(No Model.) 2 Sheets—Sheet 1.

C. S. TOWNLEY.

HEATING RAILWAY CARS.

No. 383,839. Patented May 29, 1888.

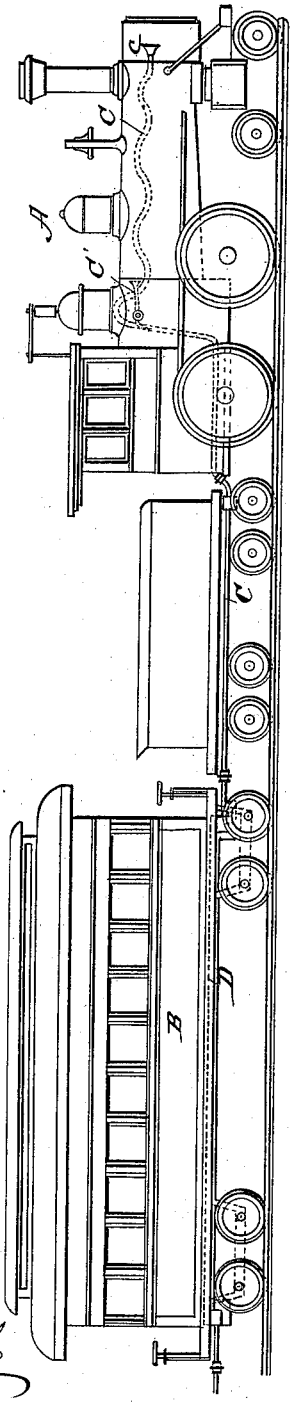

Fig. 1.

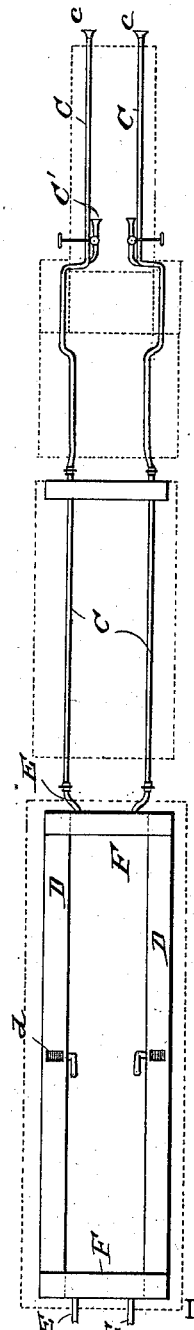

Fig. 2.

WITNESSES:
Fred J. Dieterich
P. B. Turpin.

INVENTOR:
C. S. Townley
BY Munn & Co
ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

