Feb. 24, 1931. R. T. ROMINE 1,793,965

SECTIONAL BOX CAR

Filed April 16, 1927 3 Sheets-Sheet 1

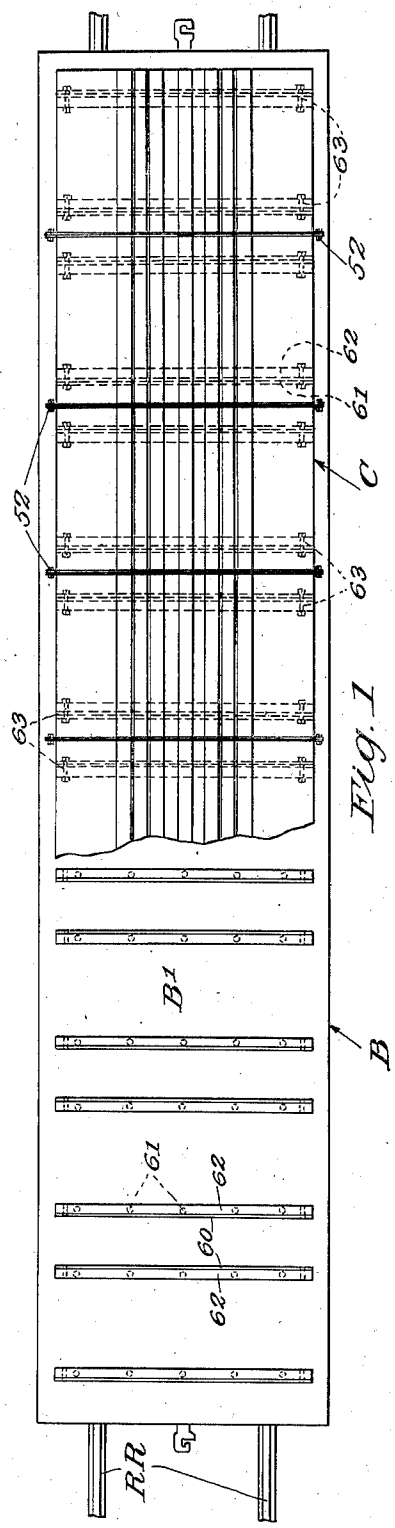


Fig. 1

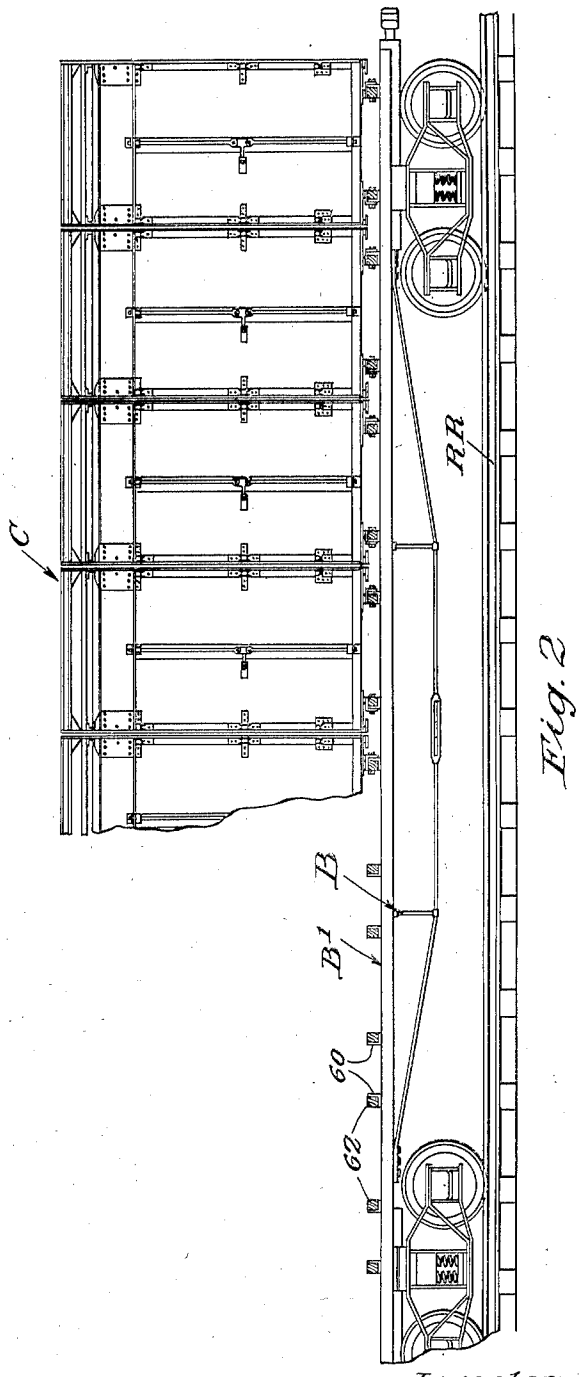


Fig. 2

Inventor:
Robert T. Romine
By Macleod, Calver, Copeland & Dike
Attorneys.

