2 Sheets—Sheet 1.

W. SMITH.

Car-Heater.

No. 201,061. Patented March 5, 1878.

Fig. 1

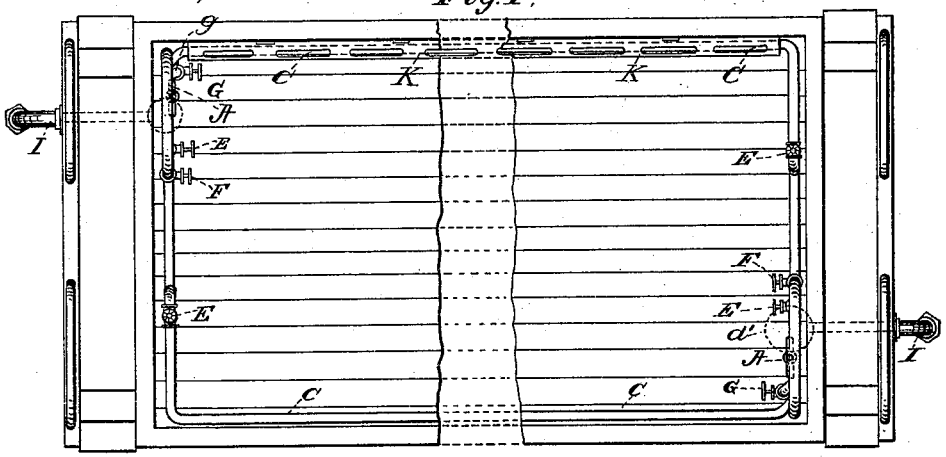
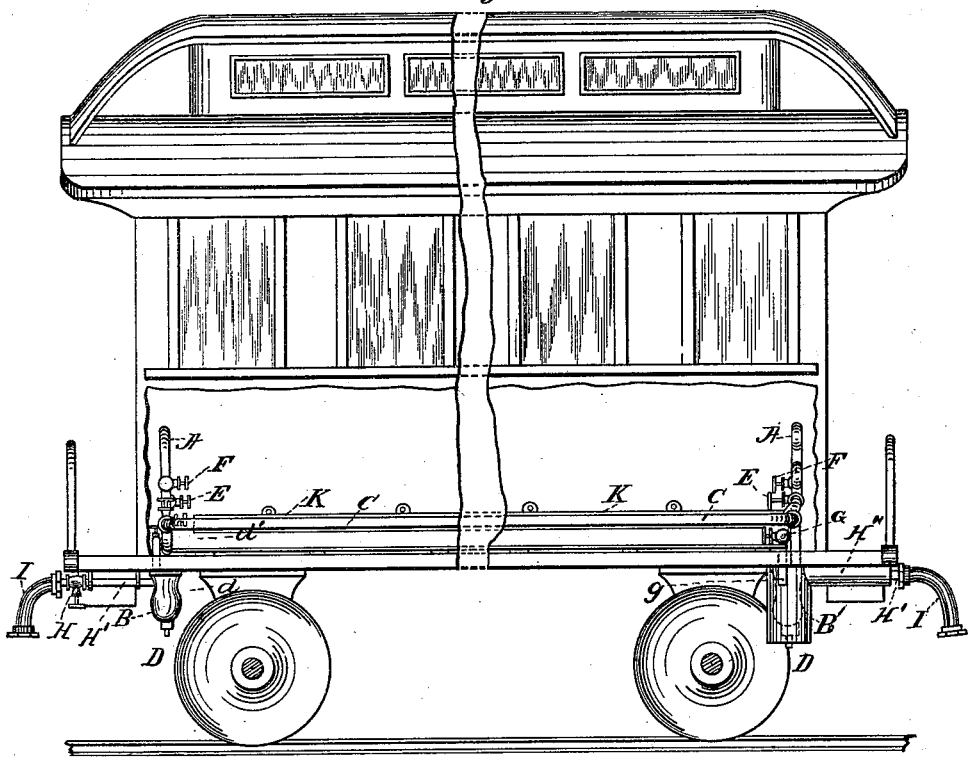


Fig. 2



Witnesses
W. R. Eddon.
Chas J. Gooch.

