(No Model.)

O. BRYAN.

APPARATUS FOR HEATING CARS.

No. 364,799. Patented June 14, 1887.

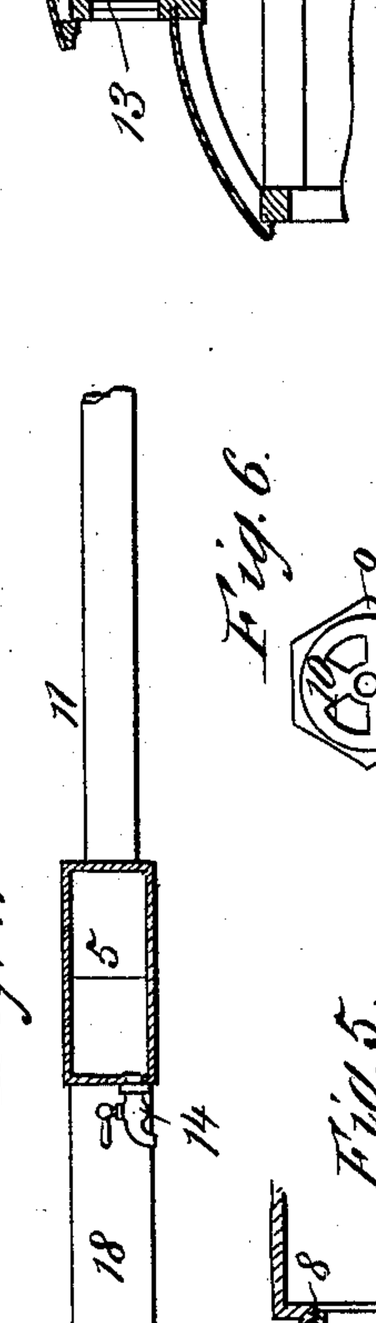

Fig. 3.

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 5.

Fig. 6.

WITNESSES:

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APPARATUS FOR HEATING CARS.

SPECIFICATION forming part of Letters Patent No. 364,799, dated June 14, 1887.

Application filed February 25, 1887. Serial No. 228,874. (No model.)

To all whom it may concern:

Be it known that I, OLIVER BRYAN, of the city, county, and State of New York, have invented a new and Improved Apparatus for Heating Cars, of which the following is a full, clear and exact description.

My invention relates to an apparatus for heating cars, and has for its object to utilize the waste products of combustion from the locomotive as a heating factor, and to convey the said products of combustion through the several cars of a train in a simple, safe, and thoroughly practical manner.

The invention consists in the construction and combination of the several parts, 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 letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a train having my improvements applied, and Fig. 2 a horizontal section through the clear story of one passenger-car; Fig. 3, a transverse vertical section through the said clear story; and Figs. 4, 5, and 6 are detail views of the construction.

In carrying the invention into effect a counterbalanced damper, 1, is pivoted in the mouth of the smoke-stack, adapted to remain normally open, and which may be closed at pleasure by a rope or chain, 2, attached to said damper and leading into the cab. A section of pipe, 3, preferably of equal diameter to the smoke-stack, is attached to said stack below the usual hood or bonnet, which pipe-section is adapted to extend, properly supported, rearwardly and horizontally above the cab, where it is united by any suitable flexible coupling, 4, with a similar section supported above the tender, the said coupling being preferably made, as illustrated, to telescope the pipes with which connection is made.

Each passenger-coach is provided with a more or less rectangular steam-tight box, 5, which box takes the place of each end panel of the clear story 6. A portion of the said box is made to extend outward upon the roof-apron, as shown in Fig. 2, the remaining larger portion being inside the car. The outer end, 7, of the box 5 is provided with an inlet, 17, having an integral surrounding and outwardly-extending collar, 18, of a diameter equivalent to the pipe-sections 3, and upon the same end, near each corner, the boxes are provided with circular threaded apertures 8, in which a nut, 9, is screwed, having a draft-inlet, 10, pivoted to its head nearly equal to the area of said head, as shown in Figs. 5 and 6.

In the inner end of the boxes 5, in transverse alignment with the outer end apertures, 9, similar apertures are provided, one near each corner, in which sections of pipe 11 and 12 are screwed, one end of said pipes being secured steam-tight in a box at each end of the car. The twin pipe-sections 11 and 12 are preferably of less diameter than the sections 3, and extend horizontally from end to end of the cars at each side of the clear story parallel with and near to the ventilators 13 in said story.

The twin sections 11 and 12 are adapted to be surrounded by soluble fire-clay, 20, or equivalent porous material, the object of which jacket being to retain and soften the heat.

It will be observed by reference to Fig. 3 that when the ventilators 13 are opened the air passing into the clear story becomes more or less heated, but, being colder than the air contained in the body of the car, the said currents of cool air serve to disseminate the hotter air throughout the entire coach equally.

The inner end of the box 5, between the twin pipes 11 and 12, is made to incline toward the center, so that the products of combustion entering the box will be deflected to each side and thereby more readily enter the said twin pipes. Each box is provided either within or without the car with a stop-cock, 14, in alignment with the bottom, whereby any condensed steam which may enter with the products of combustion may be drawn off. If the cock is situated within the car, a suitable pipe-connection is made with the outside. Should any incrustation form within the twin pipes, or they become choked from any cause, they may be readily cleaned by unscrewing the nuts 9 and passing a proper cleaner through them, the débris therefrom falling upon the roof-hood and from thence to the ground.

If found desirous to accelerate the passage

of the products of combustion through the pipes 11 and 12, the draft-inlets 10 are opened and the pressure of the entering air will force the products of combustion rearward.

When the collars of the various cars of a train have been coupled together and the forward car-collar to the section 3 of the engine, a series of direct horizontal pipes are obtained, extending the length of the train, through which the products of combustion pass, heating the several cars, the said products of combustion finding an exit through an elbow, 16, attached to the box-collar of the last car.

The damper 1 is made to remain normally open to provide an escape for the frequent pulsations of exhaust-steam when the train is in motion. When the train stops, however, the damper is closed, to be again opened when getting under way; but the damper is not essential to the operation of my improved method and may be dispensed with, if found desirable.

I am aware that cars have been heated by conveying the heated products of combustion from the smoke-stack and carrying the same in horizontal inclosure above the engines and upon the roofs of the cars, and do not broadly claim such method.

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

1. The combination, with the smoke stack and a single pipe-section connected thereto, extending rearward above the engine and tender, of a reservoir in each end of the clear story connected to said pipe-section, and twin pipe-sections connecting said reservoirs, substantially as shown and described.

2. The combination, with the smoke-stack and a single pipe-section connected thereto, extending rearward above the engine and tender, of a reservoir in each end of the clear story, connected with said pipe-section and provided with draft and cleaning apertures in the outer end and spaced parallel pipe-sections extending longitudinally the clear story connecting said reservoirs, substantially as shown and described.

3. The combination, with the smoke-stack and a single pipe-section connected thereto, extending rearward above the engine and tender, of a reservoir in each end of the clear story, connected with said pipe-section and provided with draft and cleaning apertures in the outer end, and parallel pipe-sections extending longitudinally the clear story connecting said reservoirs and located in line with the said draft and cleaning apertures, substantially as shown and described.

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Witnesses:
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