E. M. MATTHEWS.

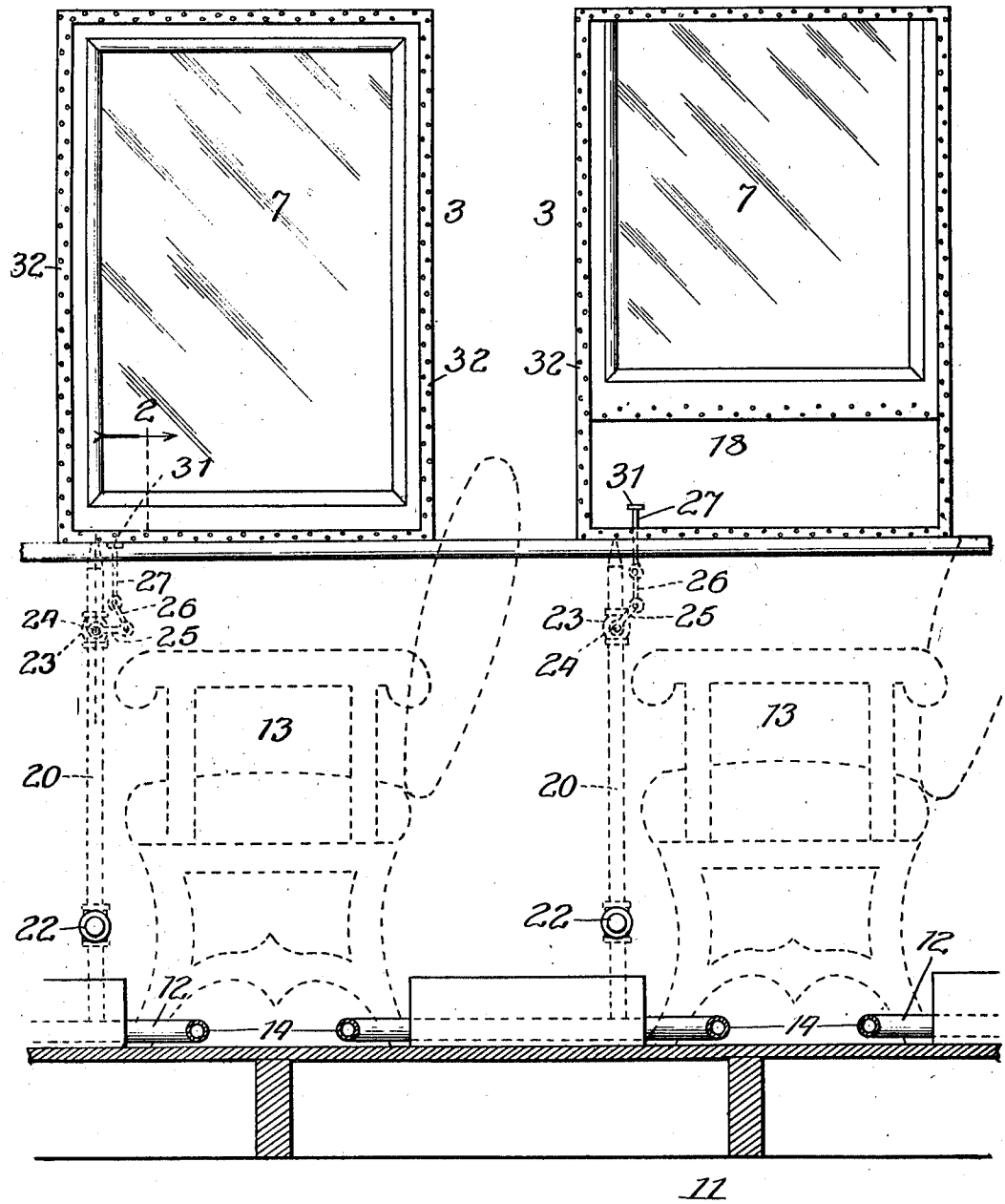
INTERIOR HEATING SYSTEM.