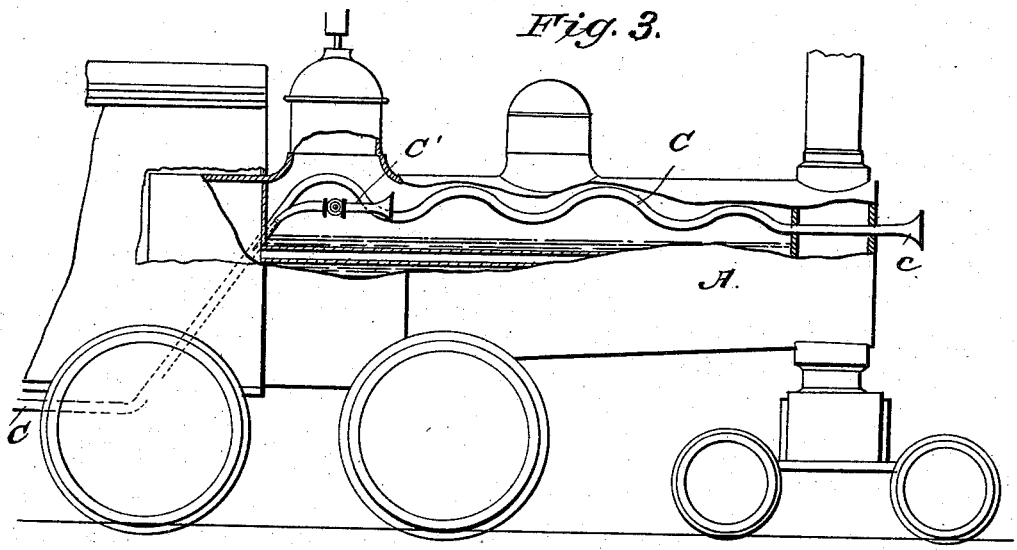


Fig. 4.

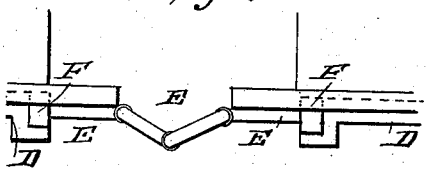


Fig. 5

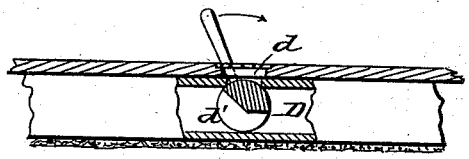
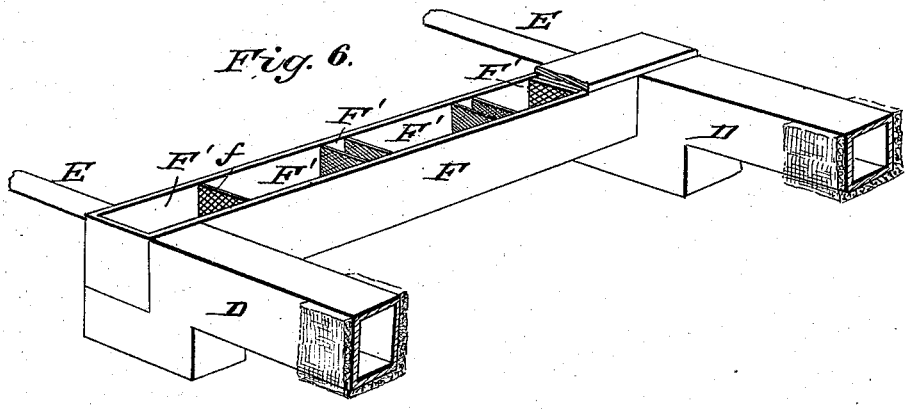


Fig. 6.



WITNESSES:
Fred G. Dieterich
P. B. Turpin

INVENTOR:
C. S. Townley
BY Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CARTER SHEPHERD TOWNLEY, OF GAINESVILLE, TEXAS.

HEATING RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 383,839, dated May 29, 1888.

Application filed September 6, 1887. Serial No. 248,990. (No model.)

To all whom it may concern:

Be it known that I, CARTER SHEPHERD TOWNLEY, of Gainesville, in the county of Cooke and State of Texas, have invented a new and useful Improvement in Heating Railway-Cars, of which the following is a specification.

My invention is an improvement in car-heaters; and it consists in certain features of construction and novel combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side view of a section of a train provided with my improvements, and Fig. 2 is a top plan view of the improvements, the train being indicated in dotted lines. Fig. 3 is a side view, part in section, of a locomotive provided with my improvements. Fig. 4 is a detail view showing the coupling or connection between the drums of adjacent cars. Fig. 5 illustrates in detail one of the valves or registers of the drums; and Fig. 6 is a detail view of one of the chemical-chambers, showing the same with its top partly broken away and in connection with the drums and the connecting-pipe.

