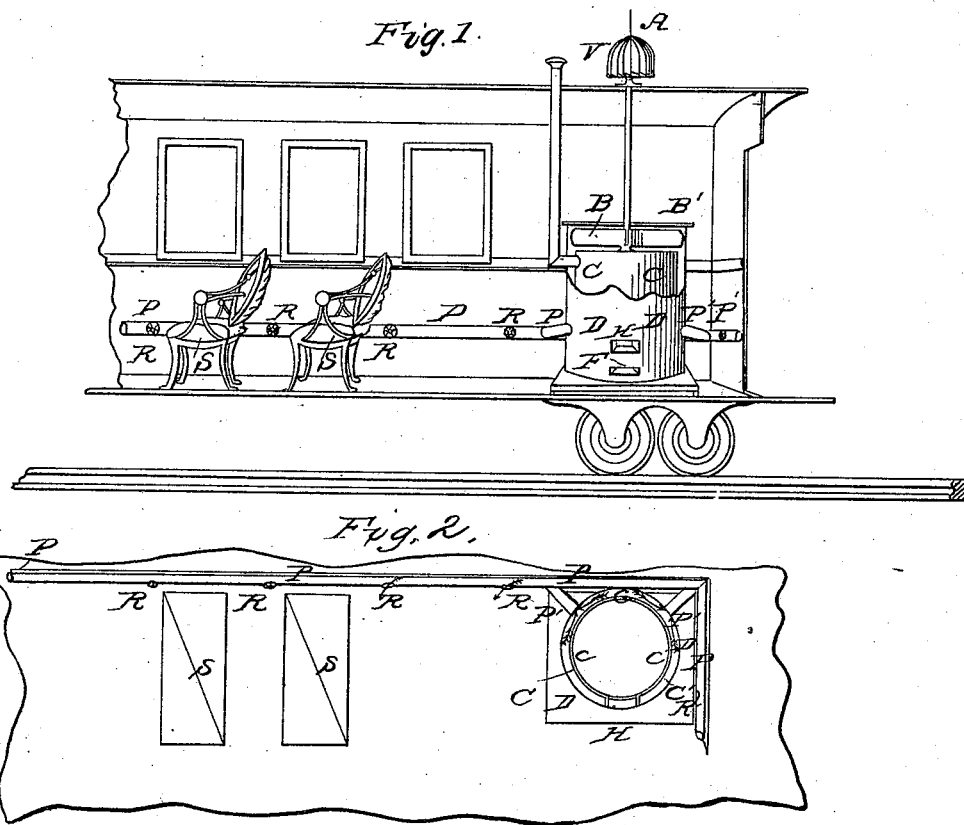


T. H. B. SANDERS.
Car Heater and Ventilator.

No. 55,168.

Patented May 29, 1866.



Witnesses:
A. S. Collins
E. S. Colledge

Inventor
Thos H B Sanders

UNITED STATES PATENT OFFICE.

THOS. H. B. SANDERS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HEATING AND VENTILATING RAILROAD-CARS.

Specification forming part of Letters Patent No. **55,168**, dated May 29, 1866.

To all whom it may concern:

Be it known that I, THOS. H. B. SANDERS, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement on my Apparatus for Warming and Ventilating Railroad-Cars; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal section of one end of a railroad-car, showing a perspective of my improvement. Fig. 2 is a horizontal section of the same, showing how the heaters P P are connected with hot or cold air chamber or casing C' C'.

The object of my improvement is to simplify the apparatus by dispensing with the bevel-gearing, which is shown as in *n* and *z*, Fig. 1, of the patent granted to me on the 14th day of November, 1865, as shall be hereby described, and also to distribute the hot or cold air forced out of the box or casing C' C', Figs. 1 and 2, by the rotating fan B B by means of pipes P P, running all around the inside of the car, said pipes being provided with registers placed between each couple of seats, thus enabling passengers to open or shut the register belonging to their seat and to regulate themselves the temperature immediately around them.

To enable others skilled in the art to construct and use my improvement, I will proceed to describe its construction and operation.

I place a pipe, P, of any suitable size and material, all around the car inside, between the outside ends of the seats and the walls. Said pipe is provided with registers R R R, Figs. 1 and 2, which, when closed, stop the passage of the air, and open do admit it in the car. The said pipes P, Figs. 1 and 2, are connected by pipes P' to the air chamber or cas-

ing C' C' in the stove or apparatus, and it is through said connection that the air, either hot or cold, according to season, is forced in the pipe P, all around the car.

The fan B B, Fig. 1, is fastened on a vertical shaft which, passing through roof of car, is directly put in motion by windmill V. fastened on its extremity, and the rotary movement of which is in direct ratio with the speed of the train.

It is clear that if we suppose a good fire in the apparatus the air contained in box or casing C' C' shall be very hot, and that having no other egress but pipes P', and thence pipes P, it is bound to fill up said pipes P, whence it goes out in the car at will of any passenger who pleases to open the valve or register close by his seat.

It is also evident that the same reasoning applies to cold air when, during the warm weather, there is no fire in the stove, which then should be filled up with ice in order to keep a supply of very cold air in box or casing C' C'.

I do not intend to limit myself to applying my improvement to railroad-cars only, but mean to use it also on board ships, ferry-boats, and in halls, churches, theaters, &c.

Having thus described my improvement, what I claim as my invention as an improvement on the Letters Patent granted to me on the 14th day of November, 1865, and desire to secure by Letters Patent, is—

The arrangement of air-pipes P and registers R with hot or cold air chamber C' C', of stove S and fan B B combined together, as and for the purpose hereabove described.

THOS. H. B. SANDERS.

Witnesses:

C. D. COLLADAY,
C. T. COLLADAY.