Feb. 24, 1931. R. T. ROMINE 1,793,965

SECTIONAL BOX CAR

Filed April 16, 1927 3 Sheets-Sheet 2

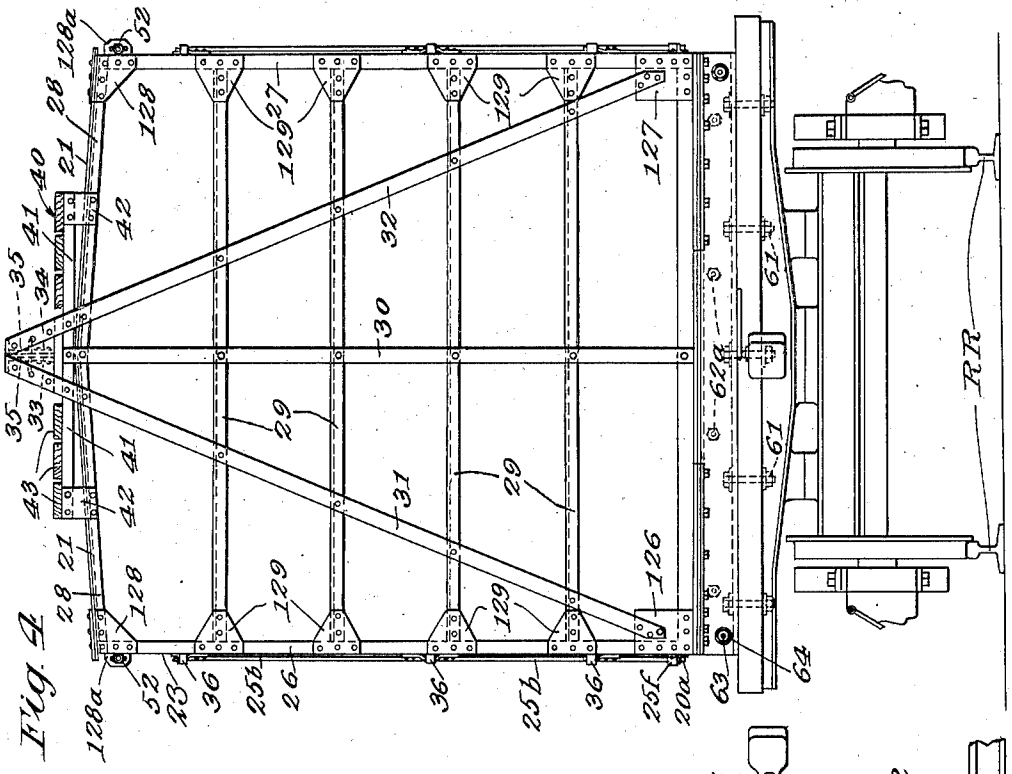


Fig. 4

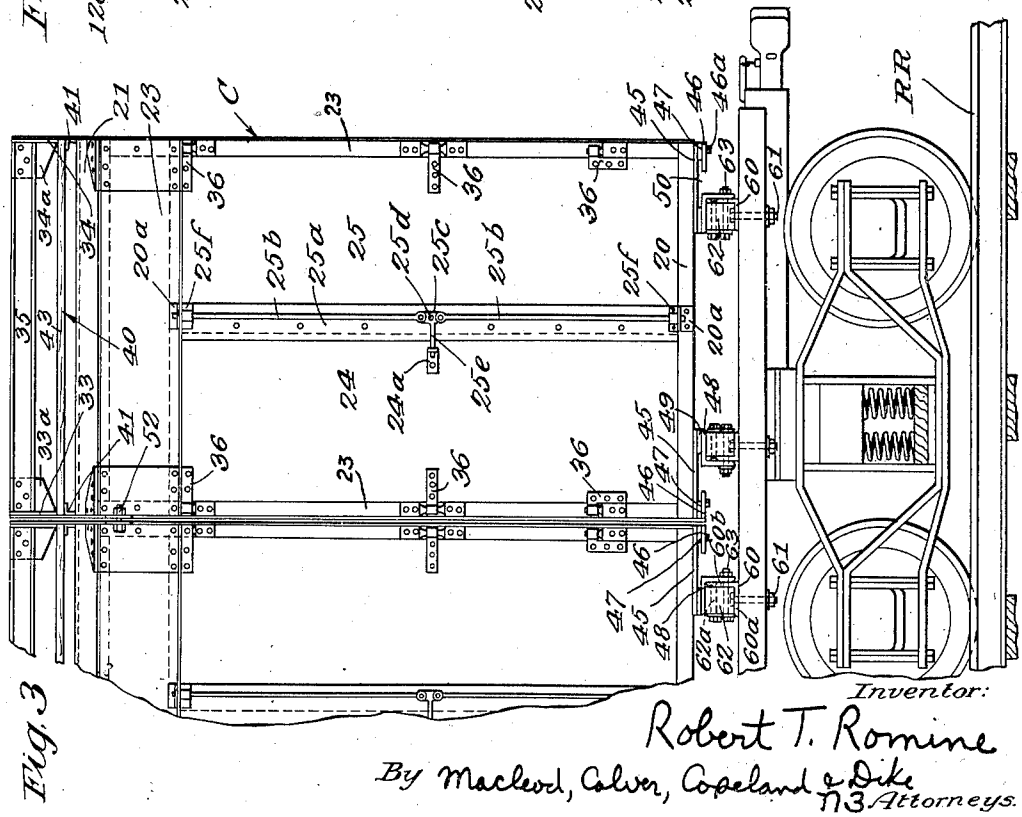


Fig. 3

Inventor:
Robert T. Romine
By Macleod, Calver, Copeland & Dike
Attorneys.

