(No Model.)

W. G. CREAMER.

METHOD OF HEATING AND VENTILATING RAILROAD CARS.

No. 463,270. Patented Nov. 17, 1891.

Fig. 1.

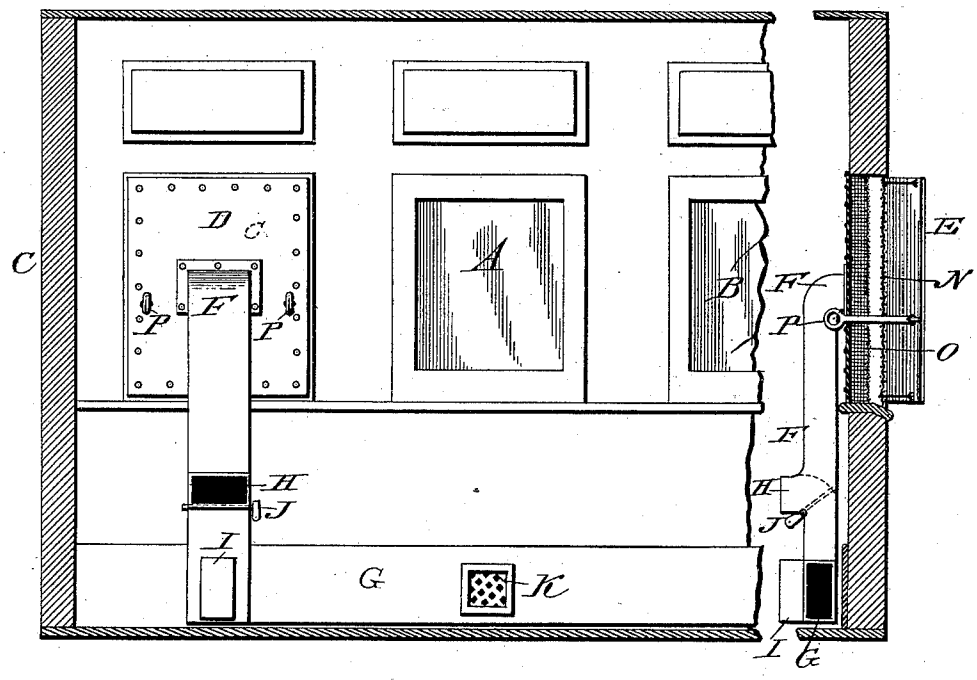
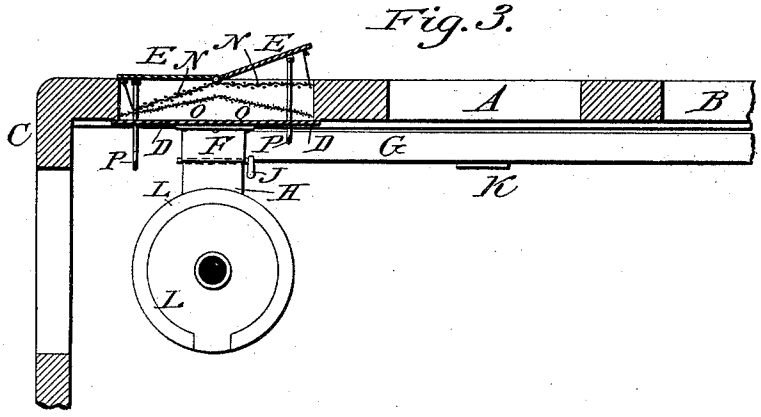


Fig. 2.

Fig. 3.



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METHOD OF HEATING AND VENTILATING RAILROAD-CARS.

SPECIFICATION forming part of Letters Patent No. 463,270, dated November 17, 1891.

Application filed March 24, 1884. Serial No. 125,371. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. CREAMER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Method of Admitting Air for Purposes of Ventilation to a Railroad-Car, (and connecting the same with heating appliances when required,) of which the following is a specification.

My invention relates to improvements in the methods of admitting air for ventilation and screening the same from cinders before its discharge into the car; also, (when required,) to circulate the air so screened around the heating appliances, in combination with the heater, direct or over hot-water or steam pipes along the sides of the car, or admitting the outer air, after being screened, directly into the car through the same pipes used for discharging the warm air.

