Oct. 11, 1949. W. FALL 2,484,786

RAILWAY PASSENGER CAR

Filed Feb. 22, 1945

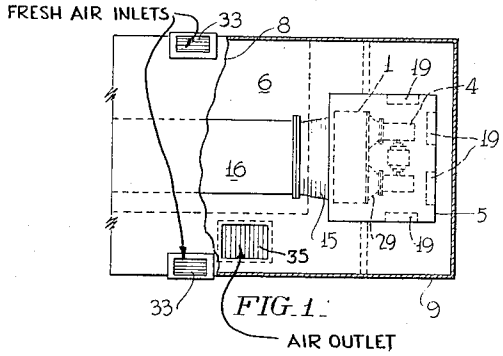


FIG. 1.

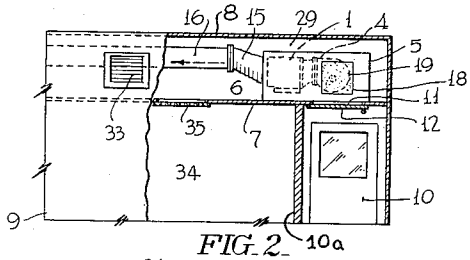


FIG. 2.

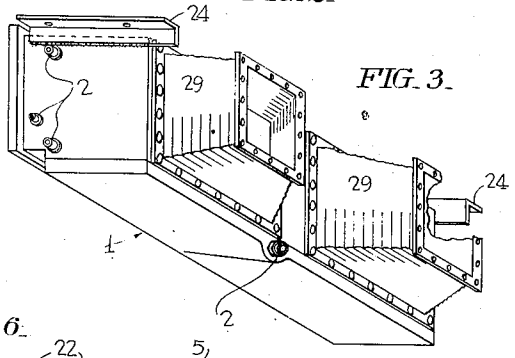


FIG. 3.

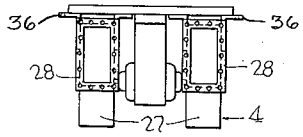


FIG. 4.

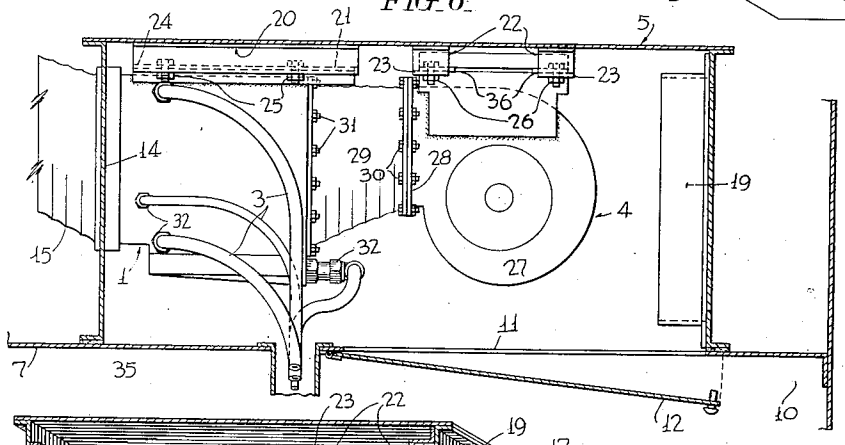


FIG. 6.

