May 31, 1938. C. H. WILLIAMSON 2,118,874

CONTAINER

Filed April 22, 1931 5 Sheets-Sheet 1

Fig. 1.

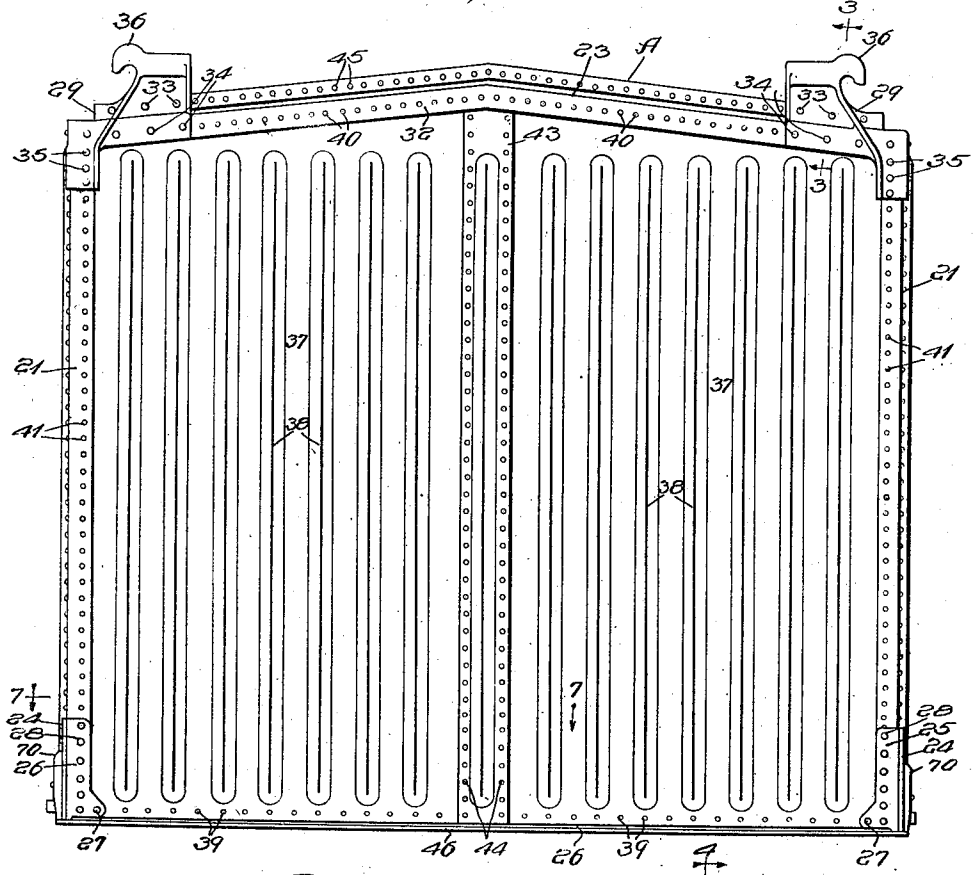



Fig. 4.

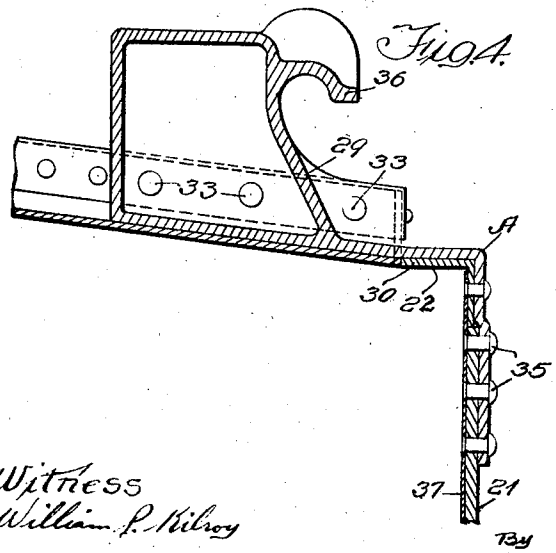
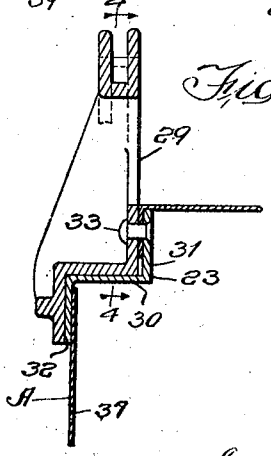



Fig. 3.




