

No. 705,432.

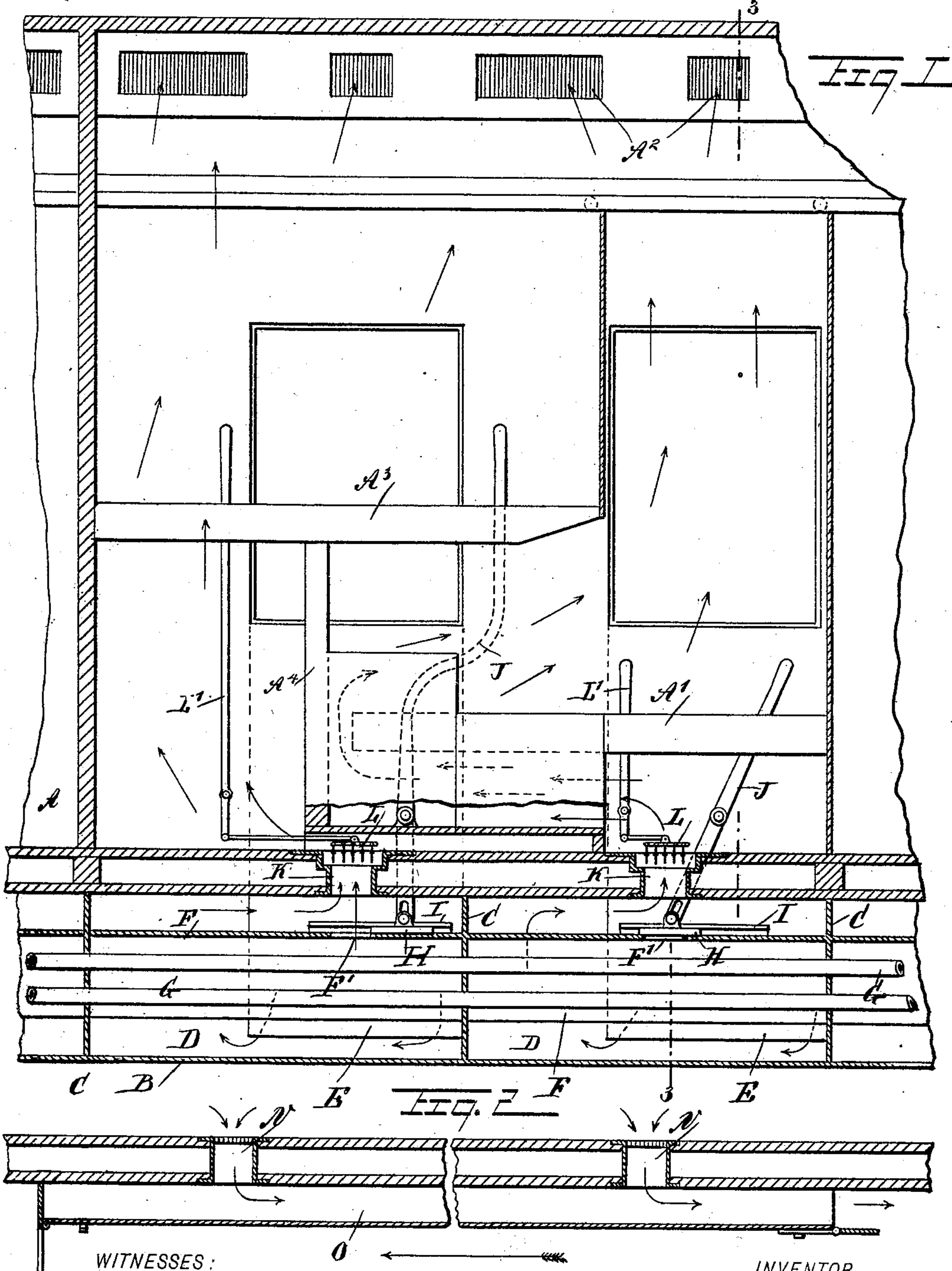
Patented July 22, 1902.

J. M. OSGOOD.
PASSENGER CAR.

(Application filed Nov. 18, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

W. Walker

Wm. H. Foster

INVENTOR

J. M. Osgood

BY

Munn & Co.