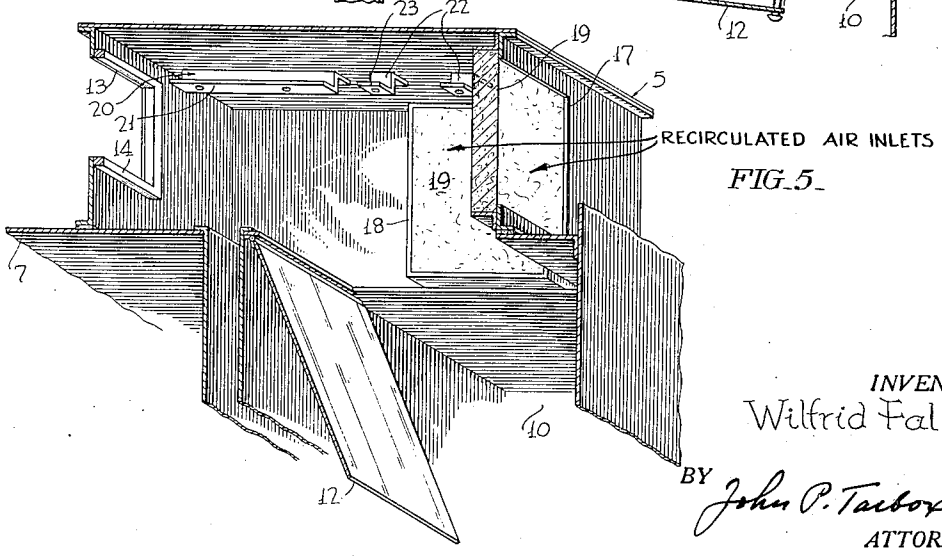


FIG. 5.

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Patented Oct. 11, 1949

2,484,786

UNITED STATES PATENT OFFICE

2,484,786

RAILWAY PASSENGER CAR

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Application February 22, 1945, Serial No. 579,208

1 Claim. (Cl. 98—10)

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This invention relates to railway passenger cars, more particularly to an improved arrangement for housing air conditioning equipment.

Heretofore, it has been the practice in railway passenger car construction, in many instances, to house certain portions of air conditioning equipment, such as for example, a unit including a heating coil, a refrigerating coil and a circulating blower, in the roof portion of the car. Such equipment is relatively heavy and it has been necessary heretofore in making repairs or changing units to do so from within the passenger compartment, in which case, jacks and the like had to be placed on the carpeting in order to facilitate removal of the equipment. Also, it was necessary to remove the air filters from within the passenger compartment. One disadvantage in such servicing is that upon removal of the units or parts thereof oily cinders and dirt are scattered about the interior of the car which soil the carpeting and seat upholstery. The same is true as a result of the use of jacks and, also, as a result of the carelessness of the mechanics.

It is the primary object of the present invention to provide a new and improved arrangement for railway passenger cars for housing air conditioning equipment wherein the same is readily accessible and may be serviced from the vestibule of the car or removed without the necessity of the servicemen or mechanics entering the passenger compartment, thus also permitting service work while passengers are within the car.

With the above and other objects in view which will be apparent from the following description, to those skilled in the art to which the invention appertains, the present invention consists in certain features of construction and combinations of parts to be hereinafter described with reference to the accompanying drawing, and then claimed.

In the drawing which illustrates a suitable embodiment of the invention:

Figure 1 is a fragmentary plan view of a rail car, partially in section, diagrammatically illustrating a portion of the equipment to show the general location thereof;

Figure 2 is a side elevation, partially in section, of the parts shown in Figure 1;

Figure 3 is a perspective view of the air heating and cooling unit of the equipment;

Figure 4 is a front elevation of the blower unit;

Figure 5 is a fragmentary perspective view of the interior of the housing arrangement, the equipment being removed therefrom; and

Figure 6 is an enlarged longitudinal section through the housing for the equipment showing the equipment in side elevation but showing the various conduits which extend through the side wall of the housing.

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Referring to the accompanying drawing in which like numerals refer to like parts throughout the several views, the air conditioning equipment includes a boxlike unit 1 which includes the heating and cooling coils (not shown) having various connections 2 on the wall thereof for connection with a plurality of conduits 3 essential for the operation of the unit, and a blower unit 4 which discharges recirculated and fresh air through the unit 1.

The units 1 and 4 to be more fully described later are removably mounted within a casing 5 which is mounted within the space 6 between the upper deck 7 and the roof 8 of the car 9 and so that a portion of the same is directly over the vestibule 10 of the car. The vestibule wall is designated by the reference 10a. The deck 7 within the vestibule 10, is provided with an access opening 11 for the casing 5 which opening is normally closed by a door 12 which is hinged for downward swinging movement.

The casing 5 is provided at its forward end with an outlet opening 13 (Fig. 5) having an interior perimetral seal 14 of suitable resilient material. Connected to this opening is a flexible conduit 15, such as a canvas shroud, which in turn is connected with a duct 16 which distributes the conditioned air to the interior of the car in any suitable manner.

The casing 5 is provided with rear end air inlet openings 17 and side air inlet openings 18 with which suitable air filters 19 are associated for removal from within the casing through the access opening 11.

