(No Model.) 2 Sheets—Sheet 1.

W. MARTIN.

DEVICE FOR HEATING RAILROAD CARS.

No. 267,009. Patented Nov. 7, 1882.

Fig. 3.

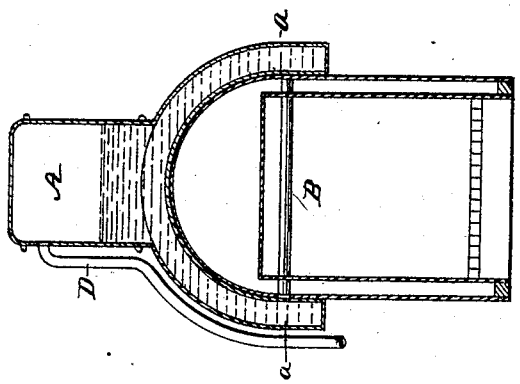


Fig. 1.

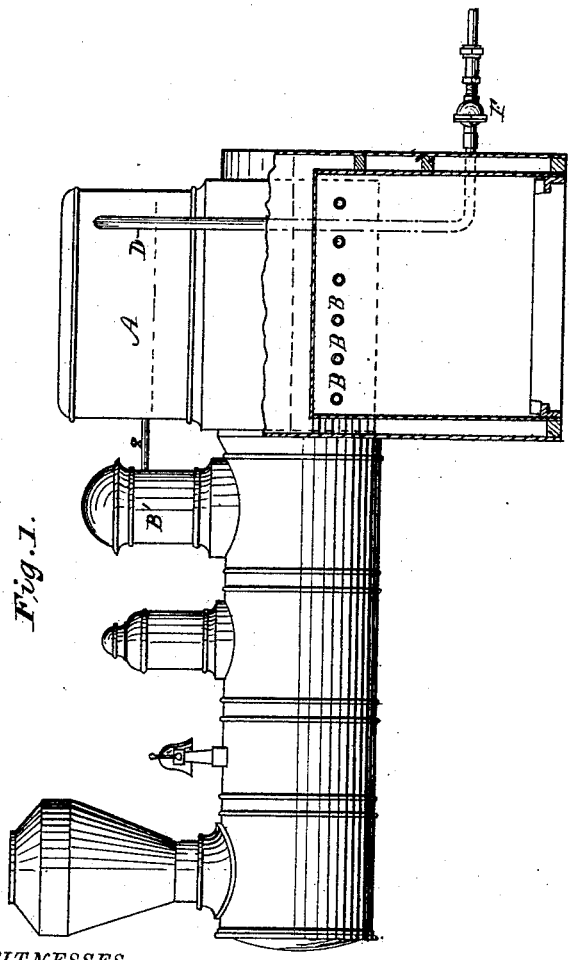
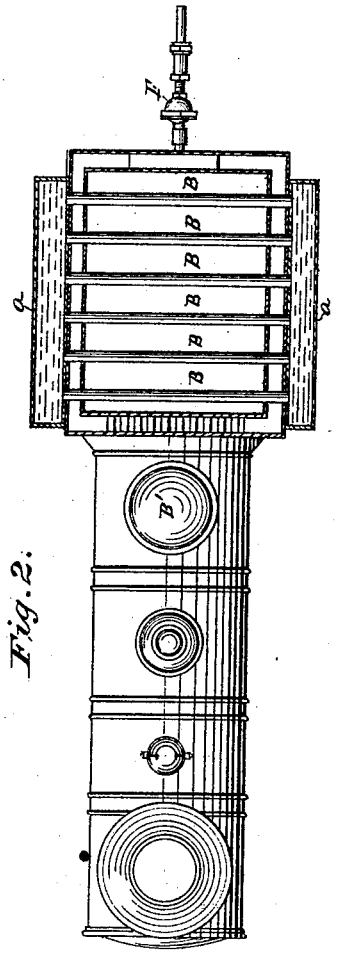


Fig. 2.



WITNESSES

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D. B. Thompson

INVENTOR

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(No Model.) 2 Sheets—Sheet 2.

