

(No Model.)

J. H. SEWALL.
CAR HEATING APPARATUS.

No. 374,275.

Patented Dec. 6, 1887.

Fig. 1.

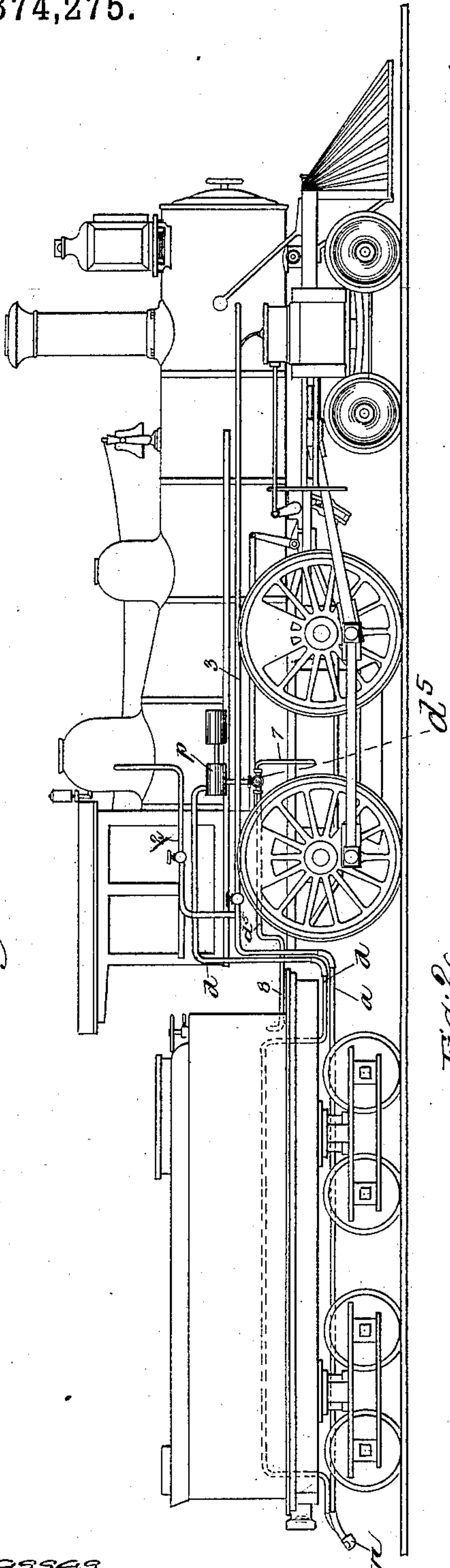


Fig. 2.