Feb. 24, 1931. R. T. ROMINE 1,793,965

SECTIONAL BOX CAR

Filed April 16, 1927 3 Sheets-Sheet 3

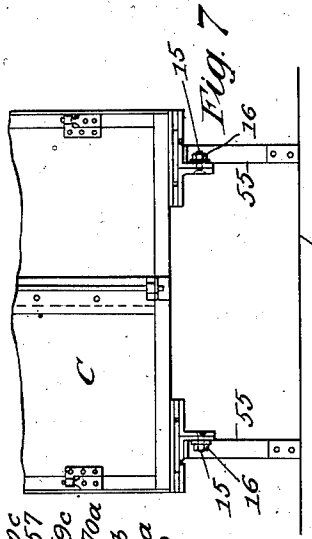


Fig. 7

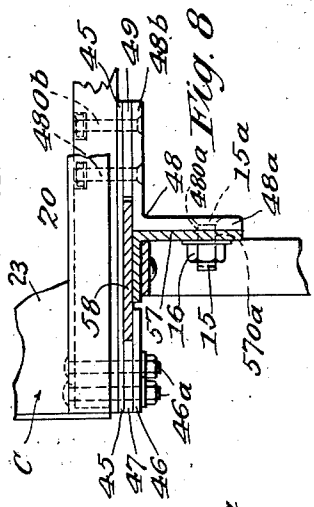


Fig. 8

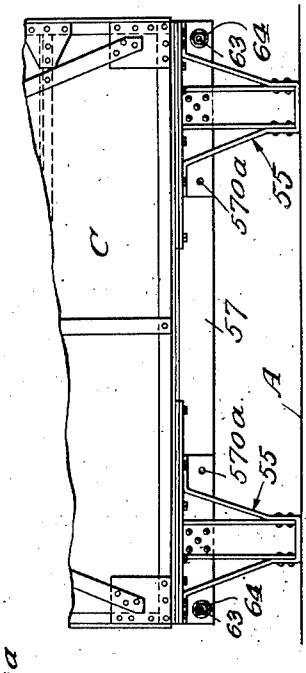


Fig. 9

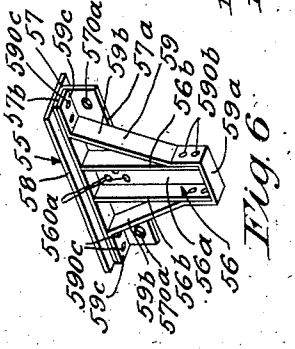


Fig. 6

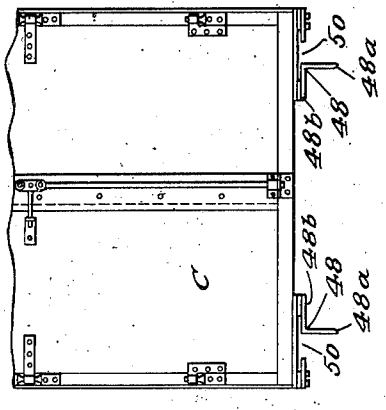


Fig. 5

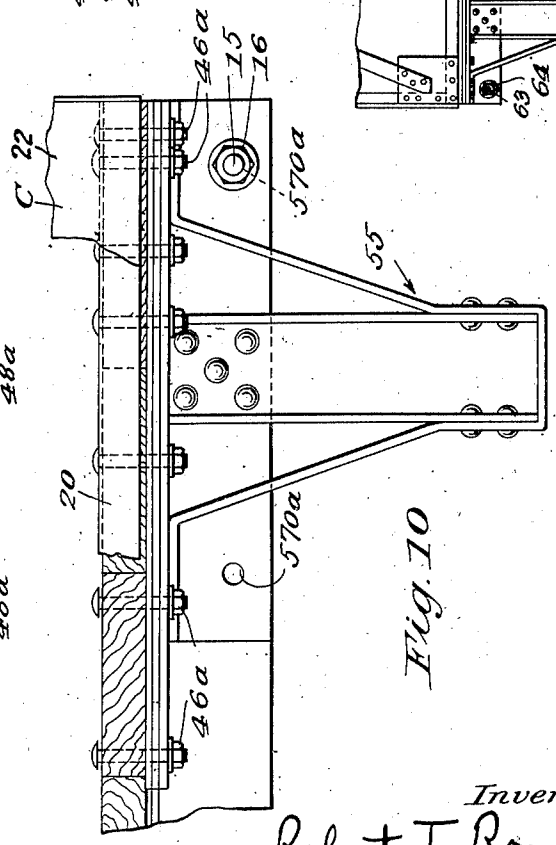


Fig. 10

Inventor:
Robert T. Romine
By Macleod, Calver, Copeland & Dike
Attorneys.

Patented Feb. 24, 1931

1,793,965

UNITED STATES PATENT OFFICE

ROBERT T. ROMINE, OF MOUNT CLEMENS, MICHIGAN

SECTIONAL BOX CAR

Application filed April 16, 1927. Serial No. 184,384.

This invention relates to sectional box cars or carriers and especially to flat railway cars provided with a load supporting floor or platform adapted to receive and support a plurality of independent shipping containers or sections which, when assembled, present the appearance of a complete box car. The invention is particularly adapted for use in connection with a railway transportation system for the handling and shipping of large quantities of material such, for example, as freight, merchandise, parcel post, express material, etc. in separate and individual groups or units. The apparatus of the invention is well adapted for use in various manufacturing industries such as the automotive industry wherein it is desirable to ship automobile parts to assembly plants or elsewhere, and wherein such parts may be handled and shipped in the container sections directly from the shipper to the consignee.

An important object of the invention is to provide individual and detachable supporting members for the container sections for supporting such sections after they are removed or unloaded from the flat car floor. Another object is to provide the container sections with means which are adapted to co-operate with means on the car floor for restricting the relative movement or displacement of the container sections when the car is in transit, the first mentioned means being preferably of a character which permits their cooperation with the detachable supporting members when it is desirable to support the container sections after their removal from the car platform.

One form of shipping container or merchandise compartment, and certain improved means for supporting it when on or off a freight car, are illustrated by way of example in the accompanying drawings, wherein like reference characters indicate similar parts in the several views.

In said drawings:

Fig. 1 is a top plan view of a flat freight car or carrier with my improved container sections in position thereupon, several of the sections being broken away.

Fig. 2 is a side elevation of the construction shown in Fig. 1.