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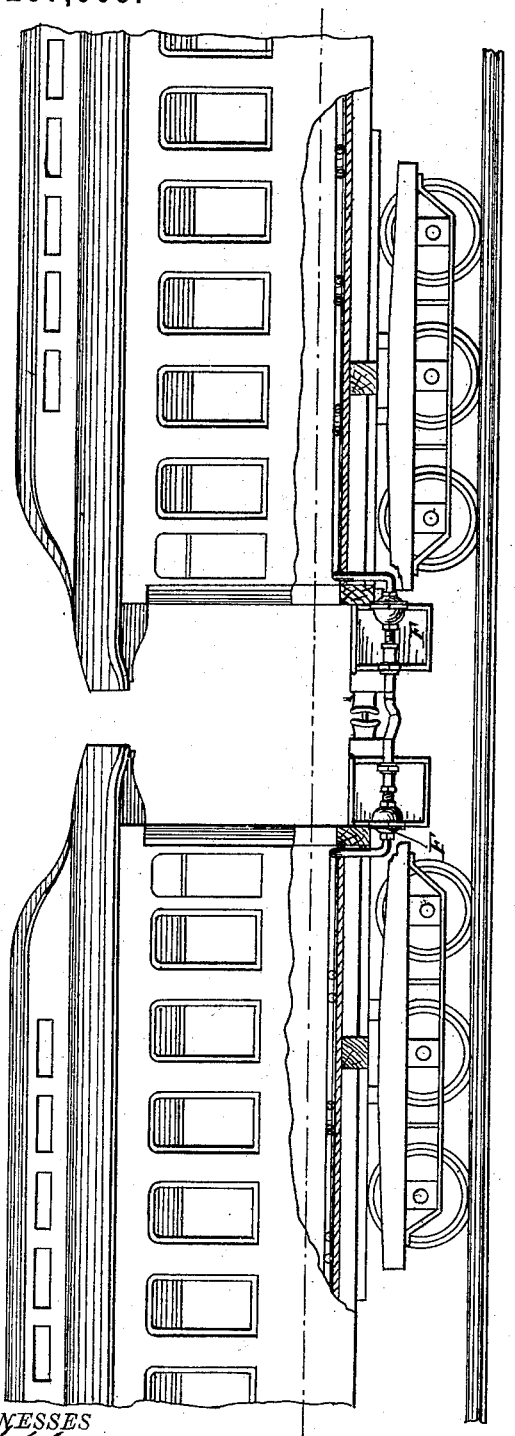

Fig. 4.

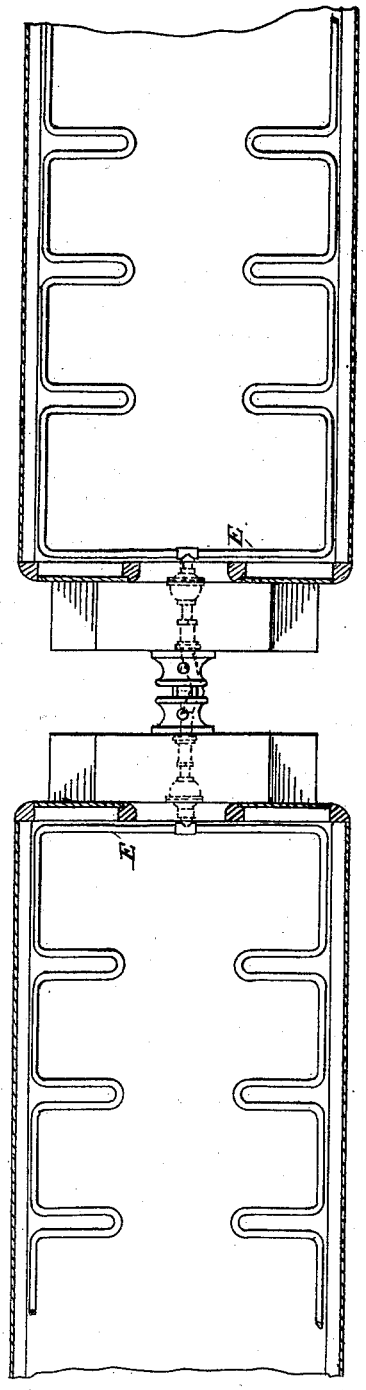

Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM MARTIN, OF TIDIOUTE, PENNSYLVANIA.

DEVICE FOR HEATING RAILROAD-CARS.

SPECIFICATION forming part of Letters Patent No. 267,009, dated November 7, 1882.

Application filed May 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MARTIN, a citizen of the United States, residing at Tidioute, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Heating Railway-Cars; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in devices for heating railway-cars by steam; and it consists in the construction of a separate steam dome or reservoir secured to and made part of the boiler of the locomotive, and supplied with steam from pipes placed within the furnace, and heated by the waste or spare heat used in generating steam in the locomotive for driving the train to generate the steam for heating the cars, said steam being under the control of the engine-driver, and in the special devices or arrangement of parts for insuring a supply of steam at all times, whether the train is in motion or not, as will more fully hereinafter appear.

Figure 1 is a view in perspective of a locomotive-boiler, with parts broken away to show the heating-pipes within the fire-box. Fig. 2 is a sectional top view above the heating-pipes. Fig. 3 is a cross-sectional view on the line *x x* of Fig. 1. Fig. 4 is a view, partly in section and partly in perspective, of two cars with my heating appliances therein. Fig. 5 is a top view, looking down on the bottom of the car.

