

(No Model.)

2 Sheets—Sheet 1.

A. B. WILSON.  
CAR HEATING APPARATUS.

No. 432,349.

Patented July 15, 1890.

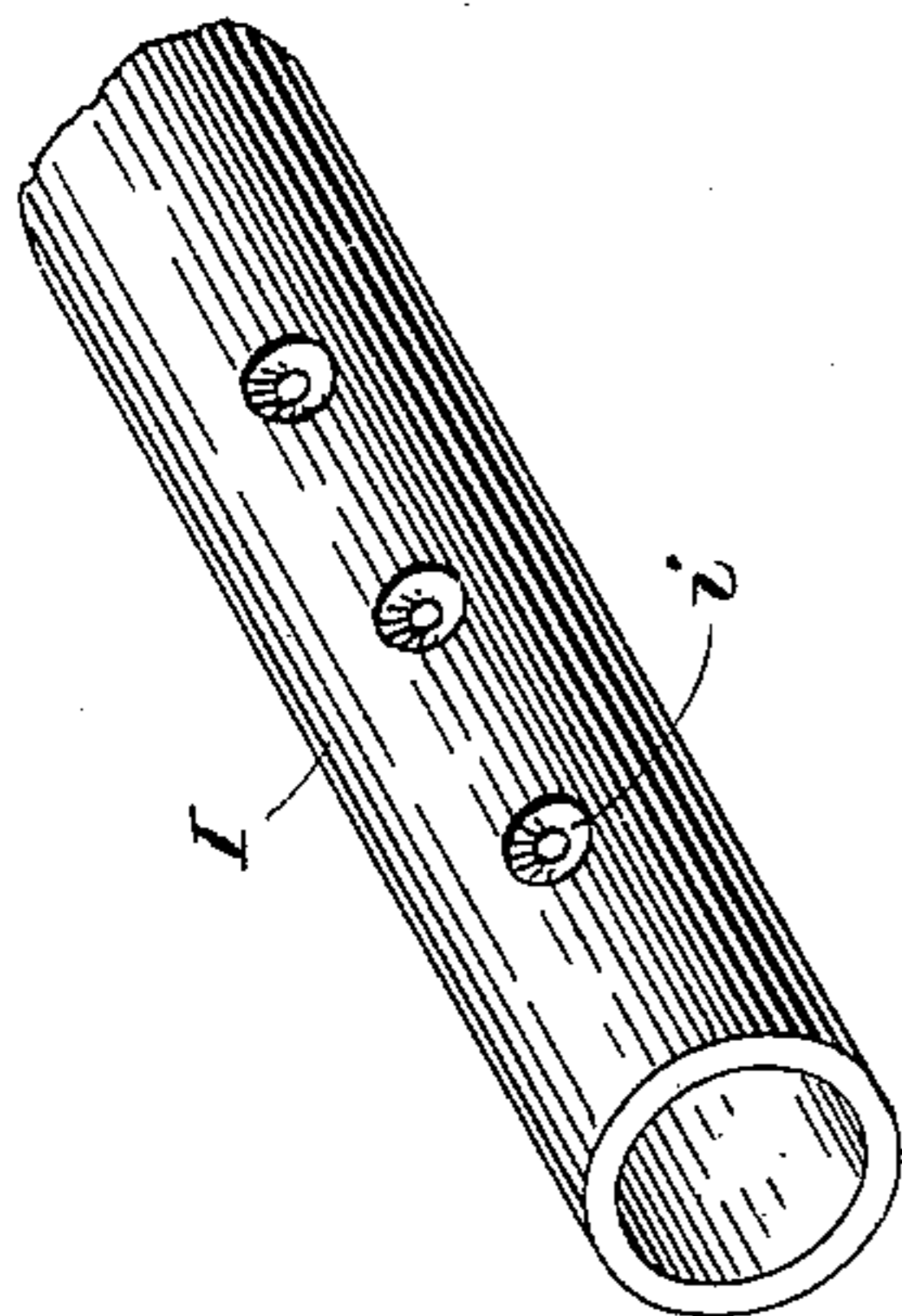


Fig. 7

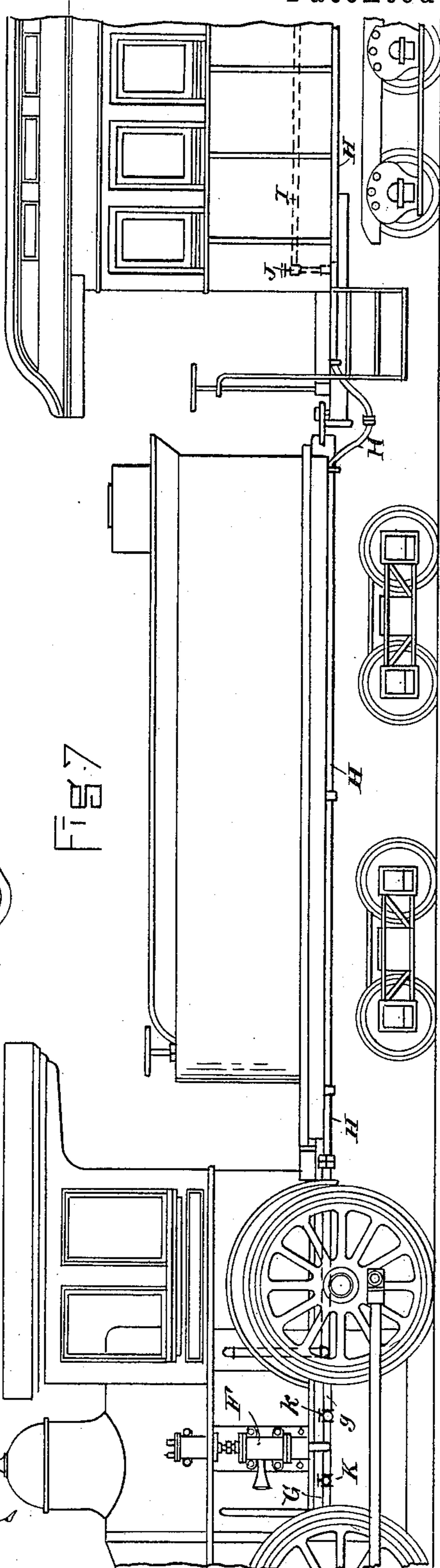


Fig. 1.