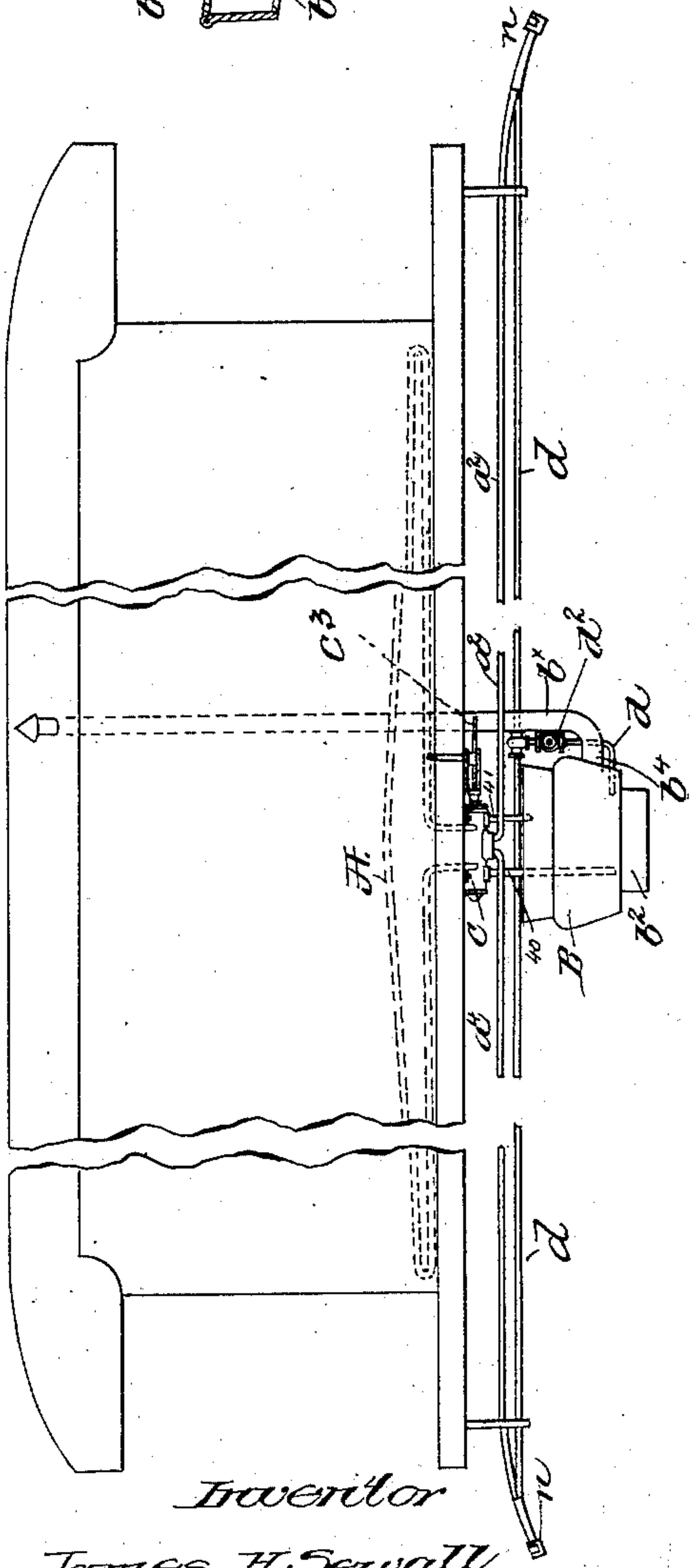


Fig. 3.

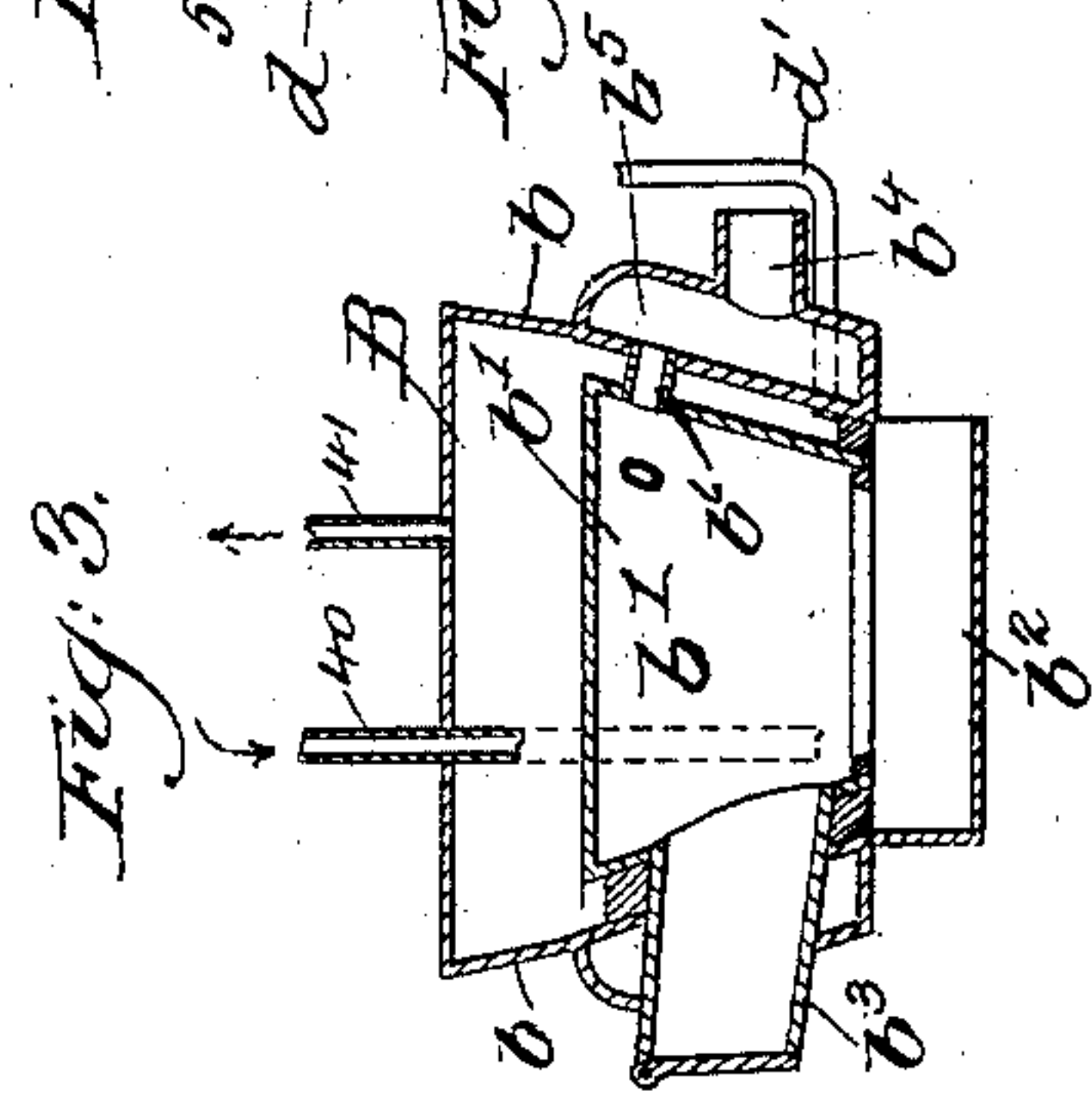


Fig. 4.

