

(No Model.)

C. E. DOLAN.
CAR HEATER.

No. 506,984.

Patented Oct. 17, 1893.

Fig. 1.

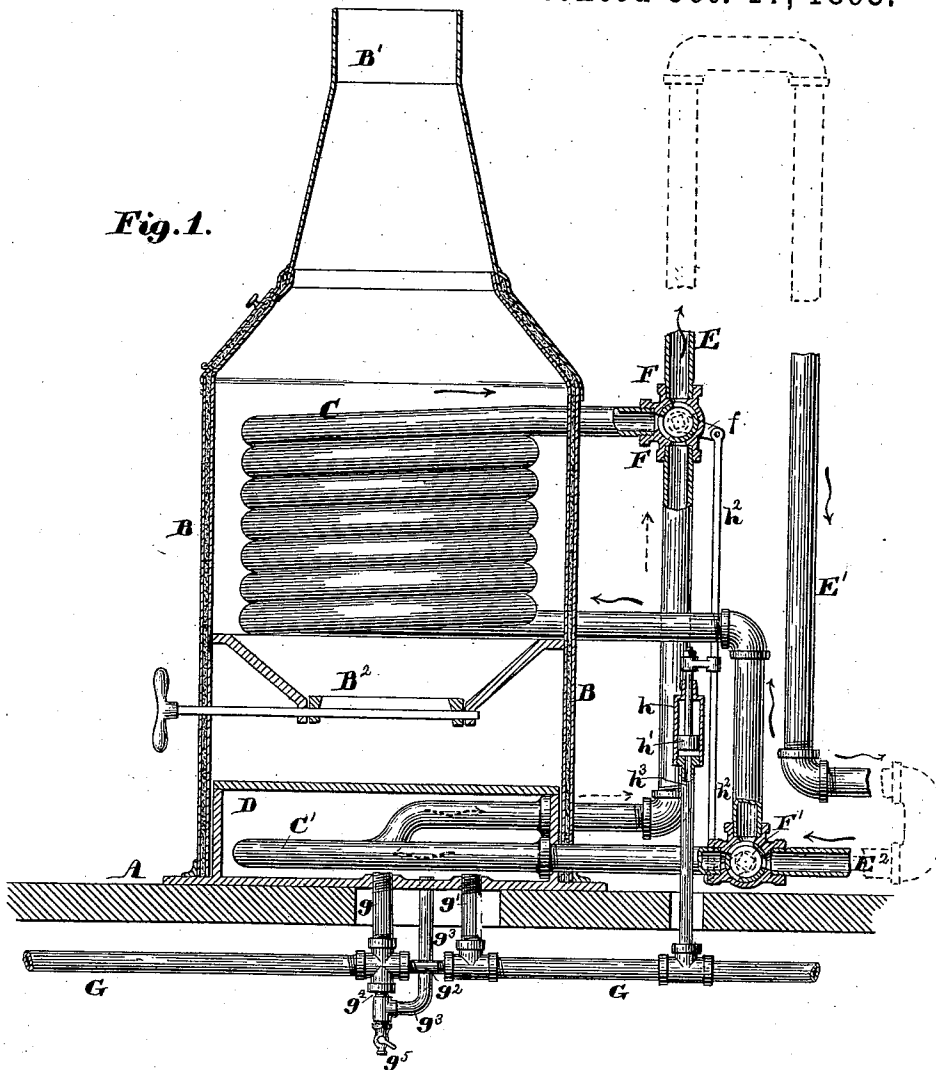
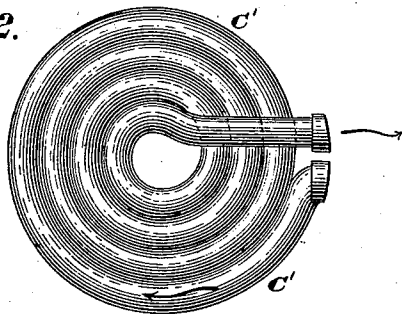


Fig. 2.



Witnesses:

E. J. Fritchman
DeWyers

Inventor:

Chas. E. Dolan
By Napkins & Atkins

UNITED STATES PATENT OFFICE.

CHARLES E. DOLAN, OF NEW YORK, N. Y., ASSIGNOR TO THE SAFETY CAR HEATING AND LIGHTING COMPANY, OF NEW JERSEY.

CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 506,984, dated October 17, 1893.

Application filed October 5, 1887. Serial No. 251,533. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. DOLAN, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Car-Heaters, of which the following is a specification.

My invention relates to those heaters which comprise a system of pipes provided in a car, for the circulation of a heating fluid, and an important object of the invention is to provide for heating the fluid in said pipes, either in the usual way by a coil or heater arranged within a stove placed in the car, or by means of steam from the locomotive, so that when the cars provided with my heating arrangement, are coupled in a train, the circulation of water or fluid through the pipes in the cars, will be produced by steam from the locomotive, and so that when the cars are upon a siding or before starting, the circulation of such water or fluid through the pipes in the cars will be maintained by heat from the stove in each car.

My invention consists in the combination with a system of heating pipes for circulating heating fluid in a car, and a stove also in the car and containing a coil or heater connected with the system, of a steam chest in the car, containing a coil or heater also connected with said system, and a pipe for supplying to the steam chest steam from the locomotive.

