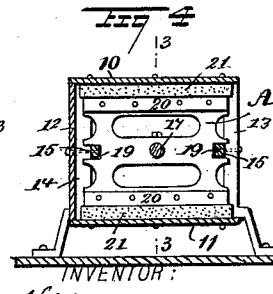
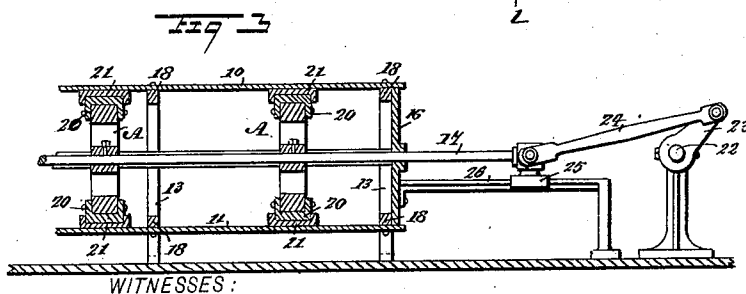
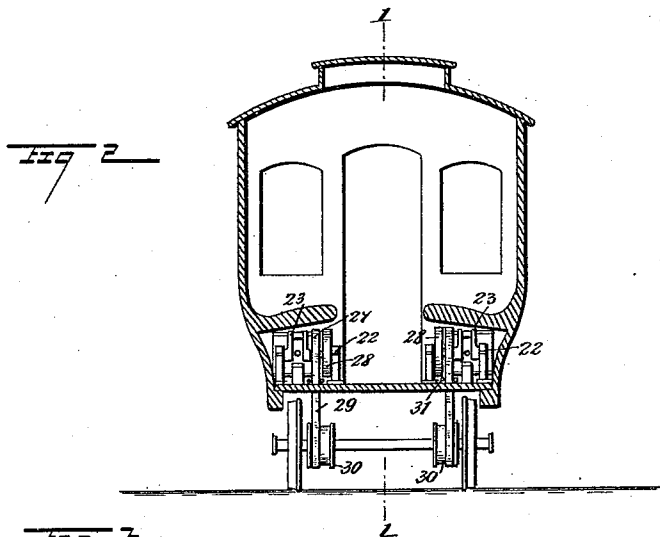
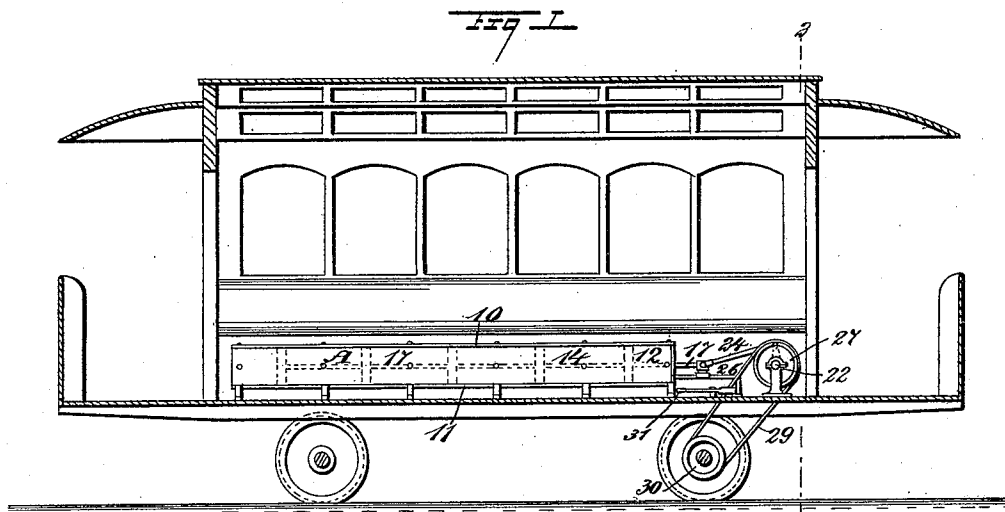


(No Model.)

H. NEWMAN.
DEVICE FOR HEATING CARS.

No. 471,016.

Patented Mar. 15, 1892.



WITNESSES:

H. Walker
C. Sedgwick

INVENTOR:

H. Newman

BY

Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

HUGO NEWMAN, OF NEW YORK, N. Y.

DEVICE FOR HEATING CARS.

SPECIFICATION forming part of Letters Patent No. 471,016, dated March 15, 1892.

Application filed December 10, 1891. Serial No. 414,589. (No model.)

To all whom it may concern:

Be it known that I, HUGO NEWMAN, of New York city, in the county and State of New York, have invented a new and Improved
5 Device for Heating Cars, of which the following is a full, clear, and exact description.

My invention relates to an improvement in devices for heating cars, and has for its object to provide a mechanism of simple, durable, and economic construction through the
10 medium of which heat will be generated by friction in sufficient quantities to warm the vehicle in which the device is located.

A further object of the invention is to provide a means whereby the mechanism will be
15 operated from the axle of the vehicle either directly or indirectly.

The invention consists in the novel construction and combination of the several parts,
20 as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate
25 corresponding parts in all the views.

Figure 1 is a longitudinal vertical section through a street-car having the heating apparatus applied thereto, the section being taken, practically, on the line 1 1 of Fig. 2.
30 Fig. 2 is a transverse vertical section through a car, taken, practically, on the line 2 2 of Fig. 1. Fig. 3 is a partial longitudinal section through the apparatus, the said section being taken, practically, on the line 3 3 of Fig. 4;
35 and Fig. 4 is a transverse section taken through the apparatus.