Witness
William P. Kilroy

Inventor:
Clarence H. Williamson
By Joseph Harris
His Atty.

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CONTAINER

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Fig. 2.

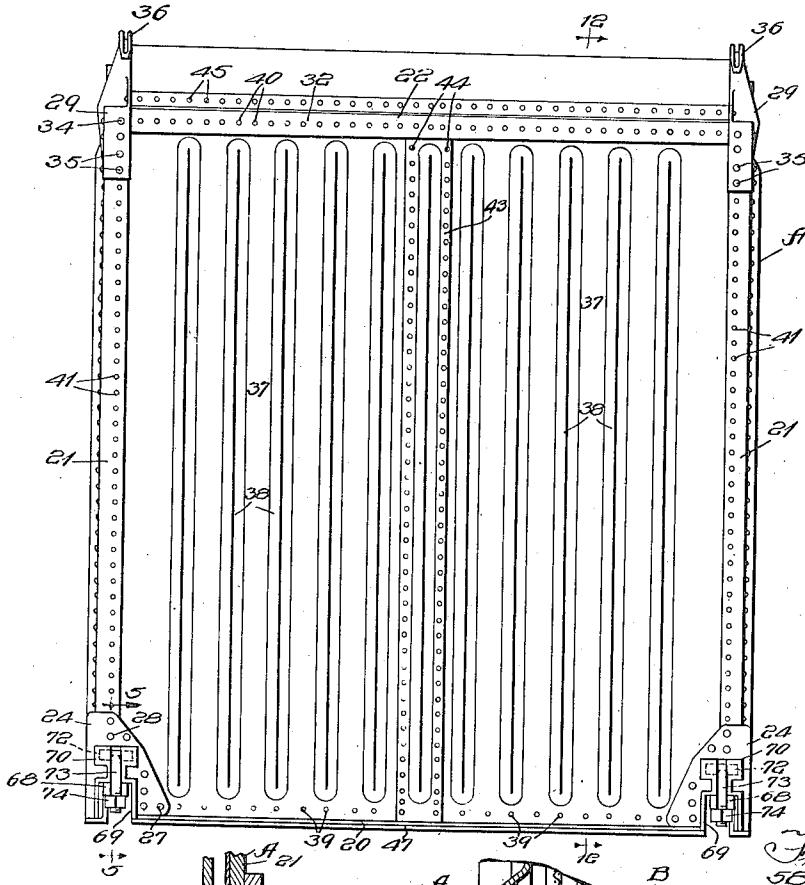



Fig. 5.

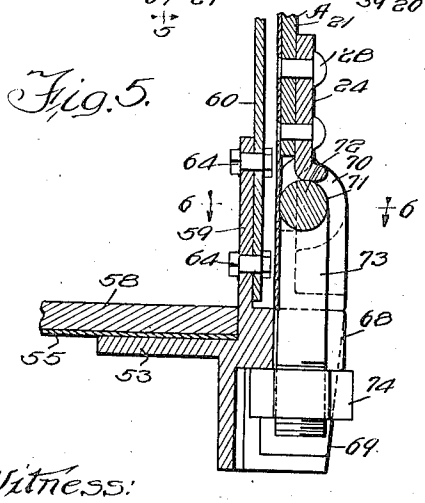
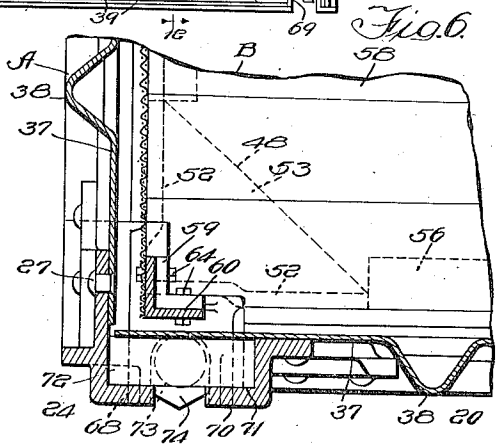



Fig. 6.




