

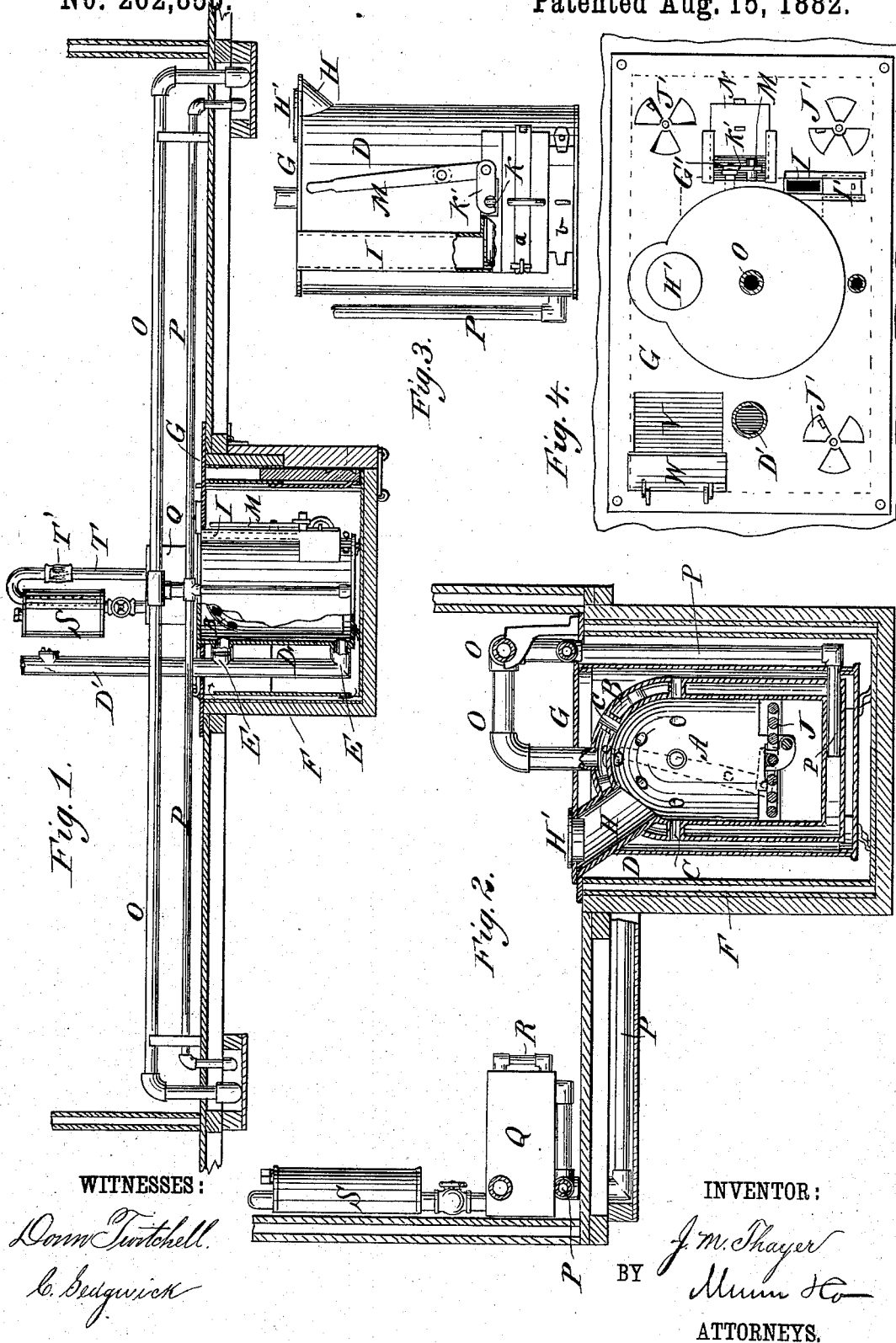
(No Model.)

J. M. THAYER.

CAR HEATER.

No. 262,856.

Patented Aug. 15, 1882.



# UNITED STATES PATENT OFFICE.

JAMES M. THAYER, OF RANDOLPH, MASSACHUSETTS.

## CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 262,856, dated August 15, 1882.

Application filed May 25, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. THAYER, of Randolph, in the county of Norfolk and State of Massachusetts, have invented a new and Improved Car-Heater, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved heater for cars of all kinds.

The invention consists in a furnace held in a box below the floor of the car, from which the hot-water-heating pipes pass around the car and through a hot-water reservoir connected with a supply-tank, also used as a condenser.

