

May 16, 1933.

R. J. PARSONS

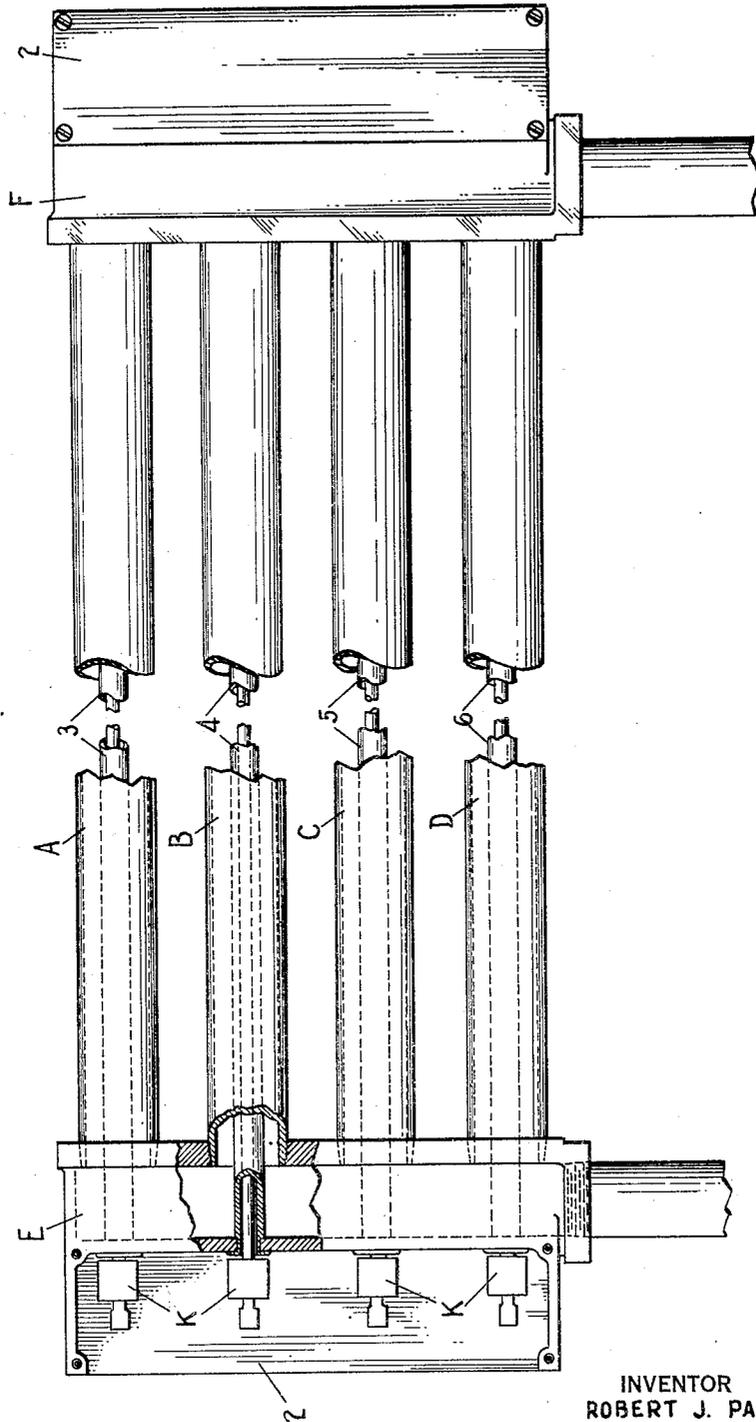
1,909,593

STEAM-ELECTRIC CAR HEATER

Filed April 26, 1929

2 Sheets-Sheet 1

FIG. 1



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FIG. 2

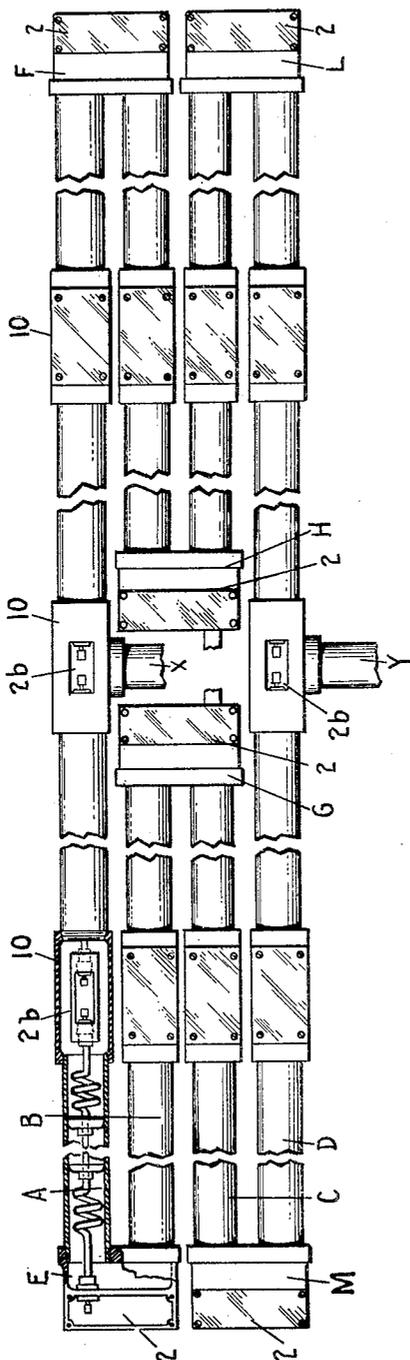


FIG. 3



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STEAM-ELECTRIC CAR HEATER

Application filed April 26, 1929. Serial No. 358,384.

For a detailed description of the present form of my invention, reference may be had to the following specification and to the accompanying drawings forming a part thereof, wherein

Fig. 1 shows a heater unit embodying my invention and

Fig. 2 shows a grouping of similar units.

Fig. 3 is a detail.

10 My invention relates to a car heater operable either by steam or by electricity and employed for cars which, at times, are included in trains drawn by steam locomotives, and so having steam available as the heating agency, but, at other times, are in trains propelled by electric locomotives when electricity is the heating agency available. My purpose is to have one heater installed in the car with but a single heat radiating surface which may receive its heat from either one of the two heating agencies.

Turning to Fig. 1 of the drawings, A, B, C and D represent steam pipes, connected across at their ends by headers E and F. 25 These headers also represent the means for introducing steam into the said pipes at one end and withdrawing of water therefrom at the other end, this water being the residuum from the steam after the heat has been withdrawn from it by radiation from the outside surface of the pipes. However the steam may enter and the water be withdrawn at any other suitable point in the pipe system. From the outside surface of said 35 pipe system the heat is to be radiated into the car whether the agency creating that heat be steam or electricity. Outside of each header and effectively partitioned from its interior space is formed a tube box 2 which is provided with a removable cover plate, that plate being shown in place at the right hand box of Fig. 1 and screwed down, but is not in place at the left hand box of said figure. Through the several steam pipes A, B, C, D, and inside thereof, extend metal tubes 3, 4, 5 and 6 which are concentric with, but longer than, the steam pipes, so as to pass transversely across the interior of headers E and F and thence into the tube boxes 2 at either end. When these tubes pass out of

the steam headers into the tube boxes a steam tight joint is provided. The tubes are thus carried by the wall of the tube boxes and secured longitudinally by nuts K in the tube box which is open to the atmosphere. The tubes may assume a spiral form between their ends as indicated in Fig. 2. Through each of the tubes extends an electric resistor element, acting as a heater, which reaches from a tube box 2 at one end to a corresponding tube box 2 at the opposite end of the heater. In these tube boxes the usual electrical connection may be made with electrical supply conductors.