Fig. 3 is a fragmentary side elevation of my improved sectional freight car showing means for mounting the containers upon the flat car platform.

Fig. 4 is an end elevation of the construction shown in Fig. 3, the outer sheathing being removed.

Fig. 5 is a fragmentary front elevation of one of the shipping containers or car sections of my invention.

Fig. 6 is a detail perspective view of one of the detachable legs of the container sections.

Fig. 7 is a view similar to Fig. 5 showing the legs of Fig. 6 assembled with the container.

Fig. 8 is an enlarged fragmentary detail, partly in section, of the container and detachable leg.

Fig. 9 is a fragmentary side elevation of a car container section with its supporting legs in place.

Fig. 10 is an enlarged fragmentary detail of one corner of the container section of Fig. 9.

Before explaining in detail the present invention, and the method or mode of operation embodied therein, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practised or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention beyond the terms of the several claims hereto appended or the requirements of the prior art.

My improved apparatus is illustrated, by way of example, in connection with a railway transportation system at a railway terminal, although such apparatus may be used at industrial plants or storage warehouses where large quantities of material are handled. For instance, the invention is adapted for use not only at railway freight terminals for the

handling and shipping of freight, merchandise, parcel post, express material, etc., or at shipping docks for steamboat transportation, but also in various manufacturing industries such as the automotive industry. Automobile parts, including parts to be shipped to assembly plants in different sections of the country, or spare and replacement parts to be shipped to dealers, garages, etc., may be handled and shipped in the containers directly from the shipper to the consignee in accordance with the present invention.

Where the shipping containers are transported upon a flat car, as shown for the purpose of illustration in the present case, flat cars of standard construction may be used without necessitating any substantial reconstruction thereof. In the present case I have illustrated a relatively simple and effective manner of mounting the containers on the floor or platform of the flat car or carrier so that the containers will be supported against displacement during transit. The containers and the supporting means secured to the car floor for maintaining the containers in position during transit are so constructed as to enable the containers to be readily loaded or unloaded from the cars, easily locked in position when loaded or easily released to enable the container sections to be unloaded at destination. The containers are normally provided with leg supports which permit them to be picked up and transported from point to point upon the lift platform of a power driven lift truck, but in transporting the containers on the carriers, such as a railway flat car, the leg supports are preferably detached from the container so as to provide greater stability in transit on account of the shocks and collision to which the cars are subjected.

In Figs. 1 and 2 I have shown the application of my invention to a railway flat car or carrier B having a platform or floor B^1. The car is positioned upon railway tracks RR and contains a series or group of separate and individual shipping containers or sections shown as a whole at C. Each container is a complete unit and is provided with doors at opposite ends together with a pair of walkways positioned above the roof of the section. Together, the group of sections, when mounted upon the platform B^1, present the appearance of a complete and fully equipped box car.

Each of the container sections C is provided with a bottom or floor comprising cross boards bound around the four edges by means of angles 20, a roof or top 21, side walls 22, and end walls 23, each of said side walls being preferably provided with swinging doors 24 and 25. The walls and doors include framing members and also an outer sheet metal sheathing as shown in Figs. 8 and 10. The skeleton frame structure of each container section comprises, preferably, vertically extending angle bars 26 and 27 at the front and rear respectively of each side wall, these vertical members 26 and 27 being connected at their lower ends with the container section floor angle 20 by means of gusset plates 126 and 127 respectively, and supporting at their upper ends curved or substantially arch-shaped angles 28 which form supporting means for the top or roof 21 of the section, the angles 26, 27 and 28 being connected together by means of gusset plates 128. Extending substantially horizontally along each side wall 22 and preferably on the inner side of each wall, are a plurality of spaced angles 29, these angles being connected at their ends with the vertical angles 26, 27 by means of gusset plates 129, one of which is provided for each horizontal angle at its end portion. To brace the horizontal angles 29 and the angle 28 provided for supporting the roof of the section, and to maintain them in spaced relation and likewise prevent sagging of the angles and roof 21, a vertically extending, preferably centrally positioned re-enforcing strap or bar 30 is provided, the lower end being connected with the floor angles 20 and the upper end with the angle 28, the intermediate portion of the member 30 being connected with each of the horizontal angles 29. It will be noted that the upper end of the member 30 projects slightly above the roof structure 21 at the side thereof for a purpose to be hereinafter described.