Various and numerous devices have been heretofore proposed for the heating of railway-cars by steam taken direct from the locomotive-supply and exhaust-steam therefrom, or by the use of special devices to generate steam, both on the locomotive and on special cars of the train, provided for that purpose. It has also been proposed to heat the cars by air heated to the proper temperature by passing the air through pipes connected with the furnace of the engine, or with special furnaces made for this purpose; but these plans or devices are objectionable, for the reason that it is not convenient or expedient to draw the needed supply from the engine, and this is most frequently the case at the time the heat in the cars is most needed, as in cases of snow-storms, snow blockades, and in climbing the inclined planes of mountain routes, &c. A special car on the train for generating the supply of steam is also objectionable, for the reason that in cases of accident, where the cars telescope, or where the cars are broken and piled together, the cars take fire and burn up, as has been experienced too often. The heated-air project is also objectionable, for the reason that the supply of heated air is only furnished to the cars while the train is in motion, unless special fans or blowing devices are provided for forcing the air through the pipes; and, further, the pipes exposed to the heat of the furnace through which the air passes are liable to burn out rapidly.

In the drawings, I have shown a locomotive of the ordinary construction, with a water-tank or steam-reservoir, A, built on top of and separate from the boiler in which the steam is generated for driving the engine. The lower sides of the tank A extend down over the boiler and a little below the top of the furnace. I prefer to place the tank or reservoir A, as shown, immediately in front of the cab and directly above the fire-box or furnace, in the place usually occupied by the steam-dome.

B B are a series of pipes, which pass through the upper portion of the furnace, and are connected at their ends to the lower or extended portion, *a*, of the tank or reservoir, and the water in the tank is circulated through and heated in the pipes B. The water is forced into the tank A by the engine-injector, it being connected with the tank as well as with the engine-boiler. The upper portion of the tank forms a steam-dome, and is connected to the steam-dome B′ of the locomotive by a pipe having a stop-cock, so they can "blow off," one into the other, as occasion may require.

D is a pipe (one or more may be used) connecting the tank or reservoir A with a system of pipes or tubes, E, which are secured permanently to the cars, and through which the steam is conveyed to the cars, so that when the cars and pipes are coupled together the steam received into the pipe or pipes D from

the tank A will be forced through the whole train and into each car, where suitable coils or registers may be constructed to radiate the heat in the car. For the sake of illustration I have shown the branch pipes or registers coiled on the bottom of the car, and they may be placed under every seat, or placed more widely apart; but I may find it more practical, convenient, or desirable to place the coils or registers in the sides of the car.

For coupling the sections of pipes or tubes E together I use a globe-valve or universal joint, F, of peculiar construction. This globe-valve or universal joint or coupling forms the subject-matter of a separate application, May 1, 1882, and for which I lay no claim here. Suffice it to say that this globe-valve is so adapted and arranged that it will conform to the motion of the cars without doing violence to the line of tubing, and is provided with a sliding or telescopic section, so that the various sections of pipe can be readily connected or disconnected, a stuffing-box being used for packing around the sliding section.

The tank A may be provided with a safety-valve to regulate the pressure of steam, and also with an indicator or gage to indicate the pressure of steam therein, and a valve for controlling the supply of steam, as is usual.

The pipes E may be provided with suitable valves, so that the escape of steam from the rear of the train will be prevented. Enlargements or reservoirs may also be placed to connect with the pipes E, for the purpose of receiving or trapping the condensed steam. The pipes E may also be covered on their exposed portions with an asbestus or other heat-retaining covering to prevent in a measure the condensation of steam.

This heating apparatus, it will be understood, is to be under the control of the engineer, just as the air-brake is. If he sees danger he can shut off steam-pressure and open a stop-cock, thus relieving the pipes in the cars of all pressure, and, should the cars be disconnected or telescoped, the expansion or slip joint of the pipe-coupling instantly disconnects, thus making it impossible, in cases of accident, for any person in the cars to be burned by steam.

I am aware that it is not new to place a tank in the smoke box and stack of a steam-boiler to utilize the waste heat for heating air or water.

I am also aware that a continuous circuit or circuits of water-pipes for heating cars, extending from the fire-box of a locomotive throughout the train, and returning through the fire-box, the water within said pipes being heated in passing through the fire-box, is not new, and such I do not claim; but,

Having described my invention, what I claim is—

1. In a device for heating railway-cars, a tank or reservoir secured to and partially surrounding the engine-boiler, for holding or collecting the steam supplied by water-pipes located in the top of the furnace, substantially as described, and for the purpose set forth.

2. In a device for heating railway-cars, the tank or reservoir A, provided with extensions *a*, which partially surround the boiler of the locomotive, in combination with the pipes B B, located in the upper portion of the furnace, connecting the said extensions *a*, and forming a continuous conduit for the generation and passage of steam to the reservoir, as set forth.

3. In a device for heating cars by steam, the combination of the tank or reservoir A, mounted on the engine-boiler, with the pipes B and D, as set forth.

4. In a device for heating railway-cars by steam, the combination of the tank or reservoir A, for collecting and holding the steam, secured to engine, with the pipes B D E and universal coupling F.

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

WILLIAM MARTIN.

Witnesses:

L. G. HENRY,

D. S. THOMPSON.