

C. CARPENTER

Car Heater.

No. 81,137.

Patented Aug. 18, 1868

Fig 1

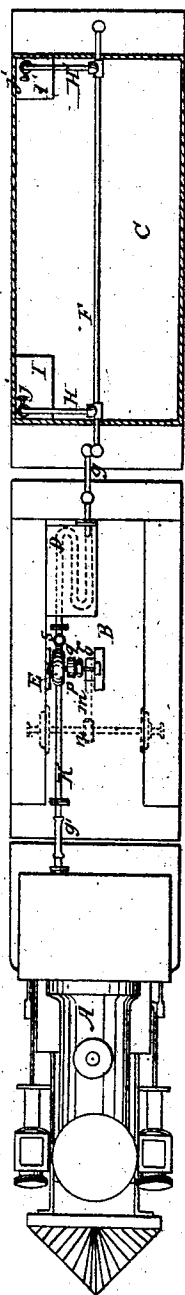
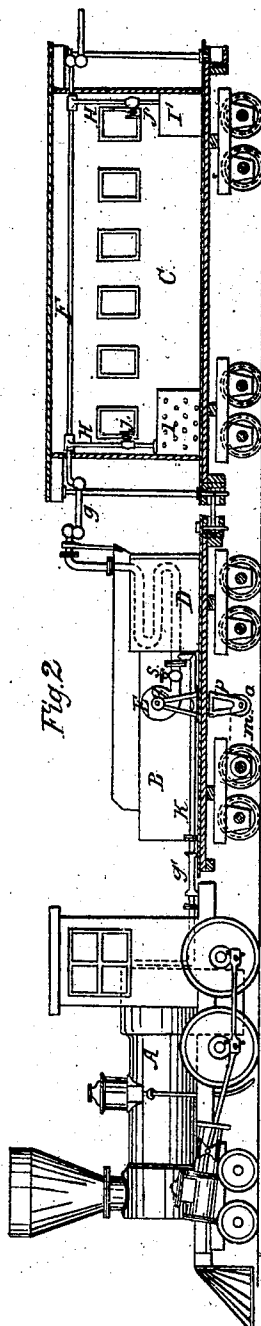


Fig 2



Witnesses.
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CAR CARPENTER, OF BUFFALO, NEW YORK.

Letters Patent No. 81,137, dated August 18, 1868.

IMPROVEMENT IN APPARATUS FOR HEATING RAILROAD-CARS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CAR CARPENTER, of the city of Buffalo, in the county of Erie, and State of New York, have invented certain new and useful Improvements in Apparatus for Heating Railroad-Cars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure I is a plan and horizontal section of a locomotive, tender, and one car, provided with my improved apparatus.

Figure II is a vertical longitudinal section of the tender and car, the locomotive being shown in elevation. Like letters of reference designate like parts in both figures.

To avoid the use of stoves in the various cars forming a railroad-train, has led to the invention of a number of devices for heating the cars by means of hot air or steam. The employment of steam is objectionable on account of the danger resulting from the escape of the steam in case of an accident breaking or rupturing the pipes conducting it to the different cars.

The employment of hot air for warming the cars requires a fan or other blower to force the air through the conducting-pipes, which apparatus is operated by mechanism connecting with the axle of the car when in motion. In case of a stoppage or detention of the train, by snow or other cause, some other means become necessary to maintain the proper temperature, as the air-forcing apparatus ceases to operate when the cars are at rest.

My invention is designed to obviate these difficulties; and the invention consists—

First, in the combination and arrangement of an apparatus, by means of which either or both steam and hot air can be employed, the steam being used when the train is at rest, and when no danger need be apprehended from its employment.

Second, in the arrangement and method of operating the fan-blower; which prevents the springing action of the body of the car from interrupting or deranging the motion of the fan, all as hereinafter fully set forth.

In the drawings, A is the locomotive, B the tender, and C a car coupled thereto. D is a stove or furnace arranged in the tender for heating the air. E is a fan, of any suitable construction, for forcing the air through the heater and conducting-pipe. F is the conducting-pipe, leading from the coil in the heater through the different cars. G is a triple-jointed coupling for said pipe, between the cars, although any suitable coupling that will yield with the relative movement of the cars may be employed. H represents one or more branch-pipes, leading from the main pipe down the side of the car, and terminating in a register or registers I, J being a valve for regulating the escape of the air from said pipe. H', I', and J' represent a corresponding pipe, register, and valve, for the steam when it is employed, the register or radiator I' differing from I in being made tight, to prevent the escape of the steam into the car. K is a steam-pipe, leading from the boiler and opening into the nozzle of the air-pipe before it enters the heater, as shown. This pipe is provided with a suitable jointed or flexible coupling, G', between the locomotive and tender.

The fan is operated by a belt, m, on a pulley, n, on one of the car-axles, connecting with a pulley, o, mounted in pendant-bearings from the body of the car. From this latter pulley a belt, p, extends upward through the bottom of the car, and around the pulley q on the fan-shaft. A loose pulley, r, may also be employed on the fan-shaft, to which the belt p can be transferred in regulating the temperature of the cars. By the use and arrangement of the two belts, m p, the operation of the fan is not affected by the springing or vertical movement of the body of the car, as the fan-shaft and pulley o maintain an unvarying distance from each other, while the vertical motion of the body of the car, to which the bearings of pulley o are attached, only nominally varies the distance between the latter and the car-axle with which the belt m connects, so that the operation of the belt is not affected thereby. This arrangement, or some equivalent means, is necessary, in order to actuate the fan from the car-axle.

The operation of my improvements, thus constructed and arranged, is as follows:

When the train is in motion, the steam-pipe is closed, or nearly so, and the fan set in motion, which forces

the air through the heater-conducting pipe and register into the different cars. A small amount of steam may be admitted into the air to render it properly moist, which makes it more agreeable to those inhaling it in the cars.

In case of a detention of the cars from any cause, the air-pipe near the fan may be closed by a valve, *s*, and the air-pipes *H* by the valves *j*, while the valve *j'* being opened, steam is forced through the coil in the heater and into the radiators *I'* of the different cars, thus maintaining the proper temperature of the same.

Without some such provision, extreme suffering would ensue in cases of long detention of the train by snow-drifts or other obstructions. It also becomes necessary in heating the cars at the different stations, before the train is put in motion.

By means of my arrangement, the same conducting-pipe can be employed for both the steam and hot air, and the change from the use of the one to the other effected in the simplest manner. In hot weather, the fan and conducting-pipes can be employed in ventilating the cars.

I do not claim the employment of steam or hot air in heating railroad-cars, nor an apparatus for the use of either alone.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination and arrangement of the steam-pipe *K*, fan *E*, valve *S*, furnace *D*, conducting-pipe *F*, branches *H H'* provided with valves *j j'*, and register and radiator *I I'*, adapted for the use of steam and hot air alternately or together in heating a train of cars, substantially in the manner set forth.

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Witnesses:

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