

(No Model.)

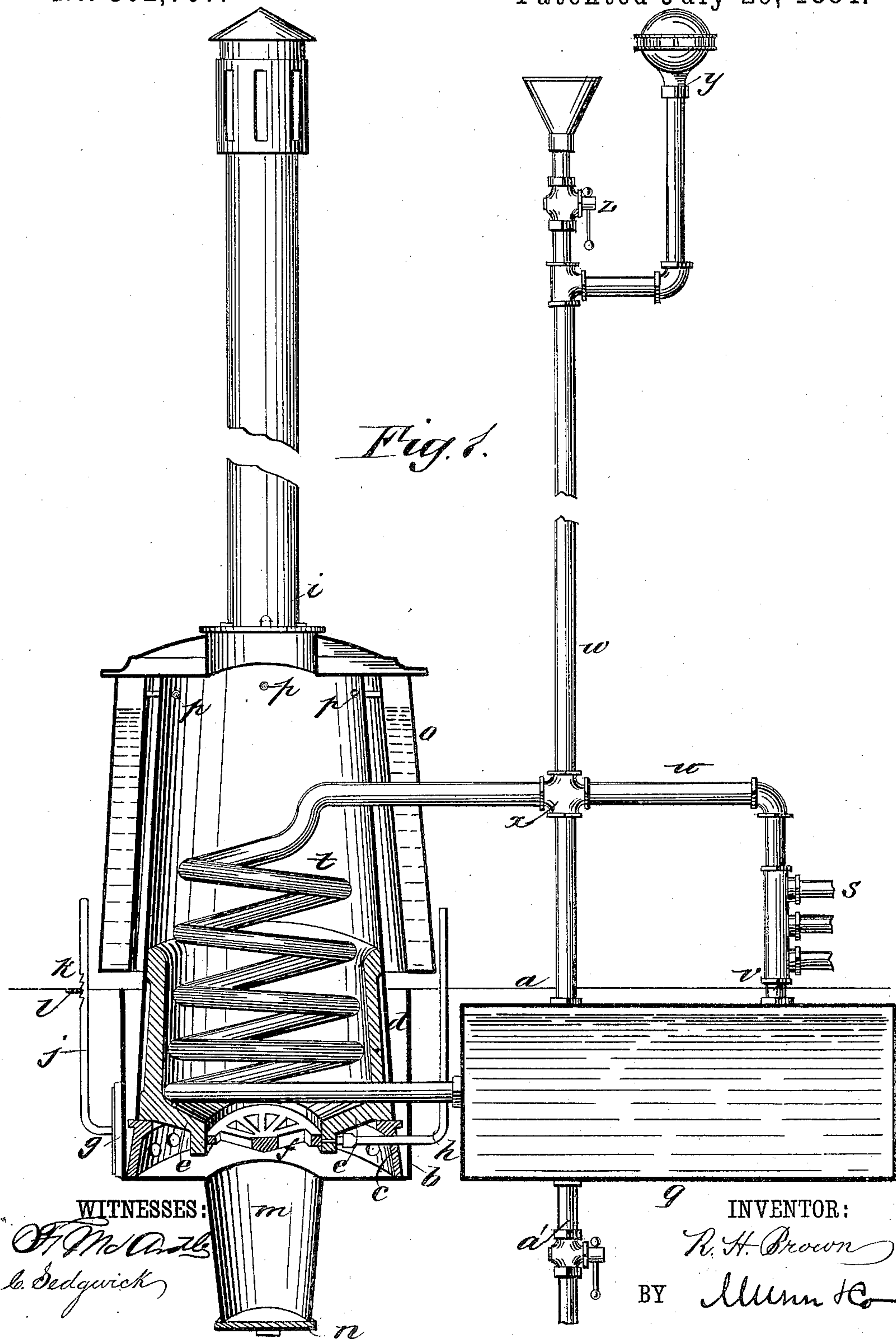
2 Sheets—Sheet 1.

R. H. BROWN.

CAR HEATER.