The present methods of heating cars in general use are, first, by stoves that radiate the heat directly from their surfaces; second, by stoves with a casing outside the combustion-chamber into which the air is forced from the roof by the movement of the train and after being warmed is then discharged into the car through pipes running under the seats, and having small registers placed between alternate seats; third, heaters are made of coiled tubing (which is filled with water) inside of which the fire is made of coal or coke, and the water when heated circulates along the sides of the car through pipes connecting with the coils. The objections to these plans (of which there are many modifications) are that by the admission of air from the top of the car there is constant danger of admitting the gas and dust from the engine. The plan of heating by coils of pipe and water or steam circulation, which, while it may be good as a means of heating, does not embody any means of ventilation.

My invention consists in improvements for admitting the air from the side of the car-body where there is little or no gas, and after screening it from cinders discharging it directly into the car through tin pipes, with registers between the seats, or passing it through the heating appliances first and then discharging it into the car through the registers. I attain these objects by mechanisms illustrated in the accompanying drawings.

Figure 1 is a side elevation of a portion of the inside of a railroad-car, showing one window A and part of another B, and where the opening for the third window was I put in my mechanism for receiving the air from the outside. This mechanism I construct as follows: I take out the sash and blinds from the side window next to the end of the car G, (or behind the heater, wherever placed,) and then make a sheet-metal casing to fit the opening, with a covering D D on the inside. On the outside of this casing and outside of the car I attach two hinged injectors in the form of flap-hoods E E, also made of sheet metal and hinged from the center of the casing, as shown in Fig. 3. About the middle of the covering D D is an opening with an elbow and pipe F, connected tight to the covering and leading down to the horizontal pipe G G, with a branch H to connect with a heater to force the air in and a branch I to force the air out after it is heated into the horizontal pipe G G. At the point J, I place a valve which, when turned upward, closes the entrance H to the heater, and then the air goes directly through the pipe F to pipe G G and out of the registers into the car, one of which is shown at K.

Fig. 2 is a vertical view showing one of the injectors or flap-hoods E open, and the vertical pipe F leading down to the horizontal pipe G G and the inlet H and outlet I openings to and from the heater L; also, the reversible valve J in position for the air to go into the heater.

Similar letters refer to similar parts in all the views.

Fig. 3 is a plan of the side of a car and a small portion of the end with my mechanism in one of the window-openings and its connection with a heater and the horizontal pipe G G. One of the injectors E stands open. Inside these injectors I place a netting N N, of woven brass wire, about No. 10 mesh. (Shown on the open and closed injectors E E, Fig. 3.) These nettings are attached to the sheet-metal casing that forms the injector, as previously shown. Inside the casing forming the whole width and height of the window-opening I place another netting O O of very fine mesh, which is stationary. I then attach

to the injectors E E handles P P, by which they can be pushed outward or pulled inward, as shown in Fig. 3. The outward limit of opening is three and one-half inches.

The practical operation of this improvement is as follows: When the car is moving to the right, the forward injector is opened by pushing outward the handle P. The air then by the movement of the train is forced into the opening, thence through the netting N and O O, and so on through the pipe F and through the opening H around the heater L, and thence again through the collar I into the pipe G G, and so out through the several registers into the car. If the car moves to the left, the injector now shown closed is moved outward, as before described, and the other closed. If it is desired to let cool air only into the car, the valve J is turned upward, closing the opening H, and the air goes then directly into the car through the pipe G G.

I claim—

1. The combination, with the wall of a car having an opening therein, of a covering over the opening upon the inside of the car, flap-hoods or injectors facing in opposite directions and hinged to alternately open and close the opening from the outside, means for manipulating these hoods from the inside, the screen N, arranged at an acute angle thereto, and a fixed screen O of finer mesh secured within the opening, combined and arranged as shown for admitting air to the car, as set forth.

2. The combination, with the car having an opening, as described, of the covering D over the opening upon the inside of the car, injectors hinged to alternately open and close the opening from the outside, means for manipulating the injectors, screens N, carried by the injectors and arranged at an acute angle thereto, a fixed screen O of finer mesh secured within the opening, the horizontal pipe G, having registers K, the branch H, to connect with a heater, pipe F, connected with the pipe G, the branch I for outlet of heated air, and a valve at the junction of the branch H and pipe G and adapted to be reversed, substantially as shown and described, and for the purpose specified.

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