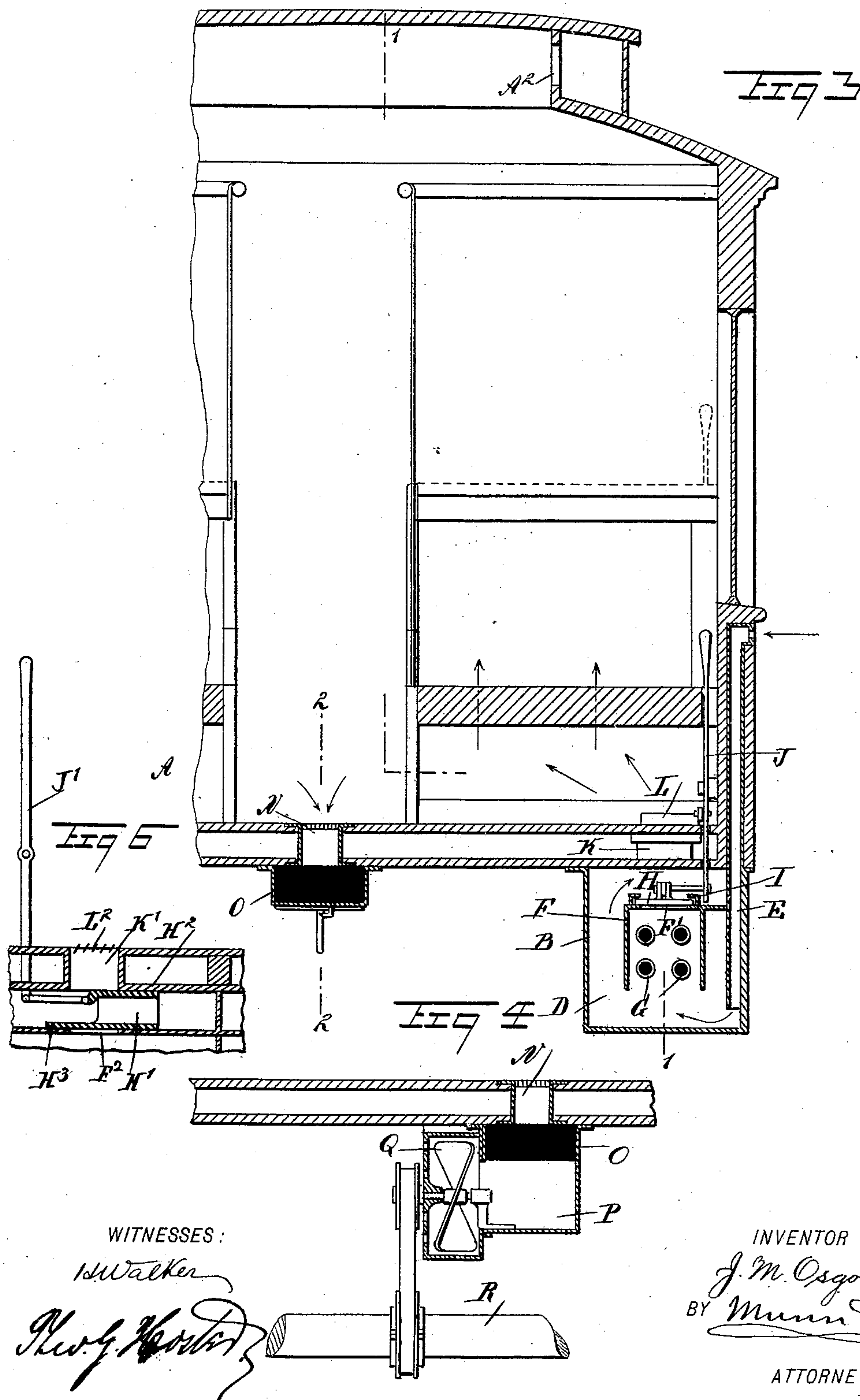
ATTORNEYS.

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(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

H. Walker
Thos. J. Horton

INVENTOR

J. M. Osgood
BY *Munn & Co*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES M. OSGOOD, OF BOSTON, MASSACHUSETTS.

PASSENGER-CAR.