Witness:
William L. Kilroy

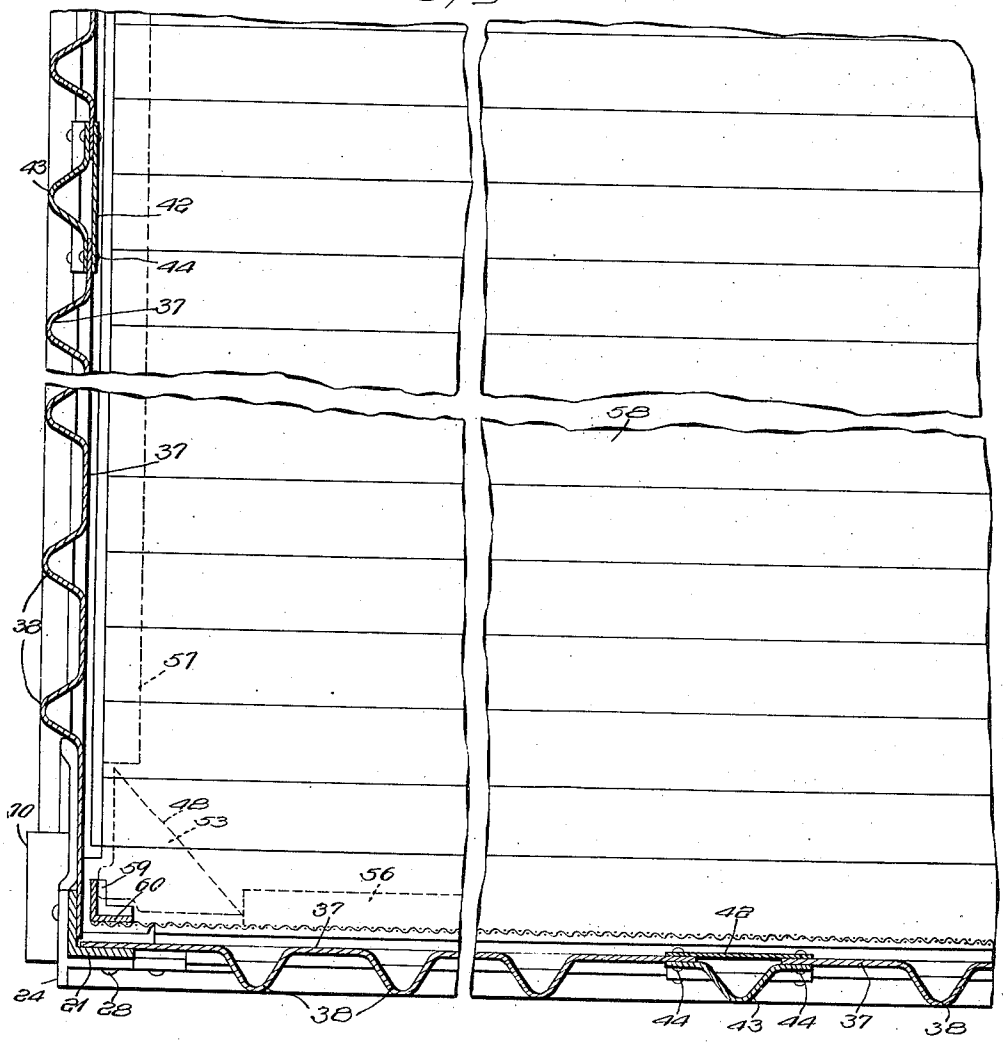
Inventor:
Clarence H. Williamson
by Joseph Harris
His Atty.

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CONTAINER

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Fig. 7.



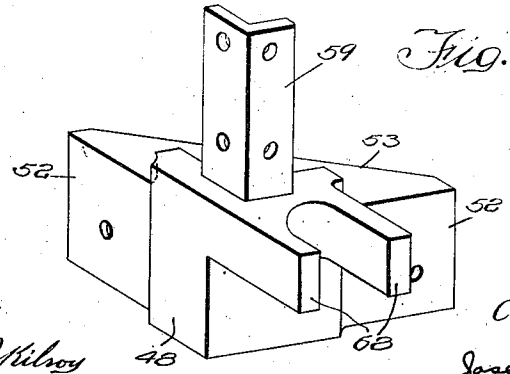




Fig. 8.

Witness:
William P. Kilroy

Inventor:
Clarence H. Williamson
By Joseph Harris
His Atty

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CONTAINER

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Fig. 9.

