

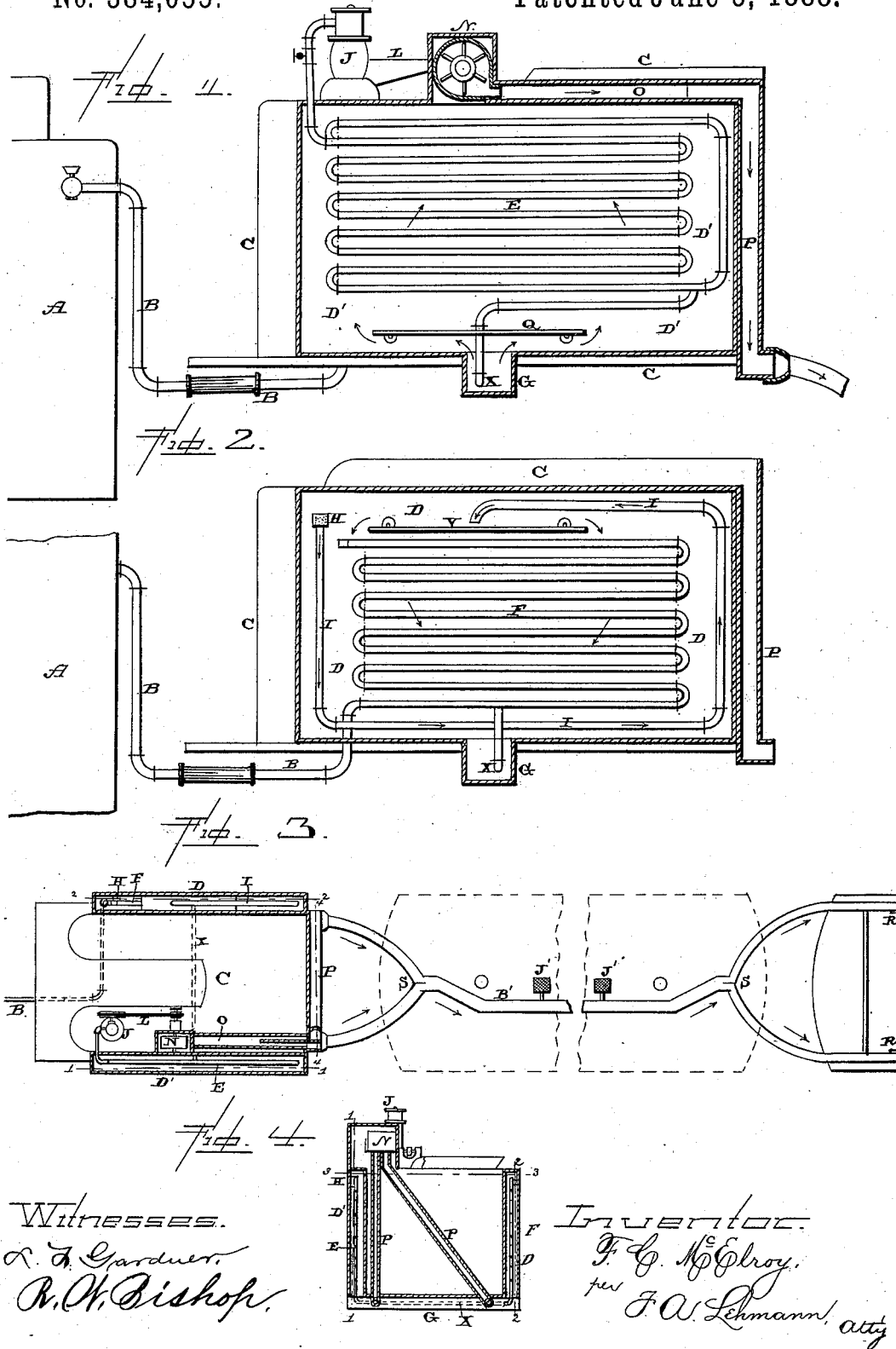
(No Model.)

F. C. McELROY.

CAR HEATER.

No. 384,055.

Patented June 5, 1888.



# UNITED STATES PATENT OFFICE.

FRANK C. McELROY, OF COLUMBUS, OHIO.

## CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 384,055, dated June 5, 1888.

Application filed August 1, 1887. Serial No. 245,609. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK C. McELROY, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Car-Heaters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in car-heaters; and the object of my invention is to produce a heater by means of which the cars are heated by hot air alone, and thus dispense with the stoves and furnaces heretofore used in heating cars.

Figure 1 is a side elevation of an apparatus embodying my invention, one side of the inclosing-case being removed upon the lines 1 1 of Figs. 3 and 4. Fig. 2 is a similar view taken from the opposite side and upon the lines 2 2 of Figs. 3 and 4. Fig. 3 is a plan view, partly in section, taken upon the dotted lines 3 3 of Fig. 4. Fig. 4 is a rear view of the tender, partly in section, taken upon the lines 4 4 of Fig. 3.

