# W. B. HAYDEN.

## Railroad-Car Heater.

No. 161,879. Patented April 13, 1875.

*Fig. 1*

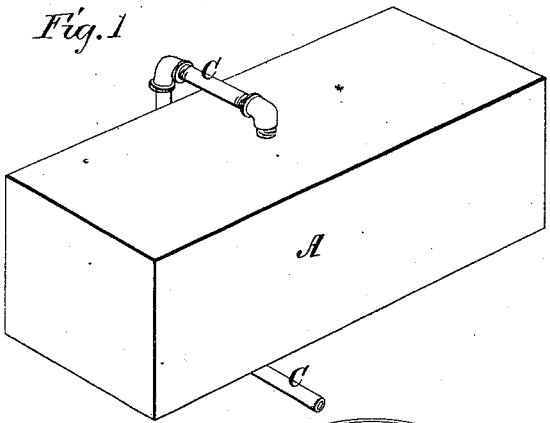



*Fig. 5*

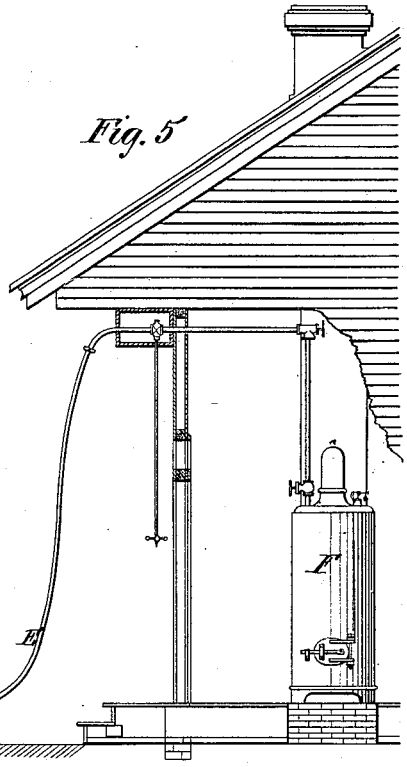
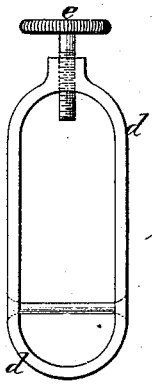



*Fig. 4*



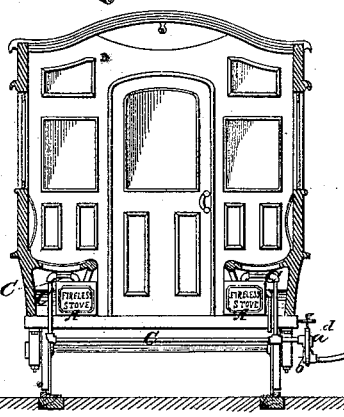




*Fig. 2*

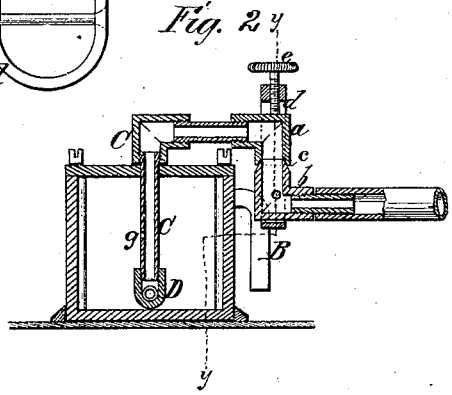
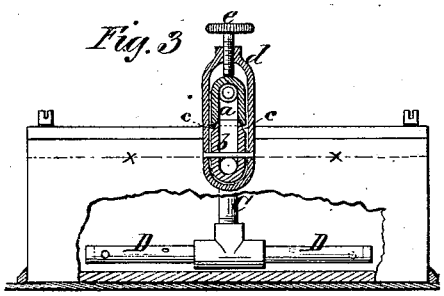



*Fig. 3*




Witnesses:
James Maitland
J. N. Campbell

Inventor:
William B. Hayden.
by
Munn, Fennick & Lawrence
his Attorneys.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

# UNITED STATES PATENT OFFICE.

WILLIAM B. HAYDEN, OF COLUMBUS, OHIO.

## IMPROVEMENT IN RAILROAD-CAR HEATERS.

Specification forming part of Letters Patent No. **161,879**, dated April 13, 1875; application filed February 27, 1875.