Fig. 2 shows how heaters like those shown in Fig. 1 may be grouped and arranged for practical service in a car. Here pipes A and B have at their outer ends headers E and F, each provided with a corresponding tube box 2. Each pipe has a series of individual coupler-sleeves 10 dividing it into sections. At the center of the pipes the two pipes B and C have headers G and H, while at both ends the pipes C and D have these headers M and L tube boxes 2. This arrangement puts in series a set of heater units on each side of the center, and the two sets are in branching relation to each other with respect to a single set of inlet and outlet steam pipes X and Y at the center.

The aforesaid couplers have each a sleeve 10 joining the adjacent pipe ends and enclosing a steam space which conducts the steam from one pipe section to the next, just as the headers form a steam connection between adjacent parallel pipes. In each coupler-sleeve 10 is a tube box 2^b which lies inside of the coupler-sleeve, whereas the tube boxes 2 at the ends lie outside of the steam headers E, F, G and H. But in any case the tube boxes, within which are the electrical connections, are effectively partitioned off from the space in the headers or sleeves 10 that form the steam connection between consecutive steam pipes, while the tubes carrying the electric heater resistor pass through the steam space and enter the tube boxes.

By this means, it will be manifest, that the outside surface of the steam pipes forms a single radiating surface for delivering heat

to the interior of the car, but that behind that single radiating surface are two distinct agencies for heating it, one agency being steam and the other electricity. Moreover the electrical heating means are inside of the steam heating means. Thereby a casual observer would see only an ordinary steam heating system and only by close examination would know that it was equally an electric heating system. When there is no steam in the pipes, the steam locomotive being detached from the train and replaced by electric propelling means, then the electrical resistors in the tubes will be connected to the source of electrical supply by well known means. These resistors, which are insulated electrically from the tubes enclosing them will radiate their heat to the tubes which will, in turn, radiate heat to the steam pipes and the pipes will radiate it to the air in the car just as they would do if the heat were supplied to them by steam. The tube boxes between succeeding sections of tube will be accessible, by means of their removable covers outside of the steam pipes, whereby the electrical connections between succeeding resistors in the tubes can be established independently of the steam pipes and their steam connections.

What I claim as new and desire to secure by Letters Patent is:

1. A steam electric heater of the character described comprising a steam pipe having an internal steam space and an exposed heat radiating surface, an electric heater extended through said steam space and out of contact with the wall of said pipe, so that either steam or electricity may be selectively employed to heat said radiating surface, said electric heater being supported independently of said pipe.

2. A steam-electric car heater arranged to radiate heat from its external surface comprising a steam pipe in connected sections, means by which steam may be introduced into said pipe sections and internal electrically heated tubes within said pipes but separated therefrom by the steam space, so that the steam may pass through the pipe independently of the said tubes.

3. A steam-electric car heater comprising a heat-radiating steam pipe formed in sections, internal electrically-heated tubes also in sections, couplers for the said pipes, and couplers for the tube sections accessible outside of the steam couplers.

4. A steam-electric car heater comprising a heat-radiating steam pipe formed in sections, an electrically heated tube inside of said pipe, and a coupler having two separate compartments, one a closed compartment communicating with two adjacent pipe sections and the other an open compartment communicating with two adjacent tube sections.

5. A steam-electric car heater comprising an external steam pipe, a parallel internal tube containing an electrical heating resistor and spaced from the steam pipe, and a coupler containing two separate compartments one steam-tight and connecting adjoining pipe sections and the other at atmospheric pressure and connecting adjoining tube sections.

6. A coupler for a steam-electric car heater containing two compartments separated by a wall, one of said compartments having means for supporting steam pipes and the other compartment having means located in said separating wall for supporting electrically heated tubes.

Signed at Albany, county of Albany, State of New York, this 24th day of April, 1929.

ROBERT J. PARSONS.