The body of the device consists, primarily, of an upper plate 10, of copper, tin, or other suitable metal, and a lower parallel plate 11.
40 These plates are held spaced some distance apart through the medium of any approved supports. Preferably at one side of the body—that is, the outer side—a vertical plate 12 is located, tying or connecting the upper
45 and lower plates, and at the inner edges of said upper and lower plates posts or studs 13 are vertically arranged at suitable intervals apart. If in practice, however, it is found desirable, the plate 12 may be omitted and
50 both sides of the body of the apparatus be constructed alike. When the plate 12 is employed, posts or standards 14 are secured

thereto opposite the posts 13, and both the posts 13 and 14 have attached to their inner faces at or near their center a bar 15, the said
55 bars being made to extend longitudinally of the body of the apparatus from end to end thereof. The body of the apparatus is closed at each end by suitable end plates 16, and the forward end plate is provided with an open-
60 ing through which a piston-rod 17 is passed into the interior of the body.

Within the body of the apparatus a series of piston-heads A is located, the said heads being connected at suitable intervals apart
65 with the piston 17, which may be accomplished in any suitable or approved manner.

The interior of the body of the apparatus may be said to be divided into a series of compartments, the said compartments being defined by the opposite posts 13 and 14 and top
70 and bottom cross-bars 18, connecting the posts, as shown in Fig. 3, and in each compartment a piston-head is held to slide. The piston-heads are made of metal and are provided at opposite ends with channels 19, the
75 said channels receiving the longitudinal bars 15, whereby it will be observed that these bars act in the capacity of guides for the heads. The upper and lower surfaces of the heads
80 press firmly and evenly against the inner faces of the top and bottom plates 10 and 11. The top and bottom surfaces of the piston-heads are of peculiar construction, as the top and bottom surfaces of the bodies of the heads
85 are covered by a cap 20, secured to the body in any suitable or approved manner, and the caps 20 are in their turn covered by an outer cap 21, of rubber or like material, the latter
90 caps being in frictional engagement with the top and bottom plates. By this means as the piston-rod 17 is reciprocated sufficient friction is induced between the piston-heads and the top and bottom plates to generate heat in
95 such quantities as to effectually warm the car in which the apparatus is located, and in the event the rubber caps should become worn they may be readily removed from and others placed upon the piston-head through the medium of the caps 20. In order that the
100 rubber caps shall not wear readily, they are treated with amalgam—that is to say, their upper faces are given, essentially, a coating of amalgam—and when the apparatus is used

in a street-car, as illustrated in Figs. 1 and 2, one of such apparatus is placed under each line of side seats.

The apparatus is driven from a drive-shaft 22, located at one end of the car, one shaft under each seat, and each shaft is provided with a crank-arm 23. The said crank-arms are connected by pitmen 24 with the outer ends of the piston-rods 17, and at the pivotal connection of the pitmen with the piston-rods a head-block 25 is located, held to travel upon a suitable track 26, whereby the piston-rods are made to move in perfect alignment. Each shaft 22 is provided with a fast and loose pulley 27 and 28, as shown in the cross-section, Fig. 2, and one of the pulleys is connected with the axle of the car through the medium of a belt 29, the said belt passing over a suitable pulley 30 upon the axle, as is likewise shown in Fig. 2. The belt may be shifted through the medium of a lever 31 from one pulley to the other, and the heating apparatus be thereby started or stopped at will independently of the movement of the car.

If in practice it is found desirable, the piston-heads may be so constructed as to be vertically adjustable, in order that their wearing-surfaces may be made to bear with more or less tension upon the top and bottom plates of the body of the apparatus.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An apparatus for heating purposes, consisting of parallel plates of metal, and piston-heads held to slide between and in contact with said plates, and a means for reciprocating said heads, substantially as shown and described.

2. An apparatus for heating cars and for similar purposes, consisting of parallel plates of metal, piston-heads held to slide between the plates and in positive engagement therewith, the said piston-heads being provided

with cushions of rubber or like material, which cushions are adapted for engagement with the metal plates, and a mechanism for reciprocating all of the heads simultaneously, substantially as and for the purpose specified.

3. An apparatus for heating cars and for similar purposes, consisting of two parallel plates, piston-heads held to slide between the plates and in contact therewith, the contacting portions of the piston-heads being cushioned and given an amalgam surface, and a means for reciprocating the piston-heads, substantially as and for the purpose specified.

4. In an apparatus for generating heat, the combination, with parallel plates of metal and piston-heads held to slide between and in contact with said plates, the said piston-heads having their engaging surfaces provided with a flexible cap having a stiffened outer face, the said stiffened outer face being adapted for engagement with the plates, of a piston connected with all of the piston-heads, a drive-shaft, a connection between the drive-shaft and the piston, and a connection between the drive-shaft and the axle of the vehicle in which the apparatus is located, substantially as shown and described.

5. In an apparatus for heating cars, the combination, with parallel metal plates and piston-heads held to slide between said plates, the said piston-heads being capped with a yielding material and the outer faces of the caps being treated with amalgam, of a piston connecting all of the heads, a drive-shaft, a link connection between the drive-shaft and the piston, and a belt connection adapted to connect the drive-shaft with the axle of the car in which the heater is located, substantially as shown and described.

HUGO NEWMAN.

Witnesses:

WM. A. OWEN,
SAMUEL MCC. CROSBY.