*To all whom it may concern:*

Be it known that I, WILLIAM B. HAYDEN, of Columbus, county of Franklin and State of Ohio, have invented an Improved Apparatus for Heating Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of a proposed form of stove to be used as the immediate means of holding the heating fluid and conducting the heat into the car. Fig. 2 is a vertical transverse section of the stove and its immediate connections and pipes. Fig. 3 is a longitudinal section of the stove and connections. Fig. 4 is a section of the clamping-yoke, which is used for connecting the stove with the pipe leading from a stationary boiler. Fig. 5 is a cross-section of a car furnished with my stoves, and an end view of a stationary boiler connected with such stoves by means of a detachable hose.

The nature of my invention consists in one or a series of metallic stoves placed within a car or carriage and filled with a liquid that has great capacity for heating, water being sufficient for all practical purposes, and furnished with valved pipes, through which steam from a stationary boiler can be introduced for the purpose of heating the liquid to a high degree, said pipes and stoves being disconnectable from the heater, and capable of being closed steam-tight after the water has been raised to the proper temperature, and when thus closed the stoves serving to heat the car comfortably during a trip of several miles, as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

A is an oblong rectangular box made of metal. This box is of sufficient strength to sustain the pressure which may be brought to bear upon it while heating water to a temperature of about 212°. B is a waste-pipe; C, a steam-pipe through which steam for heating water in the box A is introduced. D is a perforated distributing-pipe on the inside of the box attached to the lower end of the pipe C. The top of the box A is made removable, and is confined in place steam-tight by means of packing and screws, or in any convenient manner. Through this top water to be heated is introduced, either by taking off the top or opening a valve in it, or by pumping water through the steam-pipe C. The steam-pipe is formed of sections, and the elbow-sections *a* and *b* are made to fit one another steam-tight by means of a V-shaped joint, *c*, which is made secure by means of a hinged yoke, *d*, and a clamping-screw, *e*. On the last elbow-section, *b*, to which the yoke is hinged, a rubber hose-pipe, E, is connected, which leads from a stationary boiler, F. By means of the yoke *d* and screw *e* a connection between the boiler and stove can be instantly effected, and by turning up the screw and swinging out the yoke a disconnection can be made.

In the drawings, Fig. 5, I have shown that two stoves may be connected together and heated by the same boiler at the same time, and it is obvious that a train of such stoves might be thus heated. At *g* is a small hole to prevent a siphon being formed when the adjustable connection is below the bottom of the box.

The operation is as follows: The stoves being filled with liquid up to the proper water-line *x*, the hose, leading from a stationary steam-boiler, is coupled to the pipe C of the stove by means of the V-joint *c* and the yoke and screw, and steam is turned on from the boiler and allowed to flow for two or three minutes into the stove amidst the fluid therein. When the temperature of the water is raised to about 212° the hose is disconnected from the stove and the steam-pipe closed steam and water tight by a plug-valve or in any proper manner.

A stationary steam-boiler may be placed at intervals along the road or at the other end of a station, as circumstances may require.

This invention avoids the necessity of using fire in a stove or stoves placed upon a car, omnibus, or any other similar conveyance, and thus makes travel much more safe, and at the same time gives the comforts of a fire. It also avoids the danger from explosions liable with apparatus which are heated by water circulating through coils and pipes brought in close contact with fire.

A stove or a series of stoves heated by the

condensation of steam forced into it from the boiler at a convenient point according to my plan will warm a car with a gradual radiated heat, not only during the application of steam, but for about two hours or more after, and the temperature will be pleasant for a run of several miles, and by a reapplication of steam the water in the stove becomes instantly rewarmed and ready for a new trip.

I am aware that heating by water is not new, and therefore do not claim this as my invention; but

What I do claim is—

A stove, A, supplied with a liquid and placed upon a car or other vehicle, and provided with a steam-distributing pipe leading into it, in combination with a stationary detachable and attachable steam-conducting hose-pipe, which is provided with a suitable coupling for connecting it temporarily with the steam-pipe of the stove, whereby the temperature of the liquid in the stove is raised to the proper degree by steam passed through the detachable pipes into it from a stationary boiler, substantially as described.

WILLIAM B. HAYDEN.

Witnesses:
J. H. MARTIN,
C. SMITH.