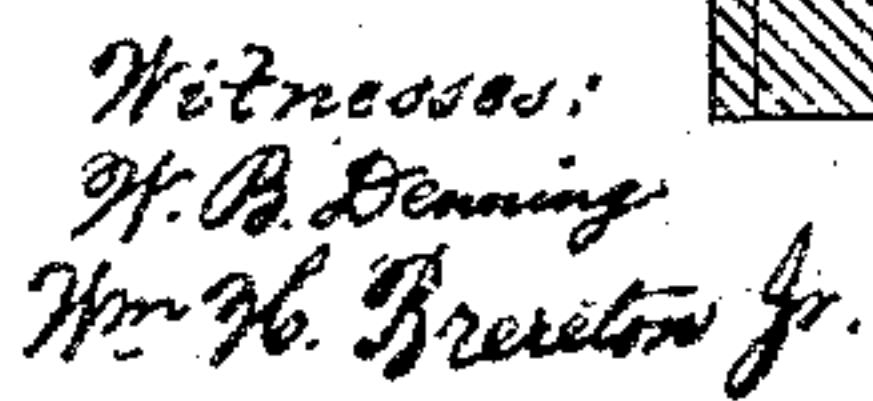


Car Heater.

Patented March 9, 1869.



Inventor.
Wm. H. Beal
By Knight Bros
Atty;

United States Patent Office.

WILLIAM H. BEAL, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 87,532, dated March 9, 1869; antedated November 16, 1868.

IMPROVEMENT IN RAILROAD-CAR HEATERS.

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, WILLIAM H. BEAL, of the city of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Car-Heaters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 shows a side elevation of a car, partly in section, with my improvement attached.

Figure 2, a plan view of a portion of the floor of the car, divided on the line *x-x*.

Figure 3, a transverse section of the car, and my improvement as it is attached.

The object of my invention is to secure the heating of a railroad-car, in such a manner as shall be at the same time simple, effective, and safe.

I accomplish this by introducing, underneath the car, a heater, of any desired shape, constructed, arranged, and held in position substantially as hereinafter set forth.

In the accompanying drawings, the same letters refer to like parts.

B B, fig. 1, is a heater, or furnace, of appropriate form, strength, and size, fastened to the bottom of the car A A, by means of flanges *h h*, on the iron top H H, as seen in fig. 3.

These flanges rest in iron sockets, or lugs, *k*, on each side of the bottom of the car, formed by a continuation of the iron bottom H', covering the bottom of the car, and securely fastened to it, above the furnace.

Between the ends of the flanges *h h* and inner part of the sockets *k*, are stiff spiral or other kind of springs, I I, which serve to lessen the jarring of the furnace, but the main object of these springs is, in case of accident, a collision, or other catastrophe, in which the cars are injured, to permit the heater to detach itself from the car, in the manner hereinafter set forth, thus rendering it difficult, if not impossible, for the cars to catch fire from this source.

The furnace B is supplied with a pipe, F, for the induction of cool air into the chamber F', which surrounds the fire-box B', and with a smoke-stack, G, to carry off the smoke. Both these pipes run upwards, through the roof of the car, and are covered with fire-proof felting.

The furnace, or at least that part of it nearest the car, is covered with the same material.

O is an opening in the floor of the car, directly over the furnace, used to introduce fuel into the latter.

This opening has the iron cap, or cover, O', upon the upper surface of the car-floor, and upon the lower side of the valve, or horizontal door, O'', held in position and worked by means of the wire-jointed rods, or hooks, to be made of wire sufficiently strong only to retain the valves, or horizontal doors, O'', in position, while the heater is attached to the car, but which will readily straighten out, or part, upon the heater coming loose.

The sides of this opening may be protected from fire by an iron or other metal thimble, extending from the cap O' to the plate, or door, O''.

b b represents the grate, the bars of which are inclined downward toward their ends, forming a central ridge, as represented in figs. 1 and 3.

This arrangement materially adds to the draught, and facilitates combustion, besides furnishing a better cavity underneath, to receive the cinders, ashes, &c.

D is a handle, or rod, attached to the damper *d*, near the bottom of the heater.

The side of the heater upon which this damper is located, is lower than the other sides, so that the jarring motion of the cars causes the ashes to fall down from the grate in that direction, and the damper, by a few movements up and down, actuated by the handle D, may be made to clear the ashes from the heater, in addition to its regular work of furnishing a draught to the fire.

The draught is regulated by any means which will not prevent the handle D from drawing through the floor, in case the heater becomes detached, as, for instance, by packing the aperture in the floor, through which the handle D passes, so that the friction will hold it, with the weight of the damper, at any desired elevation, but in such a manner as that any unusual strain or sudden jar will cause it to operate as stated.

E E are the pipes conveying hot air from chamber K to the registers E' E', at either end of the car, or elsewhere along the line of the pipes.

The manner of operation is as follows:

The fire is kindled in the fire-chamber B'. Coal or wood is fed in, by means of the cap O', and the horizontal door O'' held in position by the jointed rod *c*.

In case of accident, a collision, or of the cars running off the track, a sudden lateral shock, or heavy jar, or the first concussion caused by the heater B striking the ground, which it is calculated to do the moment the wheels leave the rails, (or all the causes,) serves to detach the flanges *h* from their position in the sockets *k*, freeing the heater from the cars. Thus all the fire is thrown away from the cars with the heater, thereby preventing the possibility of great destruction of property, and of life, from conflagration, as in many cases where other heating-apparatus are used.

Having thus described my invention;

What I claim as new, and for which I desire to secure Letters Patent, is—

1. The flanges *h h*, sockets *k*, and springs I I, and general mode of attachment of the heater to the car, substantially as set forth.

2. The rod D, the horizontal doors, or valves, O'', and the wire rods or hooks *c*, constructed and combined with the car and the detachable fire-bo, substantially as and for the purposes set forth.

The above specification of my invention signed by me, this 10th day of November, A. D. 1868.

WILLIAM H. BEAL.

Witnesses:

THOMAS VOIGT,
GEO. W. B. FELTEN.