SPECIFICATION forming part of Letters Patent No. 705,432, dated July 22, 1902.

Application filed November 18, 1897. Serial No. 658,924. (No model.)

To all whom it may concern:

Be it known that I, JAMES MADISON OSGOOD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Passenger-Cars, of which the following is a full, clear, and exact description:

The object of the invention is to provide certain new and useful improvements in passenger-cars whereby perfect ventilation and heating is obtained, at the same time giving all the desired comforts to passengers.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 3. Fig. 2 is a similar view of part of the same on the line 2 2 of Fig. 3. Fig. 3 is a transverse section of the improvement on the line 3 3 of Fig. 1. Fig. 4 is a transverse section of the exhausting device for the foul air. Fig. 5 is a sectional side elevation of a modified form of the improvement, and Fig. 6 is a sectional side elevation of a modified form of valve for the hot-air chamber and air-flue.

The car A, of usual construction, is provided on its under side with a reservoir B, preferably arranged longitudinally throughout the length of the car and formed with transverse partitions C for dividing the reservoir into independent sections D, each receiving its supply of fresh air through a fresh-air inlet E, extending on the inside of the car under a window or the like and discharging into the section D, near the bottom thereof, as is plainly indicated in Figs. 1 and 3. If desired, the partitions C may be terminated near the bottom of the reservoir B, as indicated in Fig. 5, and fresh air is supplied to the reservoir B either by such air-inlets E as shown and described or through an inlet at the end of the car from under the hood above the platform, it being understood that the air can then pass through such inlet to all the sections D, as the latter are in communication with each other at their lower

ends, as will be readily understood by reference to said Fig. 5. Other suitable means may be employed for supplying the reservoir B and its sections D with fresh outer air.

Within the reservoir B is arranged a hot-air chamber F, opening at its bottom into the reservoir and having its sides and top a suitable distance from the sides and top of the reservoir to allow cool air to circulate around the hot-air chamber. The latter is divided into small chambers or sections, which are separated from each other and preferably by the partitions C, so that there is a hot-air chamber-section in each reservoir-section D.

Within the hot-air chambers F is arranged a heating device G, preferably in the form of steam-pipes connected with a suitable steam-supply; but electricity or other agents may be employed for heating the chambers and the air contained therein and passing through the same.

In the top of each chamber F is arranged an opening or openings F', adapted to be closed by a valve H, fitted to slide in suitable bearings I and connected with a lever J, extending upward into the car, to be under the control of the occupant in this particular section of the car. The openings F' establish communication between the interior of the chamber F, the top of the section D, and the reservoir B when the valve H is open, and directly above the said openings is arranged a flue K, leading from the top of the reservoir to the inside of the car, the said flue being controlled by a register L under the control of the operator by means of a lever L' to allow of conveniently opening and closing the said register whenever desired.

The valve H' (shown in Fig. 6) controls both the opening F² and the flue K', provided with a register L². The valve H' is formed for this purpose with a top valve-plate H² and a bottom valve-plate H³, of which the latter is considerably the longer, to permit of opening the flue K' by the plate H² while the opening F² is still closed by the plate H³. On shifting the operating-lever J', however, farther the valve is moved to cause the plate H³ to uncover the opening F² for the passage of the hot air to the open flue K' and to the interior of the car-section. It will be readily seen that by the construction described the heat

from the hot-air chamber may be completely shut off or regulated to any point without changing the volume as it goes into the car, or both the aperture F^2 and the flue K' may be closed at the same time.

Now it is evident that when the openings F' in any one of the hot-air chambers are opened by shifting the valve H into an open position, as shown at the left in Fig. 1, then there will immediately follow a circulation of heated air, as the cooler air in the section D and surrounding the hot-air chamber will fall to the bottom, so as to force up the heated air around the heating device G , up through the openings F' , into the upper part of the section D , to finally pass through the flue K and the open register L into the section of the car. When the openings F' are closed by the valve H and the register L is left open, then a circulation of air will take place, but wholly outside of the hot-air chamber F , the air being partially heated by the radiation from the external surface of the hot-air chamber, the air passing through the flue K into the car, thus giving a constant supply of fresh and partially-heated air to the section of the car.