Inventor.
Wesley Smith
By Knights Bros
attorneys

2 Sheets—Sheet 2.

W. SMITH.
Car-Heater.

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Fig. 3.

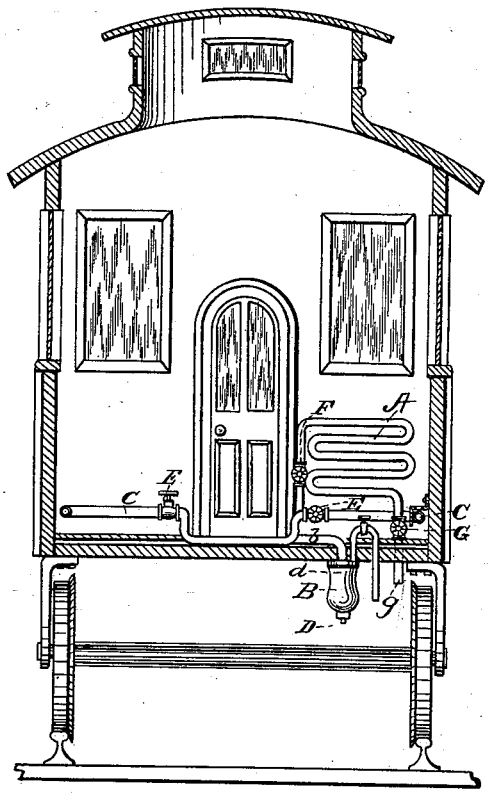


Fig. 4.

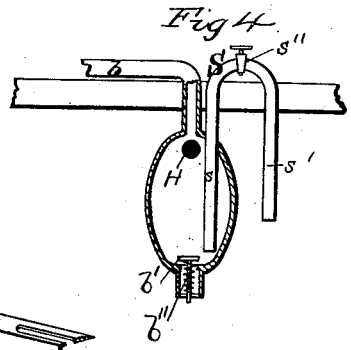
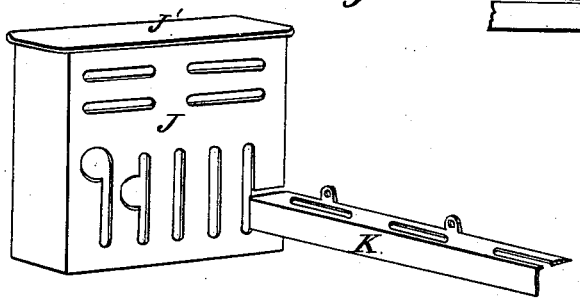


Fig. 5.



Witnesses
W. R. Edelen.
Chas. J. Goodell

Inventor.
Wesley Smith
By Knight Bros
attorneys

UNITED STATES PATENT OFFICE.

WESLEY SMITH, OF ADRIAN, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY H. OSGOOD, OF SAME PLACE.

IMPROVEMENT IN CAR-HEATERS.

Specification forming part of Letters Patent No. **201,061**, dated March 5, 1878; application filed December 27, 1877.

To all whom it may concern:

Be it known that I, WESLEY SMITH, of Adrian, in the county of Lenawee and State of Michigan, have invented new and useful Improvements in Car-Heaters, of which the following is a specification:

My invention relates to steam-heating apparatus for cars.

My improvement consists, first, in combining, with a steam-coil and a pipe surrounding the car, an arrangement or system of valves for regulating the supply of steam, and consequently the heat, in different parts of the car, as hereinafter described.

My improvement consists, secondly, in combining, with the steam-heating pipes, a chamber beneath the car, constructed with an automatic valve, adapted to open and allow the water of condensation to pass off with the sediment when the steam-pressure is withdrawn, as hereinafter described.

