

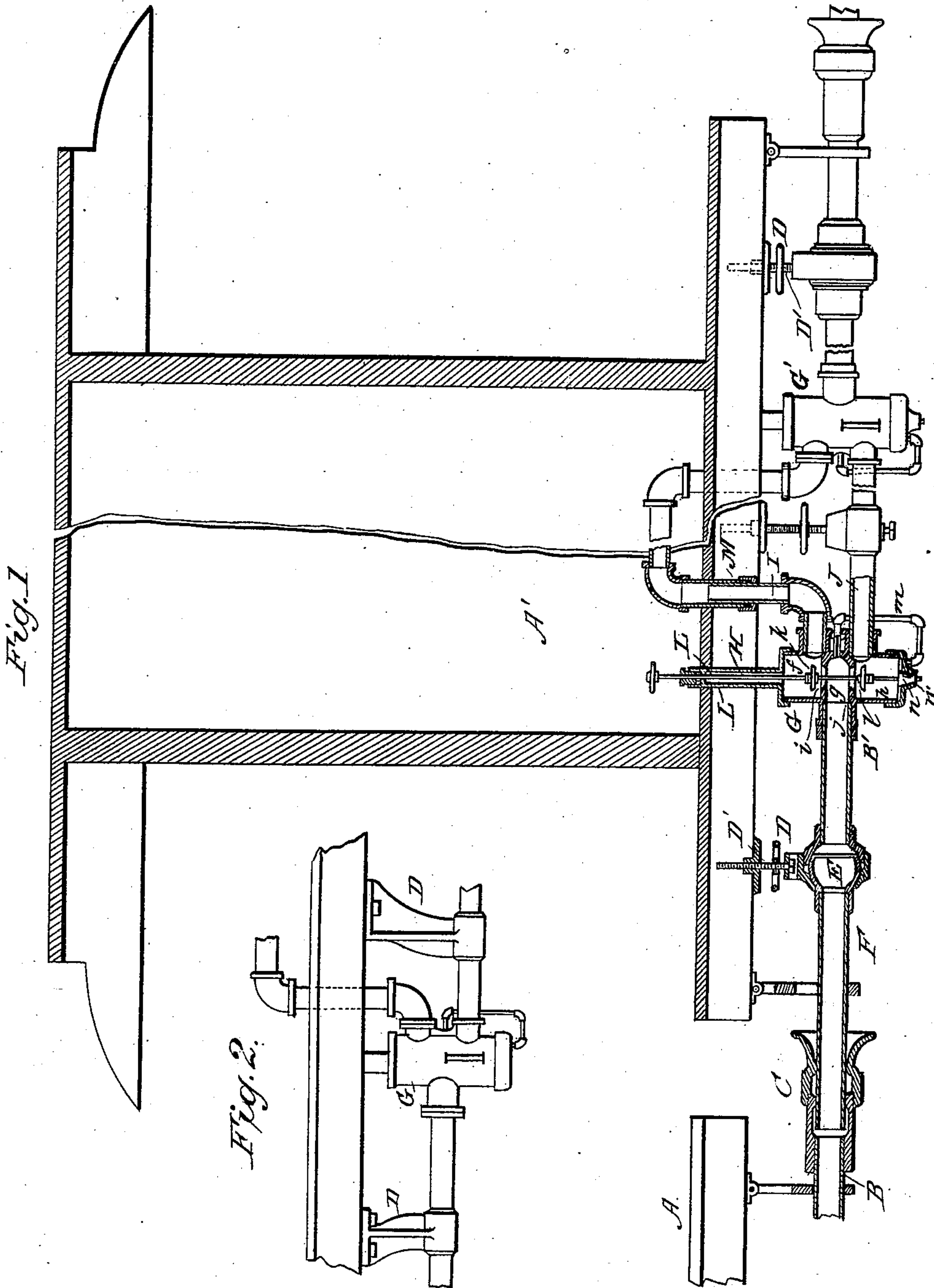
(No Model.)

H. R. ROBBINS.

STEAM HEATER FOR RAILWAY CARS.

No. 364,134.

Patented May 31, 1887.



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STEAM-HEATER FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 364,134, dated May 31, 1887.

Application filed February 14, 1887. Serial No. 227,611. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. ROBBINS, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Steam-Heaters for Railway-Cars, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, forming part of this specification.

This invention relates to steam-heaters for railway-cars, in which pipes or tubes are supported underneath a train of cars and are provided with means for communicating with registers or other devices for diffusing the heat within the cars.

The invention consists of certain novel features of construction relating to steam-heaters for railway-cars of the above-described class, as hereinafter described.

