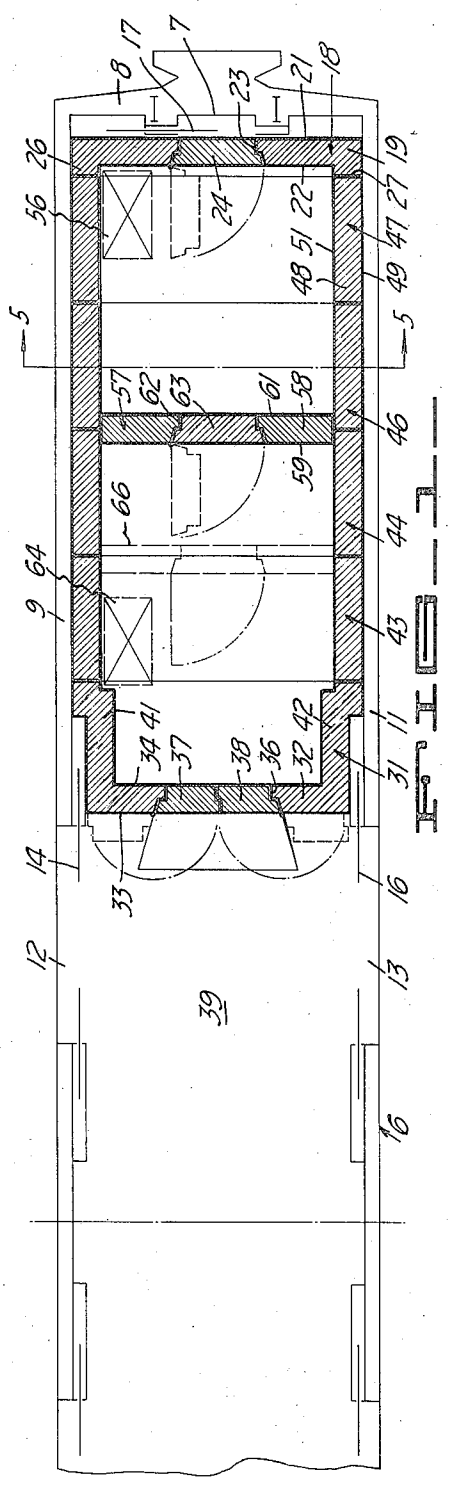
March 12, 1935. W. M. STEWART 1,994,150

COMPARTMENT CAR

Filed July 31, 1933 2 Sheets-Sheet 1



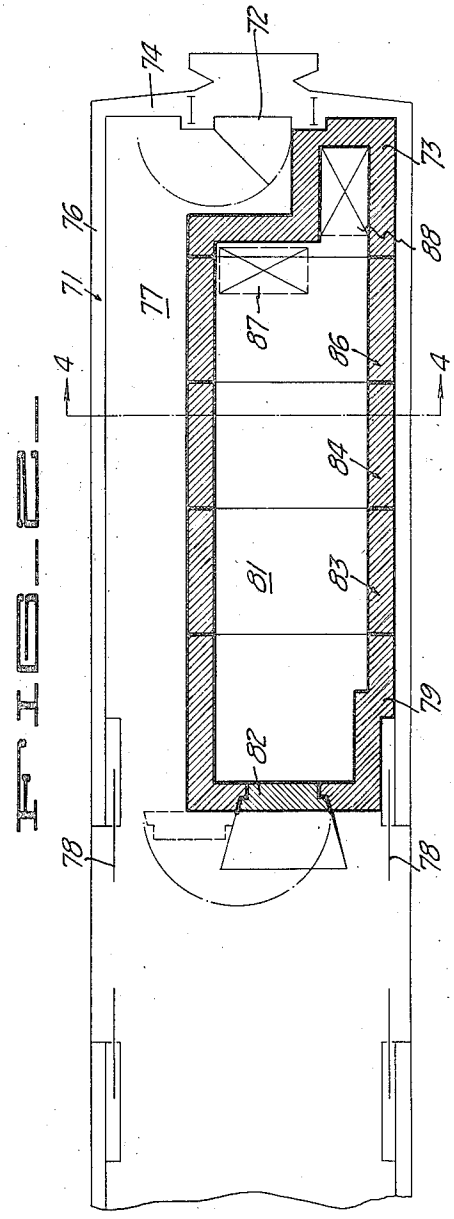


FIG. 1

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COMPARTMENT CAR

Filed July 31, 1933 2 Sheets-Sheet 2

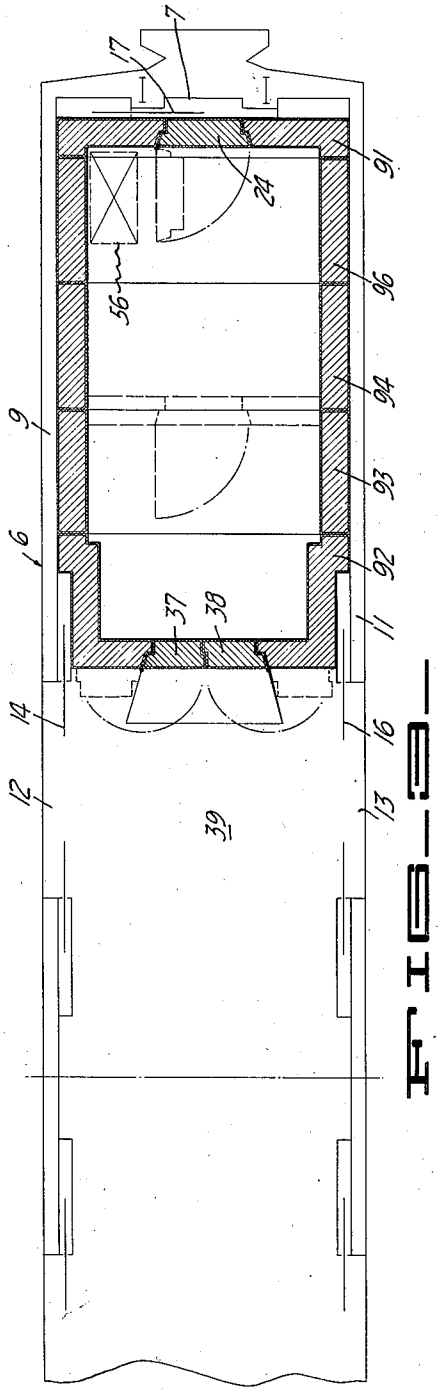


FIG. 3.

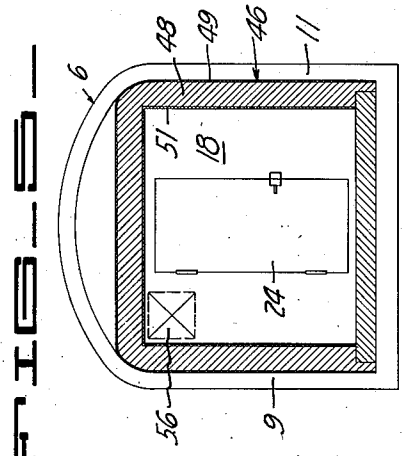


FIG. 5.

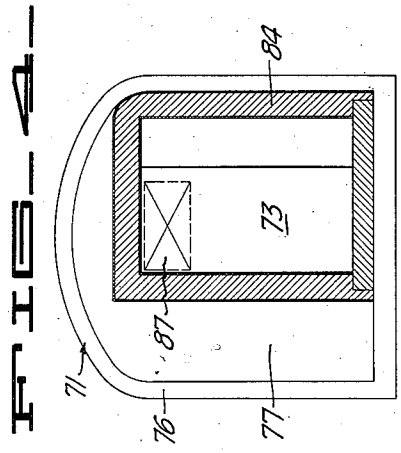


FIG. 4.

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Patented Mar. 12, 1935 1,994,150

UNITED STATES PATENT OFFICE

1,994,150

COMPARTMENT CAR

William M. Stewart, San Francisco, Calif.

Application July 31, 1933, Serial No. 682,996

6 Claims. (Cl. 105—376)

My invention relates to means for fitting portable transportation units, such as railway express cars, for use as refrigerators. My invention is particularly concerned with a means for converting present-day railway express cars to utilize the cooling unit disclosed in my co-pending application entitled "Cooling unit", filed July 31, 1933, and identified by Serial Number 682,997.