WITNESSES.

*R. Henry Marsh*  
*Walter L. Simmons*

INVENTOR,

*Alex. B. Wilson*  
by *A. H. Brewer*  
Attorney.

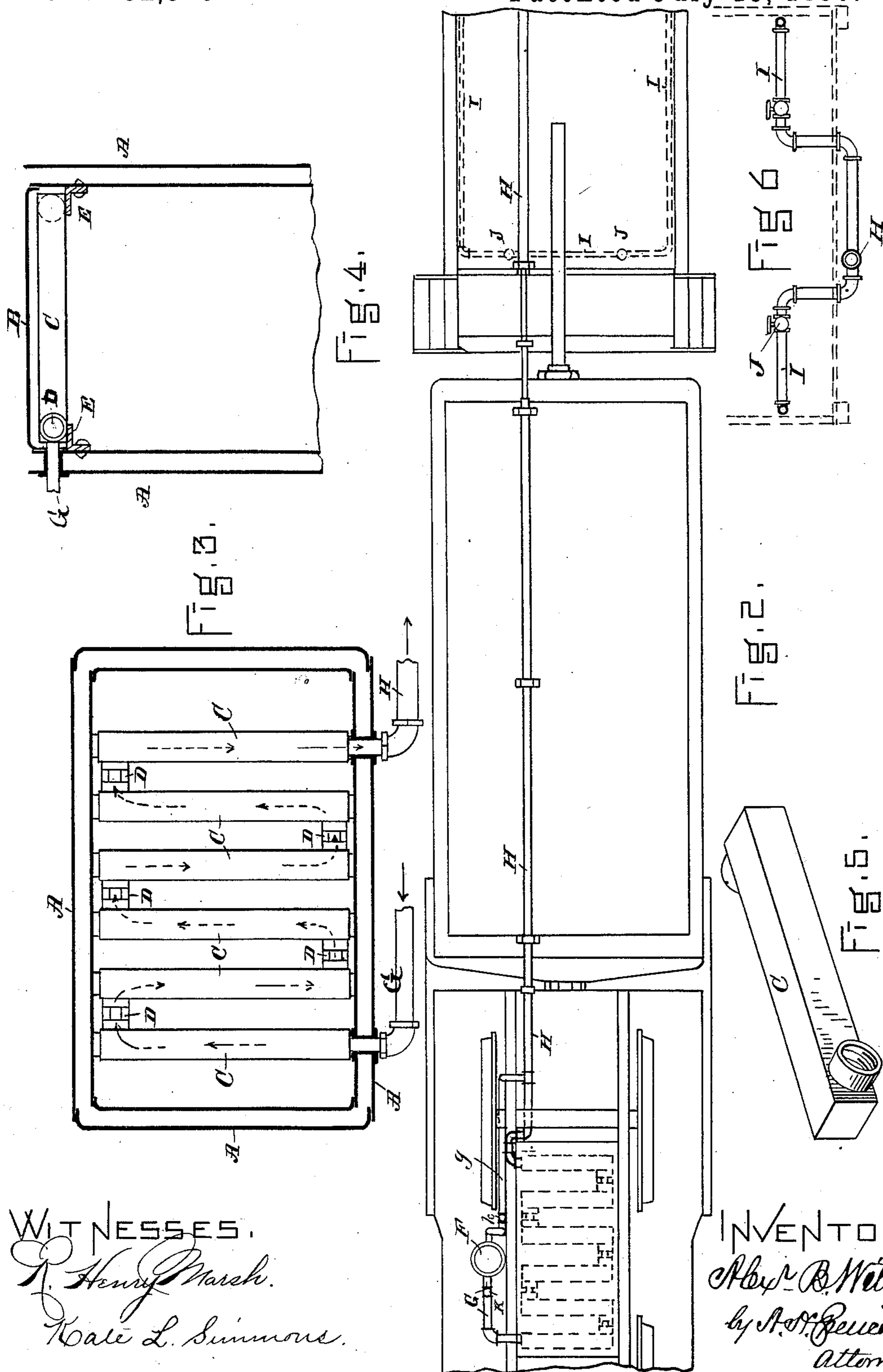
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*Attorney.*