A represents the boiler of the locomotive, from which steam is taken through the pipe B, which is provided with a rubber coupling, so that the engine can be detached from the tender C at any time. Applied to the water-tank are the inclosing frames or chambers D D', in which are placed a series of radiators, E F, which receive their steam through the pipe B, connected with the boiler. The radiators E F are connected together by a pipe, X, which extends across under the tender through an inclosing box or pipe, G. Through the case or frame D is a suitable opening or register, H, through which air is taken, and this air is passed through the pipe I, which extends around the radiators F, so as to heat the air before it is discharged into the frame or compartment D. Under the inner end of this pipe I is placed a horizontal partition, Y, for the purpose of causing the fresh air admitted by the pipe I to spread evenly toward each end of the compartment D, and thus move a longer distance in passing down over the surface of the radiator F and becoming more thoroughly heated than would be the case if the

air passed directly down to the box or pipe G. Supported in the compartment D', under the radiator E, is the partition Q, against which the air strikes before reaching the radiator, thus causing the air to spread and to be evenly distributed upon the surface of the radiator. A small engine, J, of any suitable pattern, is connected to the same pipe which forms the radiator, so as to be driven by the steam direct from the boiler of the locomotive. From this engine J extends a driving-belt, L, to a blower, N, or an air drawing and forcing mechanism of any kind, which exhausts the heated air from the inclosing cases or chambers D D' and forces it through the pipe or box O, down through the pipes or boxes P, which extend down to each side of the rear end of the tender, where it is discharged through the boxes P and B' into the cars. On some locomotives and tenders it may be more convenient to locate the inclosing cases or chambers and the radiators at some other point. If so, they can be made of different shapes. However, for general purposes, they are located on each side of the tender, as shown, and which are connected together by a pipe or box, G, extending under the center of the tender. The air is first heated in that part of the inclosing-chamber which is located upon one side, and it is then drawn by a pump or blower into the other side, so as to be held as long as possible in contact with the radiators E and F. When the air escapes from the chamber D' to the blower N, it is heated to a very high degree, and is then forced through boxes O and P P to the box B' under the baggage-car and boxes R R on each side of the inside of each car.

The register-boxes J' in the baggage-car and the boxes R, which pass along opposite sides of the passenger-car, are connected to the hose which conveys the hot air between the passenger-cars and to the box B' under the baggage-car by means of the cast-iron pipes S.

The locomotive is coupled to the train fifteen or twenty minutes before the train leaves. The fireman then starts the engine and keeps it running until the locomotive leaves the train, and a circulation of hot air is thereby continually forced to the cars. No coal is used, except what little extra it requires to generate the steam to run the small engine that drives the blower, which is a great saving of hard and

soft coal used in stoves and heaters now in cars. The use of wooden boxes to convey the heat and all other parts of the device being inexpensive and durable, the expense to equip an engine and cars and to maintain it afterward is very small compared with the first cost and the maintenance of furnaces, heating-stoves, or steam-heating devices that take steam from the locomotive-boiler and run it through pipes in cars. Besides these advantages, the one and important point of all is, passengers cannot possibly be injured by fire in case of a wreck, or companies lose their property, which is the case when stoves are used, and will also be the case where furnaces are placed under each car or in a separate car built especially for it, or in placing a furnace or stove in the tank, from the fact that in either case should a wreck occur, cars are liable to telescope each other and come together in such a manner as to strike the furnace or stove, break into it, and set fire to one car, which will communicate it to the others.

In case of heating cars by steam from the locomotive-boiler, where the steam passes through pipes in the cars, should a wreck occur and cars become detached and break into one another, said pipes are liable to be broken and couplings between the cars come uncoupled and allow steam to escape with such force as to scald the passengers, injure them by inhaling it, and also obstruct the vision of the passengers and cause confusion for those able to assist themselves, whereas by the use of my hot-air device all of these defects are entirely overcome.

Where sleeping-cars lie over from one train to the other and take on passengers three or four hours before the train leaves, a large heating-stove can be put in some convenient switchman's house, said stove to be incased with sheet-iron, inside of which will be placed a fan which is operated by a water-motor, and heated air forced through pipes laid underground from said fan to track, and all cars can then be heated before the engine is coupled to them.

Having thus described my invention, I claim—

1. The combination of the boiler, the pipe which conducts the steam therefrom, the inclosing-chambers placed upon opposite sides of the tender and connected together by an air-conducting pipe, the radiators placed in the chambers, an engine placed upon the tender, and a blower which is operated by the engine, with a register or pipe through which cold air is taken into the inclosing-chambers, the pipe through which the heated air is forced by the fan, and the pipe which conducts the heat to the cars, substantially as shown.

2. The combination of the boiler, the pipe for conducting the steam from the boiler, the inclosing-chambers placed upon opposite sides of the tender and connected together by an air-conducting pipe, the registers in the chambers, the fan located upon the tender and connected with one of the inclosing-chambers, the engine for driving the fan, with the register or pipe through which the air is taken into one of the chambers, and the pipes or boxes for conveying the heated air to the outlet-pipe which extends along under the cars, substantially as described.

3. In a car-heater, the combination of the boiler, the pipe for conducting the steam therefrom, the tender, the inclosing-chambers placed upon opposite sides thereof, and which are connected together by an air-conducting pipe, radiators placed in the chambers, deflectors placed in the chambers for evenly diffusing the air, an engine located on the tender, a fan driven by the engine and connected with both of the chambers, and a pipe for conveying away the heated air from the cars, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK C. McELROY.

Witnesses:

D. E. PUTNAM,  
L. E. PUTNAM.