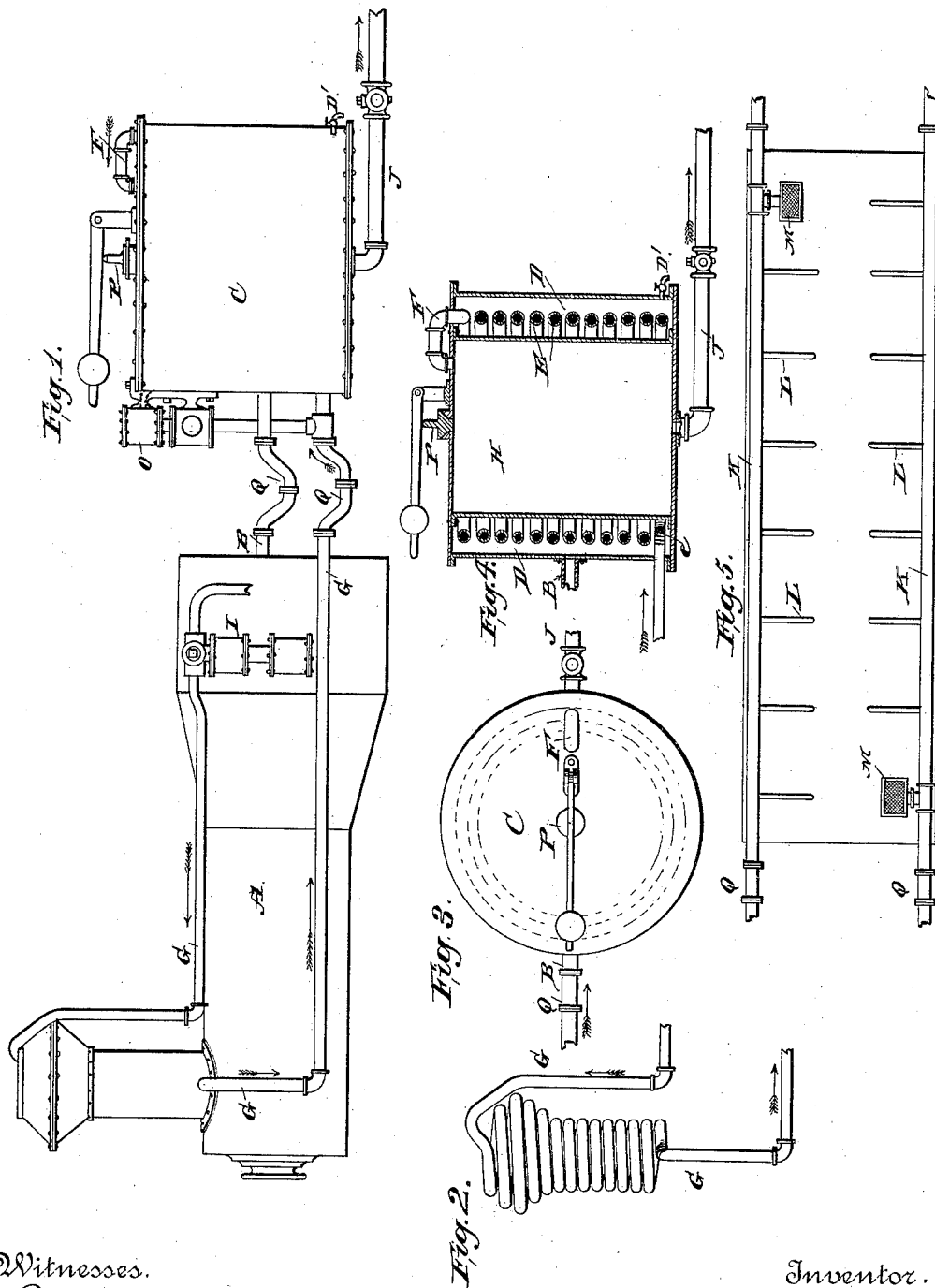


(No Model.)

C. TAYLOR.
HEATING RAILWAY CARS.

No. 383,380.

Patented May 22, 1888.



Witnesses.

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UNITED STATES PATENT OFFICE.

CYRUS TAYLOR, OF DENVER, COLORADO.

HEATING RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 383,380, dated May 22, 1888.