To additionally brace the container section, I provide a pair of metal straps or bars 31, 32 which are secured at their lower ends to the gusset plates 126 and 127 respectively and to each of the horizontal angles 29 and likewise to the roof supporting angle 28. It will be noted that the bars 31 and 32 extend upwardly in converging relation and also that the upper ends of the bars project considerably above the roof 21 at substantially its transverse center. Connected with the upper projecting ends of the members 31 and 32 by means of rivets or the like, are a pair of angle plates 33 and 34 having inwardly extending flanges 33*a* and 34*a* respectively, positioned back to back. Connected to the opposite outer faces of these flanges are a pair of abutting channel bars 35, the web portions of which are positioned back to back to form a bail for the container section. It will be understood that the several angles, gusset plates and bracing members herein referred to are connected together to form an integral structure, preferably by means of rivets although it may be found desirable to employ bolts or other securing means for this purpose. Likewise it may prove desirable in practice to spot weld the several members together.

Mounted upon the roof 21 of the section and rigidly connected therewith, is a transversely extending and preferably substan-

tially centrally located walkway 40, this walkway comprising a pair of spaced angles 41 connected at opposite ends with plates or gussets 42, which plates or gussets are in turn connected with and supported by the roof supporting angle 28. The angles 41 are likewise connected with the brace members 30, 31 and 32 to prevent any possibility of sagging at the central portion thereof. Mounted upon the angles 41 in any suitable manner and likewise extending transversely of the section, are a plurality of boards 43 which together form a walkway. By providing a series of boards 43 and positioning them at opposite sides of the converging upwardly projecting ends of the brace members 31 and 32, it will be noted that two separate and distinct walkways are provided. Likewise by so positioning the walkways, it will be understood that the bail, including the channels 35, also serves as a hand hold or supporting structure for the brakeman when walking along the top of the group of car sections or containers C forming the sectional box car B.

In order to provide means for effecting a detachable connection between adjacent sections at their upper portions and likewise to prevent any possibility of relative displacement of the sections when the car is in transit, each of the gusset plates 128 is provided with an extension or projection 128*a*, which extension or projection is provided with a slot or aperture. The method of connecting the portions 128*a* of each car section will be referred to hereinafter.

The doors 24 and 25 are pivotally connected with the end walls 23 of the container section by means of hinges 36 of any suitable construction. The door 25 is provided with a plate 25*a* at its free edge, this plate being secured to the door and being adapted to overlap the free edge of the door 24 when the doors are closed, as shown in the drawings. The door 25 is likewise provided with locking means in the form of a pair of reciprocable rods 25*b* connected with a cam member 25*c* which is pivoted at 25*d* to the door. The cam member is provided with an operating handle or lever 25*e* which, when the doors are closed, is adapted to engage and be supported by a stop 24*a* mounted upon the door 24. At the upper and lower edges of the door 25, guide members 25*f* are provided which serve to support, and maintain against accidental displacement, the rods 25*b*. These guides likewise serve to cause the ends of the rods 25*b*, when in their projected or operative position, to register with apertures formed in each of the angle plates or keepers 20*a* provided upon the front end of the container section (see Fig. 3). This construction permits the doors to be simultaneously locked together to prevent any accidental or unauthorized opening of the doors, it being understood, of course, that the usual seal is applied to the operating handle or lever 25*e* to maintain it against movement relative to the stop 24*a*. The dual locking means permits the authorized opening of both doors by a simple and convenient operation.