Within the casing 5 and extending longitudinally thereof are a pair of spaced rails 20, of Z-shape in cross section, which are secured to the upper side of the casing in such manner that the legs 21 face each other and are spaced downwardly from the upper casing side and form the support for the conditioning unit 1. Pairs of Z-shaped brackets 22 having the legs 23 of one pair facing the corresponding legs of the other pair are similarly disposed within the casing and secured to the upper side thereof rearwardly of the rails 20.

The conditioning unit 1 is provided at its ends with outwardly extending flanges 24 which when the unit is assembled within the casing are seated upon and secured by bolts 25 to the legs 21 of the rails 20. In this assembled position the

forward side of the conditioning unit 1 seats firmly against the perimetral seal 14 of the opening 13.

The blower unit 4 is provided with flanges 36 which are similarly seated upon and secured to the legs 23 of the brackets 22 by bolts 26.

The blower unit 4 includes a pair of blowers 27 in which the flanged outlets 28 thereof are secured to convas ducts 29 by bolts 30, the ducts 29 in turn being secured by bolts 31 to the rearward side of the conditioning unit.

The conduits 3 extend through one side of the casing 5 (shown in Figure 6) and are provided with removable couplers 32 for removable connection to the conduit connections 2 of the conditioning unit 1.

In the operation of the apparatus, fresh outside air is drawn into the space 6 through roof inlets 33 and air is drawn into this space from the passenger compartment 34 of the car through any desired number of grills 35 for recirculation with the fresh air, the blowers 27 providing for this withdrawal of air from the outside and from within the passenger compartment. The fresh air and the air for recirculation is drawn by the blowers 27 through the filters into the casing 5 and is then discharged by the blowers 27 through the conditioning unit 1 and into the distributing duct 16. The air is thus thoroughly mixed and during its passage through the unit 1 is subjected to the desired conditioning treatment, whether it be heating, cooling or humidification or combinations of such treatments.

Inasmuch as there are innumerable air conditioning and blower units on the market which are well known in the art, the details thereof have not been shown in the drawings.

If it is desired to replace the filters 19, the door 12 can be opened and the filters removed through the opening 11, thus avoiding the distribution of cinders, dirt and the like in the passenger compartment. Also, servicing of the conditioning and blower units 1 and 4 can be accomplished through the access opening 11.

If it is desired to remove or replace the conditioning and blower units first, the bolts 26 and 30 are removed, then the blower unit 4 is moved forwardly or rearwardly a sufficient distance for its flanges 36 to clear the legs 23 of the brackets 22 which enables it to be lowered through the access opening 11, it being understood that the opening 11 is of sufficient size to permit this.

In removing the air conditioning unit 1, it is only necessary to remove the bolts 25, disconnect the couplers 32 and move the conduits 3 for sufficient clearance. The air conditioning unit is then moved rearwardly while raising its forward side sufficiently to permit the flanges 24 to clear the brackets 22. By so moving the unit 1 it can then be lowered through the access opening into the vestibule 10.

Obviously, since all servicing of the air conditioning apparatus, blower and filter units can be accomplished from the vestibule, this operation can be performed without soiling or injuring the interior of the passenger compartment and can be performed while a car is standing in a station and loaded with passengers.

It is to be understood that formal changes may be made in the detailed construction and arrangement of the parts described without departing from the spirit and substance of the invention, the scope of which is defined by the appended claim.

What is claimed is:

In a railway passenger car in combination with the usual car enclosure, a vestibule partition wall separating an end vestibule from a passenger compartment, a ceiling below the roof of the car extending over the vestibule and a part of the passenger compartment, said partition wall at the top terminating at the ceiling, wall means forming a chamber above the ceiling, air conditioning apparatus consisting of a plurality of separable units housed in said chamber, said ceiling having an opening over the vestibule of a size to pass said units therethrough, a door for closing said opening, slide bracket supports secured to the top wall of said chamber and extending forward from above said opening to the front end over the passenger compartment, said supports being so made as to receive a unit thereon when introduced from the rear end and to permit it to be pushed forward thereon into the position of use, the space behind said supports above the rear end of the opening being clear for the upward movement of a unit to the rear end of the support when the door is open, an air outlet connection from said chamber to the passenger compartment, and air inlets to said chamber at one or more points in the rear portions of the walls thereof.

WILFRID FALL.

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