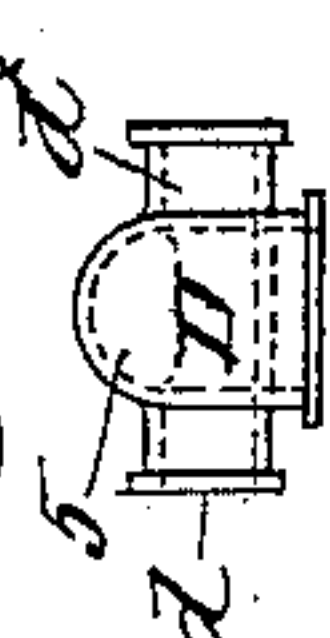


Fig. 5.



Witnesses
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JAMES H. SEWALL, OF PORTLAND, MAINE.

CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 374,275, dated December 6, 1887.

Application filed January 11, 1887. Serial No. 224,035. (No model.) Patented in Canada May 11, 1887, No. 26,697, and in England May 25, 1887, No. 7,510.

To all whom it may concern:

Be it known that I, JAMES H. SEWALL, of Portland, county of Cumberland, and State of Maine, have invented an Improvement in Car-Heating Apparatus, (for which I have obtained a patent in Canada, No. 26,697, dated May 11, 1887, and a patent in Great Britain, partly covering this invention, No. 7,510, dated May 25, 1887,) of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention is an improvement upon the invention embraced by application, Serial No. 214,520, filed by me September 25, 1886; and it consists in many details of construction to be hereinafter pointed out.

I have herein substituted a reservoir or boiler of improved construction for the reservoir or boiler shown in the application referred to as placed beneath the steam-cylinder of each car, and into which the drip-pipes lead; and I have also provided means for returning the water of condensation formed in the circulating and main steam pipes to the locomotive.

The construction of the reservoir or boiler herein shown is such that it may be employed to better advantage as an auxiliary boiler in instances where the steam from the locomotive is inadequate, or, if for any other reason, it should not be desired to use the steam from the locomotive.

Figure 1 shows, in side elevation, a locomotive provided with a pump and with suitable pipes, in accordance with this invention; Fig. 2, a diagram in side elevation, partially broken out, of a car, showing the steam-cylinder, reservoir or auxiliary boiler, and the circulation-pipes; Fig. 3, a vertical section of the auxiliary boiler, and Figs. 4 and 5 details of the T-coupling to be referred to.

The main steam-pipe a , connected with the steam-chamber of the locomotive by the branch pipe 2 to receive live steam and by the branch pipe 3 to receive exhaust-steam, is passed beneath the tender of the locomotive, where it is joined by a suitable coupling, n , to the inlet steam-pipe a^2 , which is connected in this instance with a steam-cylinder, C, located under the car to be heated, the said cylinder be-

ing preferably constructed in substantially the manner fully described in the application referred to, and containing a suitable valve-rod, c^3 , which controls the valves that admit steam to the circulation-pipes A. (Shown in dotted lines, Fig. 2.) Steam to heat a car at the rear of the one shown is conveyed thereto from the cylinder C by the outlet steam-pipe a^4 , which, it will be understood, will be joined to an inlet steam-pipe, a^2 , of the next car, it being understood that each car in succession has like pipes.

The steam-cylinder C has drip-pipes 40 41, which convey any water of condensation from the steam cylinder C and radiating-pipes into an auxiliary boiler, B, placed beneath the said cylinder. The auxiliary boiler B consists of an outer shell or casing, b , (see Fig. 3,) containing a fire-pot, b' , having below it an ash-pit, b^2 . The fire-pot b' has a feeding-chute, b^3 , which is extended through one wall of the casing b , where it is provided with a door. The products of combustion leave the fire-pot through a pipe, b^6 , and enter a chamber, b^5 , having an outlet, b^4 , which in practice will have joined to it a pipe, b^x , Fig. 2, extended upward above the top of the car. Water of condensation is contained in the outer shell or casing, b , about the fire-pot.