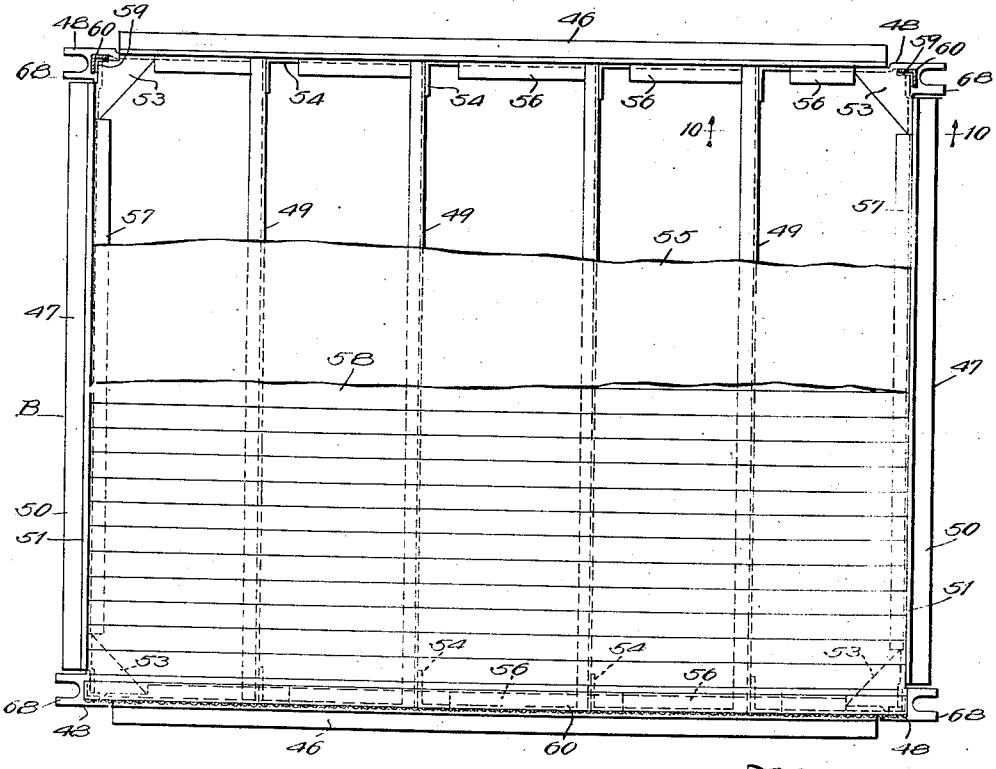



Fig. 10.

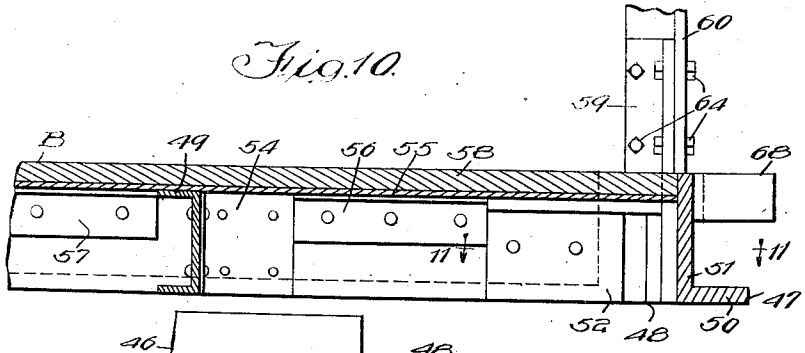
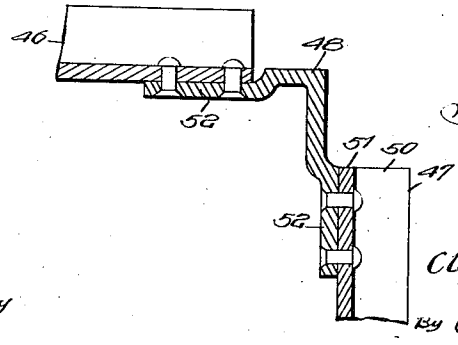



Fig. 11.




Witness:
William P. Kilroy

Inventor:
Clarence H. Williamson
By Joseph Harris
His Attys.

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Fig. 12.