The invention further consists in certain details of construction, as hereinafter more fully set forth.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of a car provided with my improved car-heater. Fig. 2 is a cross-sectional elevation of the same. Fig. 3 is a longitudinal or side elevation of the furnace, parts being shown in section. Fig. 4 is a plan view of the plate above the furnace and in the bottom of the car, with the water-pipe and smoke-flue in section.

The fire-box A, preferably constructed with a rounded or dome-shaped top, is provided with a jacket, B, and the space between the fire-box and its jacket is filled with water. Short flues C pass from the fire-box to and through the jacket, and through these flues the products of combustion pass into the furnace-casing D, surrounding the fire-box and jacket, and provided with a chimney-pipe, D', extending to the roof of the car, into which chimney-pipe short branch pipes E pass from the top and bottom of the casing.

The furnace is contained in a box, F, suspended from the bottom of the car, and provided with a top plate, G, flush with the upper surface of the car-floor, this box being on the refrigerating principle, so that the fire cannot heat or burn the wood-work. As fast as the heat escapes from the furnace it must pass up through the registers J' into the car. A chute, H, extends from the top plate, G, into the top of the furnace, and this chute can be closed at its upper end by a gate or door, H',

resting on the top plate, G. Fuel is passed into the furnace through this chute H. A draft-pipe, I, extends from the top plate, G, down to the grate J of the furnace. The top plate, G, is provided with a series of registers, J', which can be opened more or less to permit the hot air in the box F to pass into the car. The grate J is provided with a projecting pintle, K, on which a link-piece, K', is hooked, which link-piece has its other end pivoted to the lower end of a handle-lever, M, pivoted to the side of the furnace-casing, and reaching to the top plate, G, which is provided with an opening, G', to permit operating the handle-lever M, which opening can be closed by a sliding gate or door, N.

The main hot-water-supply pipe O extends upward from the top of the furnace, then runs along the sides of the car between the floors of the car at the ends to the other side, and into the hot-water reservoir Q. The return-pipes P are of less diameter than the pipes O, as cold water does not occupy or require as much space as hot water does. The return-pipes also run along the sides and under the ends of the bottom of the car, and then into the bottom of the water-space around the fire-box, so that the cold water will be fed into the bottom of this water-space. The hot-water reservoir Q is provided with a water-gage, R.

A supply-tank, S, used as a condenser, is attached to the side of the car above the hot-water reservoir Q, and a pipe, T, conducts the steam from the reservoir into the condenser S, and this pipe T is provided with a safety-valve, T', or equivalent device. The bent pipe T preferably reaches to near the bottom of tank S, and the valve T' is fitted to open upward to prevent a flow of water therethrough from the tank in case of the formation of a vacuum in the heating-pipes.

The casings of the furnace and fire-box are provided with suitable gates and doors, a b, which can be opened to remove the ashes. No dust can pass into the car. The heater is out of the way, is not apt to set fire to the car in case the car is overturned, as the furnace is surrounded by water, and is located below the car bottom and in the box F.

Preferably a fuel-box, V, is placed in the same box, F, containing the furnace, the top of this fuel-box being closed by a hinged gate or

door, W, pivoted on the top plate, G. The draft-flue I is provided with a slide, I', to regulate the quantity of air passing to the fire.

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

1. In a car-heater, the combination, with the box F, suspended from the bottom of the car, of the furnace A, the water-jacket B, the casing D, the hot-water-feed pipes O, and the return-pipes P, substantially as herein shown and described, and for the purpose set forth.

2. In a car-heater, the combination, with the box F and the top plate, G, of the furnace A B D, the grate J, the link-piece K', the lever M, and the cover N for closing the opening G' in the top plate, G, above the lever M, substantially as herein shown and described, and for the purpose set forth.

3. In a car-heater, the combination, with the box F, of the furnace A, the water-jacket B, the casing D, the top plate, G, and the registers J', substantially as herein shown and described, and for the purpose set forth.

4. In a car-heater, the combination, with the furnace A, the water-jacket B, and the casing

D, held below the bottom of the car, of the hot-water-feed pipes O, the return-pipes P, and the hot-water reservoir Q, substantially as herein shown and described, and for the purpose set forth.

5. In a car-heater, the combination, with the furnace A, the water-jacket B, and the casing D, held below the bottom of the car, of the hot-water-feed pipes O, the return-pipes P, the hot-water reservoir Q, the supply and condensing tank S, and the valved connecting-pipe T, substantially as herein shown and described, and for the purpose set forth.

6. In a car-heater, the combination, with the furnace A, the water-jacket B, and the casing D, held below the bottom of the car, of the hot-water-feed pipes O, the return-pipes P, the hot-water reservoir Q, the condensing-tank S, the connecting-pipe T, and the safety-valve T', substantially as herein shown and described, and for the purpose set forth.

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Witnesses:

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