It will be seen that by partially opening the valve H and fully or partially opening the register L there will be a circulation through both the chamber F and the section D , so that hot and cold air is mixed in the upper portion of the section before passing through the flue K into the section of the car. Consequently air admitted into the section of the car can be tempered to any desired degree by opening or closing the valve H correspondingly. It will further be seen that by the arrangement described the volume of air passing into the car is not decreased unless desired by fully closing the register L , as the flue K is always in full communication with the interior of the corresponding section D .

The car A is divided into sections each provided with a lower berth A^1 , an upper berth A^2 , and a roof with the usual monitors A^3 , the berths overlapping each other, with the lower berth projecting with its head portion beyond the head portion of the upper berth to provide a free space to the top of the car, with an intermediate partition A^4 between the berths, so as to give an independent compartment within this section of the car. The berths are so constructed that the car can be readily changed from ordinary day use into sections or compartments for day or night service, each compartment receiving its air from a corresponding reservoir-section below the car, as above mentioned, thereby placing the temperature of each section with its volume of pure air perfectly under the control of the occupants of the sections.

As shown in Fig. 1, the register L at the right is placed either in the wall or floor of the car beneath the berth A^1 , and the lever for this register is within convenient reach of the occupant of the berth. The air from the register flows up between the vertical

support of the upper berth A^2 and the foot of the lower berth and passes directly over the occupant through the space between the lower berth and the top of the car into a monitor A^2 and out into the external air. The air may also pass through an aperture in the vertical support or around the berth, as the case may require. The register for the upper berth A^2 is placed in the space below it, so that the air passing around the upper berth over the occupant finally reaches the monitor A^2 and passes to the outside air in the same manner as the air from the lower berth.

The two compartments in a section of a car when made up for night use are separate and distinct from each other, each having its own independent hood and ventilator. As the air is exhausted through the monitor instead of being received thereby there is no cold draft liable to fall upon the occupants of either berth. The method of ventilation is not only operative for winter service, but is just as applicable for cooling purposes in summer. The occupant of a berth can open the corresponding register to receive a cooling breeze from below all night, if desired, it being understood that the heating device G is not in operation at the time.

The lighter gases within the car are readily exhausted through the monitors A^2 by being carried upward with the circulating air, as above described, and in order to remove or exhaust the heavier or poisonous gases that collect near the floor I provide registers N , placed in the aisle of the car and opening into a longitudinally-extending passage-way or channel O , carried on the under side of the car. This channel O opens into a chamber P , connected with an exhaust-fan Q , driven by suitable mechanism from one of the car-axles R or by other means. When the exhaust-fan Q is in motion, the heavier and poisonous gases referred to are readily drawn through the registers N into the channel O to be finally exhausted by the said fan. The latter may be dispensed with, as the ordinary movement of the car will usually be sufficient to create enough draft in the channel O to draw out the said gases.

Instead of operating the valves H and registers L by the use of levers, as described and shown, the said valves and registers or like controlling devices for the air may be actuated automatically by suitable temperature-regulating devices, such as thermostats now used for opening and closing dampers on heaters, incubators, &c.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a passenger-car, an air-reservoir arranged beneath the car and communicating with the outer air, a valved flue leading from the top of the reservoir into the car, a hot-air chamber arranged in the reservoir with its top and sides spaced from the top and sides

of the reservoir and communicating with the same at its bottom, said chamber being provided with an opening in its top beneath the said flue, and a valve operated from the interior of the car, for controlling the said opening of the hot-air chamber, substantially as described.

2. In a passenger-car, an air-reservoir arranged beneath the car and communicating with the outer air, a flue leading from the top of the reservoir into the car, a register in said flue, a hot-air chamber arranged in the reservoir with its top and sides spaced from the top and sides of the reservoir and communicating with the same at its bottom, said chamber being provided with an opening in its top beneath the said flue, a valve for controlling the opening of the hot-air chamber, and means for operating the said valve from the interior of the car, substantially as described.