An object of my invention is to provide a compartment car in which there is an enclosure susceptible to use at a sub-atmospheric temperature.

Another object of my invention is to provide a separate enclosure within an express car, the enclosure being readily set up and removed.

A further object of my invention is to provide a separate compartment within a refrigerator car, which compartment can readily be utilized in other cars of different lengths.

A further object of my invention is to provide a thermally insulated compartment within a refrigerator car without interfering with normal traffic through the car.

An additional object of my invention is to provide a compartment car having enclosures within which different sub-atmospheric temperatures can readily be maintained.

The foregoing and other objects are attained in the embodiment of the invention shown in the drawings, in which—

Figure 1 is a cross-sectional plan of a standard railway express car incorporating the compartment construction of my invention.

Figure 2 is a cross-sectional plan similar to Figure 1 but showing a modified form of compartment construction in accordance with my invention.

Figure 3 is a cross-sectional plan comparable to Figure 1 but showing the compartment construction of my invention incorporated in a railway express car of different dimensions from that shown in Figure 1.

Figure 4 is a cross-section the plane of which is indicated by the lines 4—4 in Figure 2.

Figure 5 is a cross-section the plane of which is indicated by the line 5—5 in Figure 1.

In its preferred form, the compartment car of my invention includes a pair of end units, each unit comprising a wall structure of thermal insulating material having portions thereon projecting longitudinally of the car and terminating in transverse planes for abutment with one or more intermediate units of thermal insulating material adapted to abut the end units to provide therewith an enclosed chamber for the reception of a cooling mechanism and material to be maintained at a sub-atmospheric temperature.

While the compartment car of my invention is susceptible of numerous variations and changes in accordance with the environment within which it is utilized, I preferably construct it as shown in the drawings for use with a standard railway express car. In the form particularly shown in Figure 1, for instance, there is provided an express car 6 of the type now in use. This car includes an end door 7 situated in an end wall 8 which, together with side walls 9 and 11, form the car enclosure proper. The walls 9 and 11 are interrupted to provide side door openings 12 and 13 which are customarily closed with sliding doors 14 and 16.

In accordance with my invention, I provide within the car 6 an enclosure susceptible to the maintenance of a sub-atmospheric temperature. Adjacent the end door 7, which is preferably closed by a sliding closure 17, I install removably an end unit 18 comprising a core of insulating material 19 which is suitably sheathed by an outer wall 21 and an inner wall 22. The end unit includes a door opening 23 which is closed by a door 24 hinged to swing for ingress and egress. The end unit 18 is likewise provided with a pair of abutments 26 and 27 which extend longitudinally of the car 6 and terminate in a common transverse plane.

Spaced from the end unit 18 is a comparable end unit 31 which includes a core of insulating material 32 suitably sheathed by an outer wall 33 and an inner wall 34. The end unit 31 includes an opening 36 which is normally closed by doors 37 and 38 affording access to the main compartment 39 of the car 6 and likewise includes a pair of projections 41 and 42 respectively, which extend longitudinally of the car 6 and face the abutments 26 and 27. The projections 41 and 42 terminate in a common transverse plane.

Interposed between the end section 18 and the end section 31 are a plurality of intermediate units, such as 43, 44, 46 and 47. All of these units are identical and each of them is of a given length. The units are comprised of a core 48 of insulating material, suitably sheathed by an outer shell 49 and an inner shell 51. Each of the intermediate units is an open-ended structure terminating in transverse planes, so that the intermediate units and the end units 18 and 31 can be assembled within a car and when assembled will provide a tight enclosure which is thermally insulated on all sides. Any suitable number of intermediate units can be installed or removed at will to vary the size of the compartment so provided. At some suitable location, such as at 56, a cooling mechanism of the type shown in my co-pending application is installed within the insulated compartment.

In the event two ranges of temperature are to be provided, I construct a partition 57 which includes a core 58 of insulating material suitably sheathed on opposite sides as at 59 and 61, and likewise I provide the partition with an opening 62 which normally is sealed by a door 63. The

partition can be located as indicated in full lines in Figure 1, and in addition to the cooling mechanism 56 I provide a cooling mechanism 64, so that each of the two compartments so provided is maintained at the desired temperature. As indicated by the dotted lines 66 in Figure 1, the partition 57 can be moved to any desired location to give the requisite size to each of the two compartments so formed.