The locomotive A and the cars B may be of any suitable construction. Through the boiler of the locomotive and through the superheated steam I pass one, two, or more pipes, C, which have their forward ends, *c*, constructed to receive air which is conducted through the pipe or pipes C. These pipes being extended through the boiler, the air becomes heated in its passage, as will be readily seen. The present smoke-flues in the boiler securely stopped up at the fire-box and extended through the smoke-stack to the outside air and with an entering-pipe just before it joins the fire-box to conduct the air to the water-space around the fire-box will answer just as well as new pipes, and save the necessity of inserting such new pipes in old engines.

I will now describe the invention as practiced by means of a single pipe, C. All through the boiler the pipe C passes through the superheated steam to the dome near the fire-box, where an injector, C′, to get superheated steam, is inserted thereinto and pointed rearwardly, so that it will force the heated air toward the cars, as well as serve to increase the heat of said air by heat of the steam. Thence the pipe in the construction shown passes in the water-space around the fire-box and under the floors of the cab and tender to the rear of the tender.

In the cars I arrange one or more heating-drums, D, corresponding in number to the pipes C and arranged with their upper sides flush with the floor of the cars, said drums forming heat-distributers within the cars, as will be seen. This drum is provided with a discharge-opening, *d*, leading into the car and provided with a valve, *d′*, for closing said opening. Pipes E, having air and steam tight couplings *e*, connect the pipe C with the drum of the front car and the drum of each car with the one next in rear. It is preferred to interpose between pipe C and the drum or drums a chamber, F, which may be termed a "chemical-chamber," for the reason that it is intended to contain chemicals—such, for instance, as calcined lime. Manifestly the arrangement of this chamber may be varied; but in the arrangement shown I have located it at the end of the car immediately over the ends of the drums D.

In practice I propose to put calcined lime or equivalent chemicals in the chamber, and the air being forced therethrough will in a large measure be freed of moisture by the absorption of the chemicals, and the latter also serves to increase the heat. The top plates of the drums are of suitable material to readily radiate or give off the heat to the air in the car, while the other sides of said drum, as shown in Fig. 6, will be covered with non-conducting material, as are also the pipes connecting the heat-pipe with the drum and all other exposed parts, except those within the coaches to be heated.

In case the cars or coaches are left at any time on a siding, the yard-engine or a stationary engine—such engine being supplied with the heat-pipes, as above—may be utilized to heat or keep up the temperature of the cars. By means of the valve or stop-cock *d′* the heat may be admitted directly into the car in first heating up the train, and when the train is once heated up such cock may be shut and the heat maintained by radiation from the drum, as will be readily seen.

It is preferred to use the heat-pipes and drums at each side of the train, as shown.

The chemical chamber or box F is divided by wire or other foraminous partitions *f* into compartments F′, forming lime-holders having foraminated sides, so that they will hold the lime and at the same time permit the circulation of the mixed air and steam therethrough, the end compartments over the drums D being larger than the intermediate compartments, as shown in Fig. 6. The larger spaces or compartments are to be filled with hot or calcined lime.

Having thus described my invention, what I claim as new is—

1. The combination, with the distributer in the car, the air-pipe, and the heater for heating the air passed through said pipe, of an injector for forcing steam in said pipe and a lime receiver or chamber into which the heated air and steam is conducted in its passage to the distributer, substantially as set forth.

2. In a car-heater, the combination of the heat-pipe, a steam-injector leading into such pipe, a distributer within the car, and a chemical-chamber through which the mixed air and steam is directed in its passage to the distributer, the said chamber being provided with a lime holder or holders having foraminated sides, whereby they will hold the lime and at the same time permit the circulation of the air and steam therethrough, substantially as and for the purposes specified.

3. The combination of the cars or car of a train, a heat-distributer therein, the locomotive having a boiler, the pipe leading through the boiler and having an opening to receive the air, an injector leading into such pipe, the chemical-chamber through which the air and steam are directed in their passage to the distributer, and the connecting pipe or pipes, all substantially as and for the purposes specified.

CARTER SHEPHERD TOWNLEY.

Witnesses:
W. A. WHITMAN,
JOHN B. TOWNLEY, Sr.