No. 302,707.

Patented July 29, 1884.



(No Model.)

2 Sheets—Sheet 2.

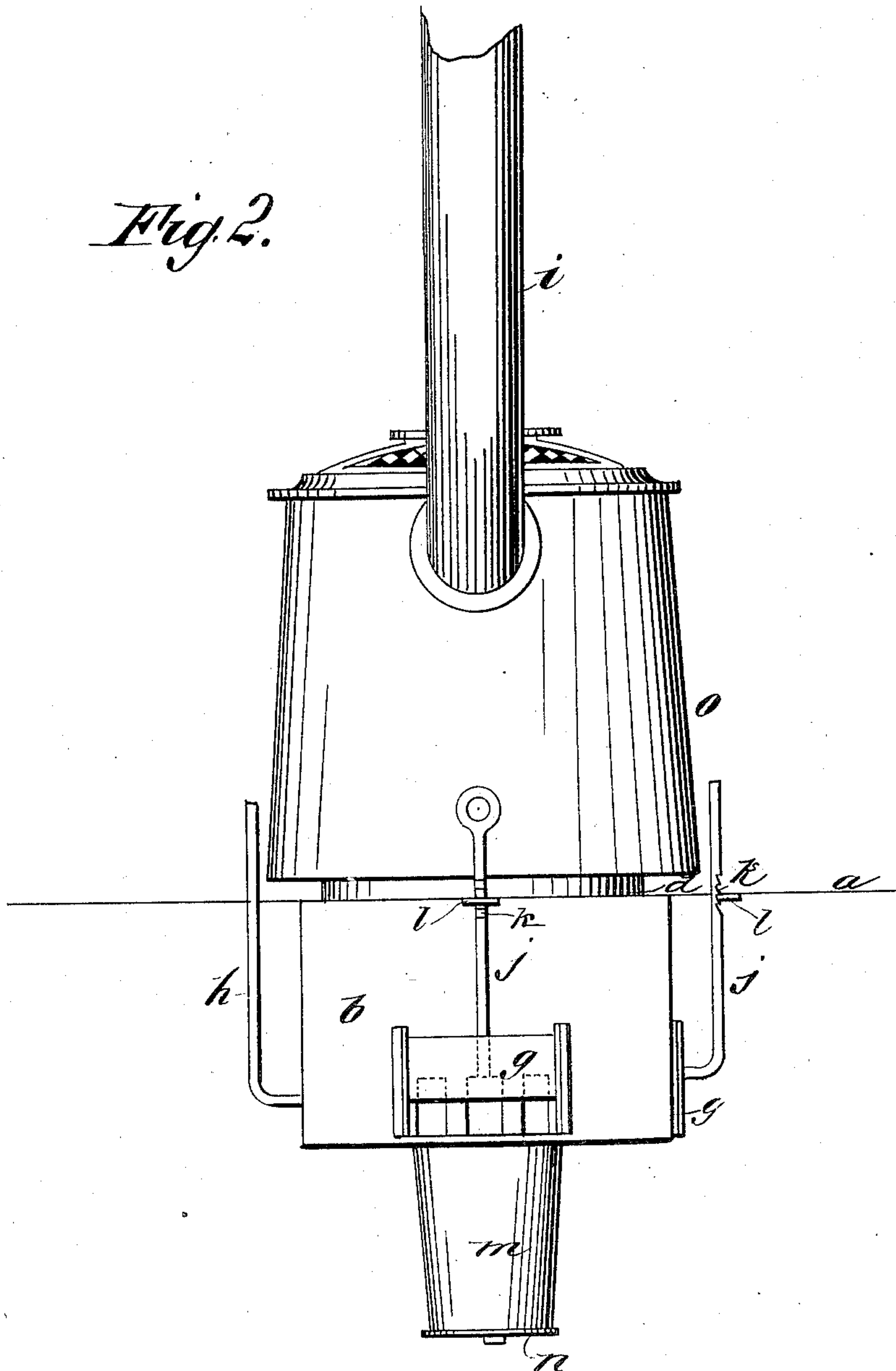
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*Fig. 2.*



WITNESSES:

*Francis M. Mott,*  
*C. Sidgwick*

INVENTOR:

*R. H. Brown*  
BY *Munn & Co*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

RICHARD HALL BROWN, OF OMAHA, NEBRASKA, ASSIGNOR OF ONE-HALF  
TO JOHN REED, OF SAME PLACE.

## CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 302,707, dated July 29, 1884.

Application filed August 25, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD H. BROWN, of Omaha, Douglas county, Nebraska, have invented a new and Improved Car-Heater, of which the following is a full, clear, and exact description.

My invention has for its object to improve the construction and arrangement of low-pressure steam-heaters for cars and buildings, but more particularly for cars, whereby it is designed to provide more efficient and safer heaters than any now in use, all as hereinafter fully described.

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

Figure 1 is a sectional elevation of my improved heater arranged for cars, and Fig. 2 is a side elevation.

The line *a* represents the floor of a car, under which I suspend a sheet-iron box, *b*, in any approved way, in which I place a stove consisting of a base, *c*, of cast-iron, sheet-metal case *d*, cast-iron fire-box *e*, grate *f*, grate-shaker *h*, and pipe *i*, the box *b* being provided with dampers *g*, and the dampers having rods *j* extending up through the floor, and adapted to be set in any desired position by notches *k* and a suitable catch-plate, *l*, attached to the floor, and the shaker extends up through the car-floor, where it may be conveniently worked to shake the grate below. The box *b* has an ash-pit, *m*, extending downward from the bottom, into which the ashes fall, to be discharged from time to time through the bottom, said bottom having a door, *n*, to be opened when required.

Around the part of the stove extending up above the car-floor I arrange a water-jacket, *o*, to be kept nearly full of water by being filled from time to time, and having small pipe-connections *p* opening into the upper part of the stove, for allowing the water to flow from the jacket into the stove, in case of the overturning of the stove by accident, to extinguish the fire. Near the stove, and also under the floor, I arrange a water-tank, *q*, for containing the water to be used for making the steam for distributing the heat throughout the car by means of radiating-coils *s*. This tank

*q* connects with the coil *t*, located in the stove, for making the steam, and the coil connects with the heater *s* by a pipe, *u*. From the radiator the water of condensation returns to the tank *q* through the pipe *v*, connecting the radiator with the tank. The tank *q* is provided with a filling-tube, *w*, which also connects with steam-pipe *u* by a part, *x*, and has a safety-valve, *y*, attached to it, the filling-pipe being closed by a cock, *z*. The tank is also provided with a blow-off pipe and cock, *a'*, by which to discharge the water from time to time, as may be required.

It will be seen from the foregoing description that my improved heater will be very effective, durable, safe, and convenient to manage, and that it may be employed in heating buildings as well as cars.

I am aware that it is not broadly new to suspend the fire-box of a car-heater below the floor thereof, and to have dampers and grate-shakers extending therefrom above the car-floor, and hot-air pipes connecting therewith for heating the car; also, that a car-heater has been provided with a water-jacket connected with the fire-chamber; also, that a hot-water heater has been placed entirely within the car and provided with pipes extending through the car, and a reservoir and a filling-funnel, cock, and safety-valve above the car; also, that it is not new to place a reservoir alongside of the furnace and extend a pipe therefrom into the fire-box, where it is coiled, said pipe passing therefrom to the radiators, and a return-pipe connected to the reservoir, and I do not claim, broadly, any such constructions.

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

In a car-heater, the combination, with the stove, extending above and below the car-floor, of the tank *q*, below the floor, coil *t*, within the stove, connected with the tank and passing out of the stove above the floor, and the radiators *s*, connected with said coil and tank, substantially as set forth.

RICHARD HALL BROWN.

Witnesses:

GEORGE C. BROWN,  
ELIJAH DUNN.