In the drawings, Figure 1 is a view showing the application of my invention to use, the same being partly in section; and Fig. 2 is a detail view.

A A' represent portions of two railway-cars, which are supposed to be coupled together. B B' are tubes or pipes supported underneath the cars, respectively, and coupled together at C by means of a sliding steam-tight joint. Within the supporting-brackets D the said pipes form ball-and-socket joints E with the extension-pipes F, respectively, whereby said pipes may accommodate themselves to curves in the road when the cars are passing along the same. As the arrangement of the pipes under one car is the same as that under another, the following description will be confined to the car A'.

The extension-pipe F terminates in a valve-chamber, G, consisting of three compartments, *f g h*, which are formed by two partitions, *i j*, having valve-seats, as shown. These compartments are arranged one above another, and a valve-rod, H, which is provided with valves *k l*, located in compartments *f h*, respectively, passes up into the car, where it is provided with a hand-wheel, by which it may be rotated to close either valve at will. The valves are so arranged with respect to each other that only one can be closed at a time, so that the steam which passes from pipe F into the central compartment, *g*, shall be allowed to con-

tinue its passage along one of two other extension-pipes, I J.

The pipe I communicates with the upper compartment of the valve-chamber G, and by suitable elbows is made to pass directly upward into the car A' and along the same longitudinally, then downward to another valve-chamber, G', near the opposite end of the car. The pipe J, on the contrary, which communicates with the lower compartment of the valve-chamber G, is extended along underneath the car to the valve-chamber G' in a direct line. The central compartment, *g*, communicates with the lower one, *h*, independently of the valve *l*, by means of the elbow-pipe *m*, extending from the end of central compartment, *g*, to the bottom of lower compartment, *h*.

By means of the valves and the pipes I J the steam can be supplied to any or all the cars, or cut off from any, as may be desired. The quantity of steam supplied can also be regulated by the valves, and when the steam is fully turned on to any car the elbow-pipe *m*, which is always open, serves to admit a sufficient quantity of steam to the pipe J to prevent the latter from becoming chilled during disuse. As seen from the drawings, each end of the apparatus is a duplicate of the other, and the means for coupling with other cars at either end are the same.

Figs. 1 and 2 show the same construction, except that in the latter the apparatus is suspended by rigid hangers D, while in the former I have provided means for raising or lowering the apparatus, so that it can be used on cars of different heights. Instead, therefore, of the stationary brackets D for supporting the pipes, I shall use, when desirable, the threaded rods D', having hand-wheels and screwing into the bottom of the car. These rods are to be connected to the pipes in any suitable manner to allow them to be rotated by the hand-wheels. With this construction the chambers G G' are to be provided each with an extension, L, for inclosing the rod H and suitable packing at the upper end thereof. The extension L is thus adapted to slide vertically when the apparatus is raised or lowered without changing its relative position with respect to the rod. The pipe I at the same time is provided with telescoping parts, as shown at M, which are to be

provided with suitable packing to make a steam-tight joint.

At the bottom of valve-chamber G is another valve, *n*, of the plunger order, fitted to seat *n'*, made in V shape, which, when the valves *i* and *l* are raised to pass the steam into pipe I, also opens valve *n* to allow the condensed steam to pass out. When valve *i* is open, valve *l* is closed, and vice versa. When valve *l* is closed, the condensed steam passes through the elbow-pipe *m* and into the bottom of valve-chamber G, and then out through the V-shaped valve *n*.

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

1. In a steam-heater for railway-cars, a chamber, G, formed with compartments *f g h*, and having valve-seats *i, j*, and *n'*, combined with the rod H, having valves *i, l*, and *n*, and the inlet and outlet pipes leading into said compartments, substantially as set forth.

2. In a car-heater, the combination of chambers GG', having intermediate and end or upper and lower compartments, the upper and lower compartments communicating through suitable ports with the intermediate chamber, valves whereby to close said ports, and pipes

connecting the upper and lower compartments of one chamber with the similar compartments of the other chamber, substantially as set forth.

3. In a steam-heater for railway-cars, the combination, with the pipes F, of the chambers G G', formed with three compartments each, which are separated by partitions having valve-seats therein, the rods H, having two valves rigidly secured to each, the pipes I J, communicating with and connecting said chambers, and the elbow-pipes *m*, connecting the pipes F with the pipes J through the central and lower compartments of the said chambers, substantially as shown and described.

4. In a steam-heater for railway-cars, the combination, with the car A' and the pipes F and J, of the rods D', adapted to be adjusted to support the pipes at any desired height, the chamber G, extending into the car to inclose the valve-rod H, and the pipe I, having telescoping parts, substantially as shown and described, and for the purpose set forth.

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