The floor, including the angles 20 of each container is provided on its under side adjacent each longitudinal edge with a metal supporting plate 45. At the outer edge of each plate 45 there is provided a longitudinally extending plate or strip 46 which is maintained in spaced relation with respect to the plate 45 by means of a narrow filler strip or bar 47 interposed therebetween. The plates 45, 46 and the strip 47 are all secured together and to the floor angles 20 by means of bolts 46*a*. At the inner longitudinal edge of each plate 45 there is provided an angle bar 48 having a vertical flange 48*a* and a horizontal flange 48*b*, the latter flange being maintained in spaced relation with respect to the plate 45 by interposing between the flange and the plate, a filler strip or bar 49. The members 48*b*, 49 and 45 are secured together and to the floor angles 20 by means of bolts 480*b*, which bolts are provided with countersunk heads so as to lie flush with the exposed surface of the flange 48*b* (see Fig. 8). The flange 48*a* of each angle 48 is provided adjacent its opposite ends with a hole or slot 480*a* for a purpose to be described. While I have referred to and illustrated the use of bolts 46*a* and 480*b*, respectively, to secure the parts together and provide a guideway or channel 50 upon the car floor at its under side, nevertheless it may prove desirable in practice to spot weld the several members together to form an integral structure which is detachably mounted upon the under side of the car floor by means of the bolts referred to, or in any suitable manner. It will be seen therefore that by so positioning the plate 46 and the angle 48 and maintaining them in spaced relation with respect to the plate 45, a guideway or channel 50 is provided at each side of the container. It will be noted (see Fig. 5) that the guideways or channels at the longitudinal edges of the under surface of the floor are identical.

The guideways or channels 50 are provided for the purpose of supporting, when desirable, detachable leg members indicated as a whole at 55, Figure 6. Each container section is preferably provided with four leg members, there being a pair of such members removably supported by the guideways or channels at opposite longitudinal sides of the floor. Each leg 55 comprises a vertical channel 56 having a central web 56*a* which is rigidly connected adjacent its upper end with the vertical flange 57*a* of a short angle bar 57 by means of rivets 560*a* and parallel flanges 56*b*, the flange and the web being positioned back to back. The horizontal flange 57*b* of

the angle 57 overlies and is in engagement with the upper end of the channel. The angle 57 is of sufficient length to extend considerably beyond the parallel flanges 56*b* of the channel. Mounted upon the horizontal flange 57*b* and supported thereby, is a plate 58, the plate being connected with the flange in any suitable manner, such, for example, as by means of spot welding. A brace member 59 in the form of a bar which is bent to provide a foot or base portion 59*a* and upwardly and outwardly flared portions 59*b*, having at their upper free ends out-turned portions or flanges 59*c*, is connected with the channel and the flange 57*b* by means of rivets 590*b* and 590*c*, respectively, the rivets 590*c* preferably extending through the plate 58, the flange 57*b* and the flanges 59*c*. It will be seen therefore that the channel, the angle, the plate 58 mounted upon the flange 57*b*, and the brace member 59 are all rigidly connected together to provide an integral leg member or support for the container section. The vertical flange 57*a* is provided adjacent each end, with an aperture or slot 570*a* adapted to register with any one of the holes or apertures 480*a* provided in the vertical flange 48*a* of the angle bar 48 carried by the container section floor, when the parts are in the position in which they are shown in Figures 7 to 10 inclusive, thus providing standard legs which are interchangeable.

To apply the legs or supporting members to a container section, it is merely necessary to insert the plate 58 of the leg in the guideway or channel 50, slide it into place, and bring the apertures or holes 480*a* and 570*a* of the respective members into alignment. When in this position, a bolt 15 having a countersunk head 15*a*, is inserted in the aligned holes and a nut 16 applied thereto, thus preventing the accidental displacement of the leg member.

When the container sections C are supported upon the car floor B^1 as shown in Figures 3 and 4, it will be seen that the detachable legs 55 are removed. For the purpose of supporting each container section upon the car floor, and maintaining such section against relative longitudinal movement thereupon, a series of pairs of transversely disposed spaced supporting members are provided. These members in the present instance each comprises an angle bar 60 having a horizontal flange 60*a* detachably mounted upon the car floor by means of bolts 61, and a vertical or upstanding flange 60*b*. The flanges provide means for receiving and supporting a wood block or strip 62, which block is detachably connected with and secured to the vertical flange 60*b* by means of a series of bolts 62*a*, the heads of which are countersunk so as to lie flush with the outer face of the flange. The space between each pair of supporting members for a container section is determined by the space between the angles 48 carried at the under side of the container floor and is governed by the size of the container section. When a container is placed upon the car floor B^1 and supported by the angles 60 and the blocks 62, it will be seen (Figs 3 and 4) that the vertical or depending flanges 48*a* lie outside and in abutting relation to the vertical flange 60*b*. The co-operating angle members on the container section floor and the car floor respectively are so positioned as to provide a substantially close fit when the parts are in operative relation. The fit, however, is not sufficiently close to cause a binding of the co-operating elements as the container section is placed in position upon the car or removed therefrom. A bolt 63 is provided at each side of the container section (Fig. 4) and is inserted through the hole 480*a* formed in the vertical flange 48*a* and in a similarly prelocated hole or slot provided in the vertical angle 60*b* and the wood block or strip 62, to hold the parts in operative relation and maintain the container section in position upon the car floor B^1. A nut 64 is threaded upon the end of each bolt to maintain it in position. In order to maintain adjacent sections in position at their upper portions and to restrict their relative movement and accidental displacement during transit, I provide a bolt and nut 52 which is adapted to be inserted through the slot or aperture formed in the projecting portions or ears 128*a* of adjacent sections. Thus it will be seen that when the container sections are in position upon the car floor, they are maintained against accidental displacement relatively thereto.