When it is desired to employ the said auxiliary boiler B merely as a reservoir, and to remove the water of condensation therefrom, I employ the return-pipe d , which is connected to the said auxiliary boiler by a branch pipe, d' , which enters the lower end of the reservoir B, said branch pipe having a controlling valve or cock, d^2 , and being joined to the return-pipe d by a T-coupling, D. (Shown separately in Figs. 4 and 5.) The T-coupling consists of a hollow threaded shell, 5, through which is extended a straight portion, d^x , which receives the pipe d , the threaded part of the shell receiving the pipe. The portion d^x is provided with an opening, as d^3 , in its upper side, through which water from the pipe d' passes into the pipe d . The water is drawn into the pipe d' , and thence into the pipe d , by suction produced by a pump, p , placed upon the locomotive and operated in any suitable manner, the said pump discharging water into the pipe d^5 , which is provided with two branch pipes,

7 8, one of which, as 7, enters the boiler, and the other branch, as 8, enters the water-tank of the tender of the locomotive. When the pump *p* is employed, the water of condensation, and also steam, will be drawn by suction through the pipe *d*, which pipe, led toward the engine, will preferably be carried upward through the water-tank of the tender, to thereby condense such steam as may be contained within the said pipe.

Instead of employing a steam-pump, as herein shown, any other form of pump, siphon, or injector may be employed.

When it is desired to employ the auxiliary boiler *B* as a heater, a fire will be started in the fire-pot *b'*, which will heat the water in the said boiler and start it in circulation from the pipe 41 to the steam-cylinder *C*, and thence through the circulation-pipe *A*, the water returning to the boiler by the pipe 40.

The boiler herein described may be arranged as a heater for dwellings, &c., and I therefore reserve the right to file hereafter an application showing my machine as adapted for house-heating.

I have herein shown a steam-cylinder, as *C*, and controlling-valve within it; but I may employ any other suitable means for controlling the passage of steam from the main steam-pipe to each car independently; or, if considered advisable, the said means may be omitted, the circulating-pipes of each car directly joining the main steam-pipes, but preferably including the reservoir for the water of condensation.

I do not herein claim the general features of the heating apparatus herein shown and described, these general features being substantially the same as those set forth in my prior application, No. 214,520, filed September 5, 1886, hereinbefore referred to.

I claim—

1. In an apparatus for heating cars, the main steam-pipe, the intermediate circulation-pipes for each car, and a steam-cylinder for controlling the passage of steam from the main steam-pipe to the circulation-pipes independently, combined with an auxiliary boiler or reservoir, and drip-passages connecting the steam-cylinder with the auxiliary boiler or receptacle for the water of condensation, and with an exhaust apparatus for removing the water of condensation by suction, as and for the purpose set forth.

2. In an apparatus for heating a train of cars, the main steam-pipe extending the length of the train, the circulation-pipes for each car,

receiving steam from the said main steam-pipe, a valve-cylinder, a boiler for supplying steam, and a receptacle for the water of condensation, combined with return-pipes connected with said receptacle and having valves to be opened when it is desired to return the water of condensation to the boiler from whence the steam came, and an exhaust apparatus for drawing the water through the said return-pipes, substantially as set forth.

3. In an apparatus for heating a train of cars, the boiler for supplying steam, the main steam-pipe extending from end to end of the train, the circulation-pipes, the valve-cylinder, and a reservoir for the water of condensation connected with the said circulation-pipes, in combination with a suction-pump, and return-pipes connecting the said reservoir with the said pump and the boiler from whence the steam was supplied, substantially as set forth.

4. In an apparatus for heating cars, the main steam-pipe, the steam-cylinder with which the main steam-pipe is connected, and the circulation-pipes leading from the steam-cylinder, combined with the auxiliary boiler or reservoir connected with said steam-cylinder and with the return-pipes *d d'*, connected with said boiler or reservoir, substantially as described.

5. In an apparatus for heating cars, the main steam-pipe, a steam-cylinder with which the main steam-pipe is connected, and the circulation-pipes leading from the steam-cylinder, combined with the auxiliary boiler or reservoir connected with the steam-cylinder and with the suction return-pipes *d d'*, communicating with said boiler or reservoir, and the T-coupling, substantially as described, joining said pipes *d d'*.

6. In an apparatus for heating cars, the main steam-pipe, a steam-cylinder with which the main steam-pipe is connected, and the circulation-pipes leading from the steam-cylinder, combined with the auxiliary boiler or reservoir comprising an outer shell or casing, *b*, and the fire-pot *b'*, placed within it to leave a space of sufficient size to permit the water to circulate freely around it, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES H. SEWALL.

Witnesses:

LEWIS B. SMITH,
DANIEL D. SEWALL.