# UNITED STATES PATENT OFFICE.

ALEXANDER B. WILSON, OF BOSTON, MASSACHUSETTS.

## CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 432,349, dated July 15, 1890.

Application filed September 2, 1889. Serial No. 322,706. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER B. WILSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Car-Heating Apparatus, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to a class of heating apparatus for railway-trains in which heated air is driven through a pipe from the locomotive and distributed in the several cars of the train.

The object of my invention is to provide apparatus of a practical nature, applicable to existing cars and locomotives, and at the same time sufficiently simple and inexpensive to warrant its general adoption.

The features peculiar to my system comprise a chamber or a series of two or more chambers connected to each other by suitable couplings and located within the fire-box of the locomotive near its upper surface, an air-pump or blower for forcing air through such chambers, a train supply-pipe for carrying the air so heated to the several cars of the train, and perforated branch pipes in each car, furnished with valves for distributing and controlling the heated air. These features are more fully set forth in the following description, and illustrated in the drawings hereto annexed, a simple change in means being also disclosed for furnishing supplies of cold air to the several cars in summer time.

In the drawings, Figure 1 is a side elevation of a locomotive, tender, and car, showing pump and air-pipes to and from the fire-box. Fig. 2 is a bottom plan view of the same. Fig. 3 is a horizontal section of the fire-box and a plan of the air-chamber, and Fig. 4 a vertical section of the same. Fig. 5 is a detail in perspective of one of the air-chambers. Fig. 6 is an end elevation of the air-pipes, showing their relation to the car. Fig. 7 is a detail of the branch pipes, showing perforations.

A A, Figs. 3 and 4, represent the side walls of the fire-box, and B its top or the crown-sheet of the boiler. C C are air-chambers, preferably hollow castings, placed transversely across the upper part of the fire-box a little distance from each other and somewhat below the crown-sheet, so as to give the flames access

thereto. These sections are connected into one continuous chamber by couplings D, placed alternately at opposite sides and ends of the several sections, and having right-hand and left-hand screw-threads or other proper means of joining them detachably, so that one or more of the sections or chambers C may be removed, if required, and others substituted without disturbing the remaining ones. The chamber C will be supported upon brackets E or other projections from the walls A, or by hooks depending from the crown-sheet, provision being made for expansion and contraction, as required.

F represents an air-pump, driven by steam from the locomotive, and serving to force a constant current of fresh air through the chambers C and their couplings D, and then through the air-supply pipe H rearwardly to the several cars. This air-current, entering the pipe G, properly heated in its passage through the several chambers and forced along the air-supply pipe, is distributed in each car by means of branch pipes I, perforated at intervals with countersunk holes *i*, and furnished at each end of the car with a valve J, Figs. 2 and 6, by which the current may be wholly or partially cut off from any given car when desired. The perforations will be on the under side of the pipes, by preference, and may be arranged in groups of three or more under each seat, the countersinking preventing any perceptible puff or jet of air or any noise from its escape under pressure.

By my system an abundant supply of fresh air is delivered within the cars, displacing and driving out the foul air, and being constantly renewed, thus giving efficient ventilation. In warm weather, when artificial heat is not required, the current through the chamber C is cut off and caused to pass instead through a cold-air pipe *g* direct to the main supply-pipe H, and thence to the cars. Cocks K *k* at either side of the air-pump direct the current as desired. When both are open, the current is divided and the part not passing through the heating-chambers C moderates the temperature of that which has so passed when they reunite beneath the cab, and, since the volume of each current is easily regulated by its cock, the temperature is under complete control and may be varied ac-

according to the state of the weather. Besides this, the valves J in each car permit the amount of air entering through the pipes I to be regulated.

5 I claim as my invention—

The series of transverse air-chambers C in the upper part of the fire-box, the right and left hand couplings D, which unite adjacent chambers, and the supporting hangers or  
10 brackets E, each adapted to support one end of a chamber and to permit insertion and removal thereof, in combination with the air-pump F and pipe G for forcing cold air through

the chambers C successively from front to rear, whereby it is heated, and with the pipe 15 g, the cocks K and k, the train supply-pipe, and distribution-pipes I, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two 20 subscribing witnesses, on this 20th day of July, A. D. 1889.

ALEX. B. WILSON.

Witnesses:

A. H. SPENCER,  
ELIHU G. LOOMIS,