From the foregoing, it will be seen that the means provided upon the under side of each container section floor performs a dual function, namely that of maintaining the containers in position upon the car floor or platform B^1 and restricting their relative displacement when the car is in transit, and also serve as means for receiving and supporting the detachable leg members 55 when the section has been removed from the car.

My method of removing or unloading the container sections from the car or loading them upon the car, as well as the improved apparatus for performing the method, has been fully shown and described in my copending application, Serial No. 173,761 filed March 8, 1927, and it is not thought necessary herein to refer in detail thereto.

It will be understood that when the containers C are supported by the detachable and interchangeable legs 55, a lift truck platform may be moved into position to underlie the container section floor within the area between the detachable legs, so that the section may be lifted and transported thereby.

What I claim is:

1. In a sectional box car or carrier, the combination of a plurality of removable containers having doors, means for supporting the containers in position upon the carrier, and detachable and interchangeable supporting means for the containers when removed from the car.

2. A shipping container for use in a railway transportation system, comprising a normally closed compartment provided with doors, and means carried by the under side of the container floor adapted to maintain the container in position upon a carrier during shipment and to receive removable leg members for supporting the container when removed from the carrier.

3. A container section for use in a railway transportation system where the containers are transported in sectional box car manner, comprising a normally closed compartment having doors, and a floor structure provided on its under side with means forming guideways adapted to receive detachable leg members for supporting the container upon a terminal floor, said last mentioned means also serving to maintain the container in position upon the carrier during transit.

4. In a sectonal box car, the combination of a plurality of individual container sections provided with doors, of means carried by the containers for supporting them in position to form the box car, said means also being adapted to receive detachable and interchangeable leg members for supporting the containers when removed from the car.

5. In a sectional box car, the combination of a plurality of shipping containers each providing an individual unit of the car, said containers having doors and a pair of walkways positioned above the roof thereof, and means carried by the containers adapted to maintain the containers in position to form the box car and to receive detachable and interchangeable leg members for supporting the containers when removed from the box car.

6. A shipping container for use in connection with a railway transportation system wherein the carriers are in the form of sectional box cars, comprising a normally closed compartment provided with doors, and means carried by the container for maintaining it in position upon the carrier during transit, said means also serving to receive detachable leg members for supporting the container when removed from the carrier.

7. In a railway transportation system, the combination of a flat car platform, container sections mounted upon said platform, means carried by the platform for supporting the container sections thereupon, and means carried by said container sections and adapted to co-operate with the means on said platform for maintaining the sections in place during transit, said last mentioned means also being adapted to receive detachable leg members for supporting the sections when removed from the platform.

8. In a sectional box car or carrier, the combination of a container having a floor, parallel truss members angular in cross section extending beneath the floor, leg members adapted to be detachably connected to said truss members to permit the introduction of a lift truck platform beneath the floor, and means on the car adapted to co-operate with said truss members when the legs are detached for supporting the container on the car floor.

9. In a sectional box car or carrier, the combination of a floor, parallel truss members having inwardly extending horizontal flanges and vertical flanges extending beneath the floor, leg members adapted to be detachably connected to said truss members to permit the introduction of a lift truck platform beneath the floor, and means on the car adapted to co-operate with said truss members when the legs are detached for supporting and locking the container on the car floor.

10. A shipping container for use in connection with a railway transportation system wherein the carriers are in the form of sectional box cars, and means carried by the container for maintaining it in position upon the carrier during transit, said means also serving to receive supporting members for the container when removed from the carrier.

In testimony whereof I affix my signature.

ROBERT T. ROMINE.