In the accompanying drawings Figure 1 is a partly sectional view of a car heating apparatus embodying all the features of my invention; and Fig. 2 is a plan of the coil or heater which is arranged within the steam chest.

Similar letters of reference designate corresponding parts in both figures.

I have only thought necessary to show a portion of a car in which the stove, steam chest and system of heating pipes are arranged, and to this end have illustrated a portion of the car floor, A, on which the parts are supported, as shown in Fig. 1.

B, designates a stove which may be of usual construction, and from which leads the smoke outlet, B'. This stove has a grate, B², for fuel and above the grate and under the influence of the fire thereon is a heater for water or other fluid, and which is here represented as made in the form of a coil, C. Consequently it will be observed that fire upon the grate

will highly heat the water or other fluid contained in the coil or heater, C.

An essential element of my invention is a steam chest, D, which as here represented is arranged within the stove beneath the grate, B², and which also contains a coil or heater, C', the form of which is best represented in Fig. 2.

Within the car is arranged the usual system of circulating pipes for heated fluid and which is employed when a car is heated by a water circulation, and portions of which I have here represented.

E, designates a part of the direct pipe through which water at the highest temperature passes in the direction of the arrow thereon to the system of heating pipes. E', also designates a portion of this direct pipe, and, E², designates a portion of the return pipe through which the water or other liquid returns to the heater or coil after performing its useful effect in heating the air of the car.

I have shown the pipes, E, E', and the pipes, E', E², connected simply by dotted lines, and have used arrows to indicate the course of circulation, but it will be understood that between the parts of pipe which I have shown are the other portions of pipe which are arranged beneath the seats and throughout the car, and which are principally depended on for radiation.

It will be observed that the coils or heaters, C, C', are both of them connected with the system of heating pipes and their connection with these pipes is controlled by valves, F, F'. A construction of these valves which will accomplish the desired purpose, is illustrated in the drawings, and it will be readily understood that by turning the plugs of these valves the coil or heater, C, may be placed in communication with the system of pipes, E, E', E², as is shown in the drawings, and the coil or heater, C', cut off from such communication, or by turning the valves in the opposite direction the coil or heater, C, may be cut off from communication with the pipe, E, E', E², and the coil or heater, C', may be placed in communication with such system of pipes.

G, designates a pipe through which steam may pass from the locomotive and which is in communication by branches, g, g', with the steam chest, D. Between the branches, g, g',

the pipe, G, may be interrupted entirely, or it may comprise a portion, g^2 , of very much less diameter, so as to throttle the direct passage of the steam through the pipe, G, and compel it to pass from the pipe, G, through the branch, g , to the steam chest, D, and then to return by the branch, g' , to the pipe, G, beyond the interruption, g^2 . I have also shown a drip pipe, g^3 , from the steam chest, D, which connects with the downward branch, g^4 , from the steam pipe, G, and from this drip pipe the water may be discharged under control of a cock, g^5 , so that both the steam pipe, G, and the steam chest, D, may be free from water of condensation.

I desire to control the positions of the valves, F, F', by steam from the pipe, G, and I employ a motor which as here represented, consists of a cylinder, h , and a piston, h' , which is connected by a rod, h^2 , with the arms or handles, f , of the valves, F, F'. The cylinder, h , is connected below the piston, h' , by a pipe, h^3 , with the pipe, G, so that steam may be passed through the branch pipe, h^3 , to the motor cylinder, h , and operate upon the piston, h' .

When the car is upon a siding, or for other reason not in motion, the system of pipes, E, E', E², within the car is to be maintained in communication with the coil or heater, C, as is shown in Fig. 1, and the circulation of water or other fluid through them produced by the heating of the coil, C, by fire on the grate, B². The circulation will then be from the coil, C, through the system of pipes, E, E', E², and thence back to the coil, as represented by the arrows drawn in full lines in Fig. 1, but during this operation the valves, F, F', are adjusted so as to cut off the heater, C', from the system of circulating pipes. When, however, it is desired to produce circulation

in the pipes, E, E', E², by steam from the locomotive, steam is admitted through the pipe, G, to the steam chest, D, and the fire upon the grate, B², is dumped or allowed to go out. The steam in the pipe, G, will raise the piston, h' , of the motor and will shift the valves, F, F', so as to cut off the connection with the coil or heater, C, and to place the coil or heater, C', in communication with the system of heating pipes. Then the steam within the chest, D, will be heating the fluid in the coil or heater, C', producing the circulation of fluid through the system of pipes, E, E', E², through the coil or heater, C', and to and from said pipes as indicated by the arrows drawn by dotted lines in Fig. 1.

From the above description it will be understood that I provide in an inexpensive way for producing the circulation of heating fluid through the system of pipes in a car, there being a stove in the car, or by steam from a locomotive, and but very little manipulation is required to change from one to the other as may be desired, owing to circumstances.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination with a car body, of a steam chest arranged within the same, a heating coil arranged in said steam chest, a fire heater arranged above said steam chest, a heating coil arranged in said fire heater, and flow and return pipes arranged within the car and communicating with the coil in the steam chest and fire heater, substantially as set forth.

CHARLES E. DOLAN.

Witnesses:
C. HALL,
FREDK. HAYNES.