3. In a passenger-car, an air-reservoir arranged beneath the car and communicating with the outer air, a flue leading from the top of the reservoir into the car, a register in the flue, a hot-air chamber arranged in the reservoir with its top and sides spaced from the top and sides of the reservoir and communicating with the same at its bottom, said chamber being provided with an opening in its top beneath the said flue, a sliding valve between the tops of the reservoir and chamber for controlling the opening of the hot-air chamber, and means for operating the valve from the interior of the car, substantially as described.

4. In a passenger-car, an air-reservoir arranged beneath the car and communicating with the outer air, a flue leading from the top of the reservoir into the car, a register in the flue, a hot-air chamber arranged in the reservoir with its top and sides spaced from the top and sides of the reservoir and communicating with the same at its bottom, said chamber being provided with an opening in its top beneath the said flue, a valve for controlling the opening of the hot-air chamber, and means for operating the valve and register, substantially as described.

5. The combination with a passenger-car provided with a series of compartments, of an air-reservoir arranged beneath the car and divided into a series of sections corresponding to the compartments of the car, said reservoir communicating with the outer air, a flue connecting each section of the reservoir with a compartment of a car, registers in the said flues, a hot-air chamber in each section of the reservoir with its top and sides spaced from the reservoir and communicating with the same at its bottom, said chamber being provided with an opening in its top beneath the said flue, and a valve operated from the interior of the car, for controlling the opening of the said chamber, substantially as described.

6. The combination with a passenger-car provided with berths, each having an independent compartment, the upper berth being

arranged with its head portion projecting over the foot portion of the lower berth, of a reservoir beneath the car and communicating with the outer air, and a valved flue leading from the reservoir to each berth-compartment below the berths, whereby the air will be made to pass over the occupants of the berths, substantially as described.

7. The combination with a passenger-car provided with berths each having an independent compartment, the upper berth being arranged with its head portion projecting over the foot portion of the lower berth, of a compartment-reservoir beneath the car and communicating with the outer air, a flue leading from each compartment of the reservoir to the berth-compartments below the berths, a register in the said flues, a hot-air chamber in each compartment of the reservoir, said chambers being each open at its bottom and provided with an opening in its top, valves for the openings of the said chambers, and means for operating said valves, substantially as described.

8. In combination with a parlor and sleeping car divided into sections for night use, with an upper and lower berth in each section overlapping each other, the lower berth projecting beyond the upper, providing a free space to the top of the car, with intermediate partitions between the two berths, giving to each berth an independent compartment within the section; an outer reservoir placed beneath the car containing an inner hot-air chamber with a free circulation of air, both divided into compartments, each compartment independently connected with the corresponding compartment in the car above, the air for the heat and ventilation circulating either around or through the hot-air chamber, or both at the same time, being controlled by slides, dampers or registers as it passes through the apertures of the hot-air chamber and through the registers of the car into the corresponding compartment above, the register of the lower berth being below the bed and connected by a lever for the use of the occupant of the berth, the air from the register flowing up between, around or through the vertical support of the upper berth and the foot of the lower berth, passing directly over the passenger through the space between the lower berth and the top of the car into the monitor and out into the external air; the register for the upper berth being placed below it, the air passing around it up into the monitor and out into the external air in the same manner as in the lower berth, all of the valves pertaining to heat and ventilation being under the control of the occupant of the berth, substantially as described.

9. In combination with a parlor and sleeping car divided into sections for night use, with an upper and lower berth in each section overlapping with each other, the lower berth projecting beyond the upper, providing a free space to the top of the car, each berth

being an independent compartment within the section; the car being provided with an outer reservoir containing an inner hot-air chamber with a free circulation of air either
5 around or through the hot-air chamber, or both at the same time, being controlled by slides, dampers or registers as it passes through the apertures of the hot-air chamber through the register of the outer reservoir
10 into the car, flowing through, around or up between the vertical support of the upper berth and the foot of the lower berth, passing directly over the passenger through the space between the lower berth and the top of the car into the monitor out into the external air; the register of the upper berth being placed beneath it, the air passing around it up into the monitor out into the external air in the same manner as in the lower berth, substantially as described. 15

JAMES M. OSGOOD.

Witnesses:

WILLIAM B. WESTON,
ALBERT HALLETT.