Application filed April 16, 1887. Serial No. 235,052. (No model.)

To all whom it may concern:

Be it known that I, CYRUS TAYLOR, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Heating Railway-Cars, of which the following is a clear, full, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of a locomotive-boiler and smoke-stack, showing the location of the pipes in relation to the boiler, smoke-stack, and air-heater. Fig. 2 is a side view of the coiled pipe with the smoke-stack removed from around it. Fig. 3 is a top view of the air-heater. Fig. 4 is a sectional view of the same, showing the coiled pipe or worm within the heater. Fig. 5 is a plan view of the floor of a passenger-car, showing the pipe system for radiating purposes.

My present invention relates to an improved system for heating railway-cars without the presence of fire; and it consists in the combination of the various devices herein explained and claimed.

To enable others skilled in the art to make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

In the drawings, A represents a locomotive-boiler, from which steam passes through the pipe B, backward into the baggage car, where it connects with the air-heater C. This air-heater is made of equal strength with the locomotive-boiler, and consists of a cylinder, as shown in Fig. 3, having two circular compartments, the outward compartment, D, (see Fig. 4,) representing a steam-chamber into which the pipe B enters. Within this steam-chamber is placed a coil of pipe or worm, E, one end of which passes out near the bottom of the steam-chamber and connects with the air-pipe G. The other end of the worm passes out at the top of the chamber at F and opens into the interior compartment, which is a hot-air chamber, H.

Air is forced into the pipe G by means of the air-pump I, (see Fig. 1,) fixed to the boiler and operated by steam taken from it. The pipe G passes from the air-pump and enters

the top of the smoke-stack and is coiled therein, as shown in Fig. 2. The pipe again passes out at the bottom of the stack and thence back along the boiler, connecting with the worm E at e in the steam-chamber D, as shown in Fig. 4.

The pipe G is passed through the smoke-stack in the manner shown and described for the purpose of warming the air before entering the worm in the air-heater C, thereby decreasing the condensation of steam that surrounds it. The air during its passage through the worm E to the chamber H attains the same degree of heat as that of the steam that envelops the worm.

From chamber H the heated air passes through pipe J, as shown in Fig. 4, to the first car to be heated, the pipe being branched for the purpose of forming connections with the pipes K K, (see Fig. 5,) which pipes are also supplied with small branch pipes L, extending inwardly and at right angles with them.

M M are radiators into which the hot air may be introduced or excluded, as desired.

The air-pump I, Fig. 1, is provided with what is known to the trade as a "two-way cock"—a cock that being opened a certain distance opens one passage and closes another. By its use in this case I am enabled to fill the air-pipe G from the pump that is used to operate the air-brakes of the train; but in case the pump I should become inoperative I have fixed to the air-heater an air-pump, O, which may be operated by steam taken from the chamber D of the air-heater. Chamber H of the air-heater is provided with a valve, P, through which the hot air escapes after reaching a predetermined pressure, and there may be let into the steam-chamber D a cock or faucet, D', by means of which the water of condensation may be withdrawn from said chamber.

Q represents the usual flexible connections of the pipes. The arrows show the direction the air is forced from the pump I, Fig. 1.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the locomotive, the smoke-stack having pipe G coiled therein, and the pump I, connecting with said pipe,

of an air-heater, C, having steam-chamber D, and air-chamber H, the coil of pipe E in the chamber D and connecting the pipe G and air-chamber H, and a pipe leading from the boiler of the locomotive to said chamber D, substantially as herein described.

2. The combination, with the locomotive, of the air-heater C, located in a car contiguous to said locomotive and provided with a steam-chamber and an internal hot-air chamber, a pipe or coil within the steam-chamber and connected with the hot-air chamber, and a pipe leading from the boiler of the locomotive and connected with the steam-chamber, in combination with the pipe G, passing through the smoke-stack of the locomotive and connecting with said pipe or coil, and a pipe lead-

ing outward from the bottom of the heater, substantially as described.

3. An improved car-heating apparatus comprising a heater having an internal hot-air chamber and an outer casing surrounding said chamber, a coil or pipe between said chamber and outer casing of the heater, having a supply end and an opposite end communicating with the hot-air chamber, a pipe, B, in communication with the space within the outer casing, and a pipe, J, extending from said hot-air chamber, substantially as described.

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Witnesses:

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