APPLICATION FILED FEB. 16, 1911.

993,857. Patented May 30, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

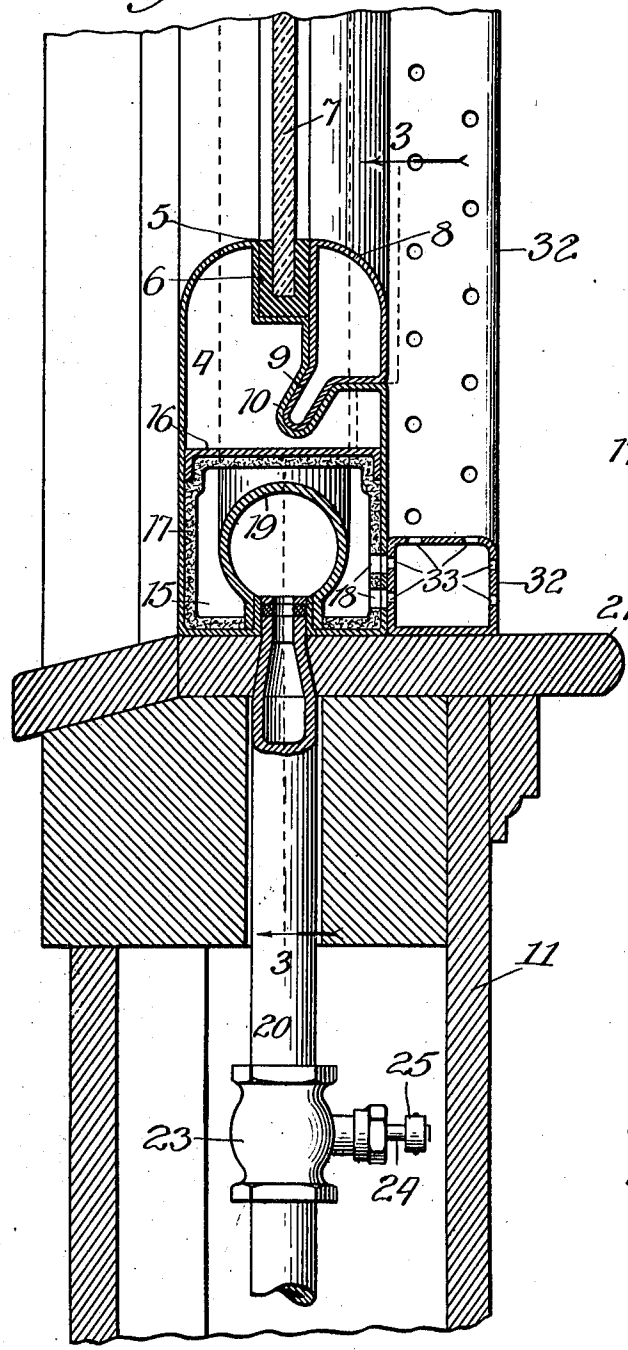
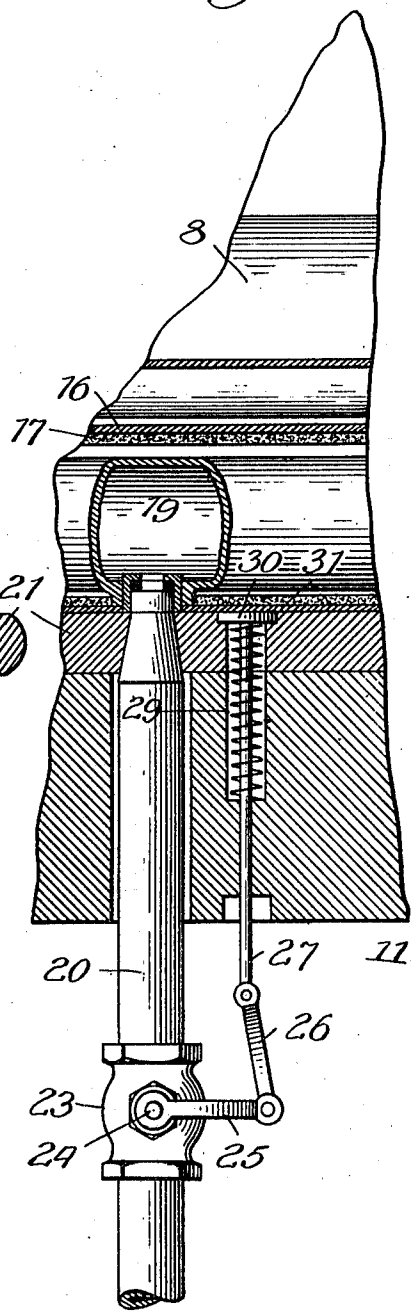