My improvement consists, thirdly, in combining, with said chamber, means for relieving the chamber when steam is on, consisting of an inverted-U or siphon pipe provided with a valve, as hereinafter described.

In the accompanying drawings, Figure 1 is a plan view of the lower portion of a car provided with my improved steam-heating apparatus. Fig. 2 is a side view of the car, a portion of the paneling being removed to exhibit the heating apparatus. Fig. 3 is a vertical transverse section of a car. Fig. 4 is a view, on a larger scale, of the chamber for the water of condensation. Fig. 5 is a perspective view of a screen for the coil and a portion of a fender for the pipe.

Like letters of reference indicate corresponding parts in the various figures.

A A represent coils of pipe located at each end of the car, so as to be in close proximity to the doors. B B are chambers for the water of condensation, located beneath the bottom of the car.

C C are pipes surrounding the car, and connected to the supply-pipes H H by means of branch pipes *b b* passing into the chambers B B. Each chamber is constructed with an automatic valve, *b'*, at its lowest portion, said valve being opened by a spring, *b''*, when steam-pressure is withdrawn.

S is a siphon or inverted-U pipe, one arm, *s*, extending downwardly to near the bottom of the chamber, the other arm, *s'*, extending downwardly on the exterior of the chamber. The pipe S is provided, in its bent portion, with a valve, *s''*, to regulate the discharge through the siphon. The chamber is provided with a jacket, B'.

K K are perforated fenders for inclosing and protecting the pipes C C. E E E E are valves for admitting steam to either or both sides of the car from either or both ends of the same, being located in the pipes C C, one on each side of each door. F F are valves for admitting steam to the coils A A when greater heat or more warmth is required at the ends of the car, the steam passing through pipes C C to the coils. G G are valves at the lower ends of the coils, to permit water of condensation to pass down through pipes *g g* out at bottom of car.

The supply-pipes H H lead from flexible couplings I I, and are provided with valves H' H' to regulate the supply of steam, and jackets or casings H'' H''.

J J are ornamental screens for concealing the steam-coils A A, and are preferably provided with marble tops J'. The couplings I I are made flexible, preferably, and are protected by a casing.

I intend to use live and dry steam, which may be taken from the boiler, preferably from the injector or pipe. The steam-pipes will be under the same pressure as the boiler, which is about one hundred and twenty-five pounds to the square inch.

Operation: When the car is to be disconnected, the valves H' H' in the pipes H H are closed, so as to let the pipes cool gradually, and when the steam has condensed within the pipes the valves *b'* in the chambers will open automatically, owing to the pressure upon the valves being withdrawn and allowing the springs to act, thus permitting the water of condensation to pass out. If it is desired to remove water of condensation from the chamber when steam is on, the siphon attachment is

employed, as by opening the valve s'' the water will be discharged. When the pipes are emptied the valves are closed.

When a car is to be connected, the outer valves H′ H′, b' b', G G, and s'' s'' are closed, and steam received through one of the pipes H.

The valves E E E E regulate the supply of steam to the pipes C C. The valves F F regulate the coil-supply.

If less heat is required, the valves are closed accordingly. If another car is connected, the rear valve H′ is opened, so as to permit the steam to pass to the rear.

Having thus described my invention, the following is what I claim as new and desire to secure by Letters Patent:

1. The car-heater herein described, consisting of pipes C C surrounding the car, and provided with valves E E E E on each side of the doors, and the vertical coils A A at the corners of the car, and provided with valves F F, the whole arranged as shown, for the purpose of regulating the heat in different portions of the car.

2. The combination, with the pipes C and H, of the chamber B, located between said pipes, and provided with an automatic valve, b' b'', adapted to be closed by the steam-pressure, and opened when pressure is withdrawn, so as to permit the water of condensation to escape, as set forth.

3. The combination, with the chamber B, located and connected in the manner described, of the siphon S, provided with valve s'', for permitting the water of condensation to escape while steam-pressure is on, as set forth.

WESLEY SMITH.

Witnesses:
J. H. BLAIN,
J. M. BLAIN.