By this arrangement there is provided a portable structure which can be introduced into a standard railway express car to provide a refrigerated compartment or compartments for the shipping of perishables, and which can readily be removed therefrom. Traffic through the car is not hindered in any way whatsoever, inasmuch as the doors in the compartment walls afford access as often as needed. Furthermore, due to variation in lengths of standard express cars, I provide a plurality of sectional intermediate units which can be utilized or dispensed with in order to accommodate the refrigerated compartment in length to the size of the particular car within which it is installed. Inasmuch as most express cars vary in predetermined definite lengths, my invention provides for a uniform series of intermediate units.

Under certain conditions I desire to provide free access from one end to the other of the express car without necessitating the passage of traffic through the refrigerated compartment. Under such conditions I arrange a structure as shown in Figure 2, in which the standard express car 71 is provided with a door 72 in one end. An end unit 73 is spaced from the end wall 74 and from the side wall 76 of the express car to leave a passageway 77. Adjacent the sliding doors 78, which are standard in the express car, I provide an end unit 79 which is of considerably less width than the interior width of the express car, so that the passage 77 can be continued entirely past the refrigerated compartment 81. The end unit 79 is provided with an access door 82, while intermediate units 83, 84 and 86 are positioned between the end units 73 and 79 to afford the desired size of compartment. A cooling mechanism is installed as at 87 or, if desired, in a location as indicated at 88.

As especially illustrated in Figure 3, an express car of a shorter length than that shown in Figure 1 can be provided with an end unit 91, in all respects like the end unit 18 in Figure 1, and with an end unit 92 in all respects like the end unit 31 in Figure 1, and likewise with intermediate units 93, 94 and 96 comparable to the unit 43, for example, but fewer in number.

In all of the arrangements in accordance with my invention there is provided a portable refrigerated compartment which facilitates installation and quick removal and which converts a standard railway express car into a refrigerator car.

I claim:

1. A compartment car comprising a first unit including an end wall structure of insulating material adapted to be removably positioned within a railway express car adjacent the end door thereof, a second end unit including an end wall structure of insulating material adapted to be removably positioned within said car adjacent the side doors thereof, and one or more intermediate open ended units each including a surrounding wall structure of insulating material and adapted to register with said first and second end units to provide a completely insulated enclosure.

2. A compartment car comprising a first end unit including a wall structure of insulating material adapted to be removably positioned transversely within a railway express car and including longitudinally extending abutments, a second end unit including a wall structure of insulating material adapted to be removably positioned transversely within said car and including longitudinally extending projections facing said abutments, and an intermediate unit including a wall structure of insulating material adapted to be removably positioned within said car between and in registry with said abutments and said projections.

3. A compartment car comprising a pair of cooperating end units including insulating end wall structures adapted for removable positioning in spaced parallel relation transversely of a railway express car and having longitudinally extending facing portions thereon terminating in transverse planes, and an open-ended intermediate unit including a continuous surrounding and insulating wall structure terminating in transverse planes positioned between said end units.

4. A refrigerating compartment for a railway express car, comprising an end wall structure of heat insulating material adapted to be disposed at one end of the car and having means permitting ingress and egress through the end door of the car, a second end wall structure of heat insulating material having means permitting ingress and egress therethrough, and a plurality of open ended units of insulating material forming a continuous surrounding wall disposed between said end wall structures forming an enclosed compartment.

5. A demountable refrigerating compartment for a railway express car and the like, comprising an end wall structure of heat insulating material having longitudinally extending portions defining an open end, a second end wall structure of heat insulating material disposed in opposed relation to said first end wall structure also having longitudinally extending portions defining an open end, and a plurality of cooperating open ended structures of heat insulating material positioned in end to end relation between said end wall structures.

6. A refrigerating compartment for a railway express car, comprising an end wall structure of heat insulating material adapted to be disposed at one end of the car and having a configuration permitting ingress and egress through the end door of the car, a second end wall structure of heat insulating material positioned intermedite the ends of the car and extending part way thereacross, and a plurality of open ended units of insulating material forming a continuous surrounding wall disposed between said end wall structures and providing a longitudinally extending closed compartment and a passageway within the car.

WILLIAM M. STEWART.