Fig. 3.



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UNITED STATES PATENT OFFICE.

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

INTERIOR-HEATING SYSTEM.

993,857. Specification of Letters Patent. Patented May 30, 1911.

Application filed February 16, 1911. Serial No. 608,932.

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 Interior-Heating System, of which the following is a specification.

My invention is intended for use, more particularly, in railway-cars which are provided with hollow metal sash for the windows; my object being to enable the window-sash to be utilized as a medium through which to heat the car.

The invention is adapted, however, for interior heating systems generally, where the sash employed for the windows of the inclosure is of metal and 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 metal window-sash, I have selected for illustrating it the sash shown and described in Letters Patent No. 977,415, granted to me November 29, 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 seat-forming 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 heating system of ordinary type, that shown comprising steam-pipes 12 running along the sides near the floor of the car and connected under the car-seats 13 with steam-coils 14. 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 heat-insulating lining 17, preferably asbestos, to prevent the surfaces of the rails inside the car from becoming excessively hot where passengers might touch them. Perforations 18 are provided through the inner faces of the chamber for the circulation of air through it. A steam-pipe 19 is housed in the chamber 15, and is fed from a steam-pipe 12, to constitute it a heat-conductor by circulating steam through it, by 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 steam 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 steam to circulate through the pipe 19 to heat the air circulating through the chamber 15. Adjacent to the chamber 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 and is heated therein by its contained steam-pipe 19.

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

1. In combination with an inclosure, a hollow window-sash forming an air passage closed on its outer side and provided with

perforations on its inner side, and means for supplying heat to said air-passage, for the 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 on its inner side, a heat-conductor in said air-passage, and means for supplying heat to said conductor, for the purpose set forth.

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

4. In combination with an inclosure, a hollow window-sash forming an air-passage therein closed on its outer side and provided with perforations on its inner side, a heat conductor in said air-passage, means for supplying heat to said conductor, and a hollow stop for the sash at the inner side thereof having perforations communicating with the air-passage in the sash and the inclosure, whereby the heated air is caused to circulate through said air-passage and stop and into the inclosure, as 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 on its inner side, a heat-conductor in said air-passage, means for supplying heat to said conductor, and a hollow perforated stop for the sash at the inner side thereof having its perforations on one side registering with those in the sash and those on the other side communicating with the inclosure, 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 on their inner sides, steam-pipes for supplying steam-heat to the car, steam-pipes in said air-passages and branch-pipes leading from said steam-supplying pipes into the pipes in said air-passages, for the purpose set forth.

7. In combination with a railway car, hollow window-sash forming air-passages therein closed on their outer sides and provided with perforations on their inner sides, steam-pipes for supplying steam-heat to the car, steam-pipes in said air-passages, branch-pipes leading from said steam-supplying pipes into the pipes in said air-passages, a valve on each branch-pipe and a spring-raised push-rod connected with the stem of the valve and extending into the 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 on their inner sides, steam-pipes supplying steam-heat to the car, steam-pipes in said air-passages, branch-pipes leading from said steam-supplying pipes into the pipes in said air-passages, and hollow perforated 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 on their inner sides, steam-pipes for supplying steam-heat to the car, steam-pipes in said air-passages, branch-pipes leading from said steam-supplying pipes into the pipes in said air-passages, 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 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 the presence of—
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R. SCHAEFER.