its outer side and provided with perforations in its inner side, a perforate  
 50 air-pipe in said passage, means for supplying cool air to said pipe, and a hollow perforate stop for the sash at the inner side thereof having its perforations in one side registering with those in the sash and its

other perforations opening to the inclosure, 55 for the purpose set forth.

6. In combination with a railway-car, hollow window-sash forming air-passages therein closed on their outer sides and provided with perforations in their inner sides, 60 pipes supplying cool-air to the car, perforate air-pipes in said passages and branch-pipes leading from said air-supplying pipes to said perforate pipes, for the purpose set forth. 65

7. In combination with a railway-car, hollow window-sash forming air-passages therein closed on their outer sides and provided with perforations in their inner sides, pipes supplying cool air to the car, perforate 70 pipes in said air-passages, branch-pipes leading from said air-supplying pipes to said perforate pipes, a valve in each branch-pipe and a spring-raised push-rod connected with the valve-stem and extending into the 75 path of movement of the corresponding sash, for the purpose set forth.

8. In combination with a railway-car, hollow window-sash forming air passages therein closed on their outer sides and provided with perforations in their inner sides, 80 pipes supplying cool air to the car, perforate pipes in said air-passages, branch-pipes leading from said air-supplying pipes to said perforate pipes, and hollow perforated 85 stops for the sash at the inner sides thereof and communicating with said air-passages and the interior of the car, for the purpose set forth.

9. In combination with a railway-car, hollow window-sash forming air-passages therein closed at their outer sides and provided with perforations in their inner sides, pipes supplying cool air to the car, perforate 90 pipes in said air-passages, branch-pipes leading from said air-supplying pipes to said perforate pipes, valves in the branch-pipes, means for opening and closing said valves by closing and opening the window-sash, and hollow perforated stops for the sash at 100 the inner sides thereof and communicating with said air-passages and the interior of the car, for the purpose set forth.

EDGAR M. MATTHEWS.

In presence of—

A. U. THORIEN,  
 R. A. SCHAEFER.