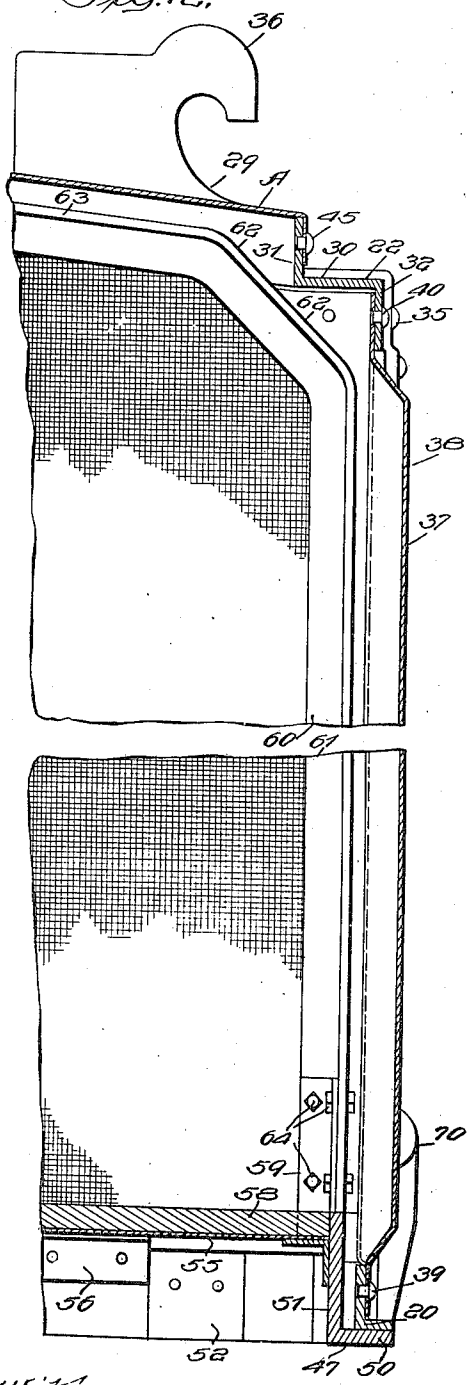
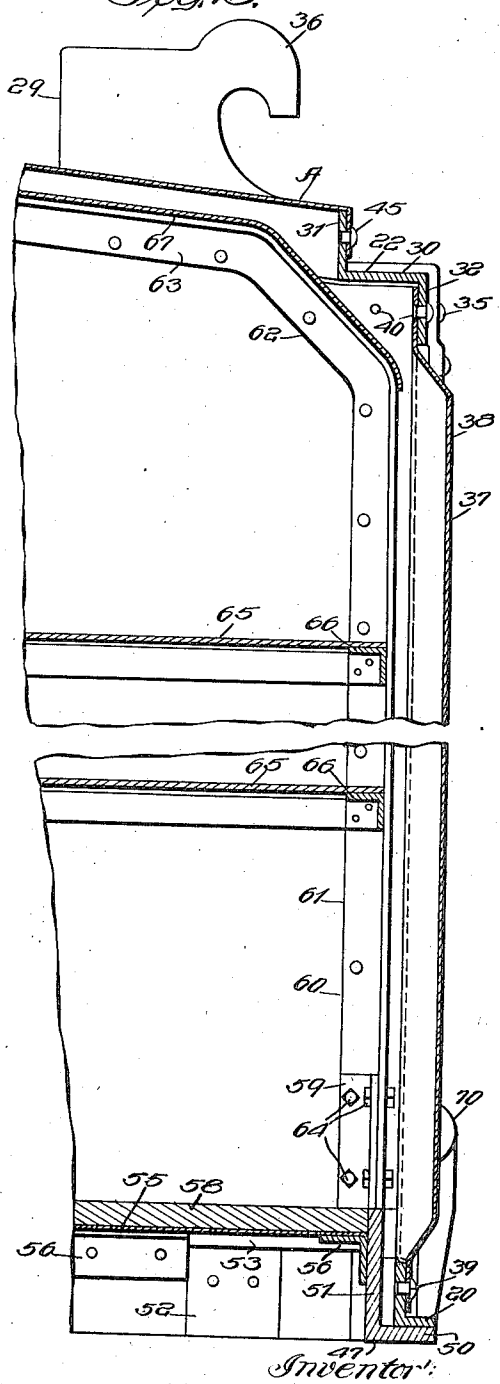



Fig. 13.




Witness:
William P. Kilroy

Inventor:
Clarence H. Williamson
By Joseph Harris
His Atty.

Patented May 31, 1938 2,118,874

# UNITED STATES PATENT OFFICE

2,118,874

## CONTAINER

Clarence H. Williamson, Cleveland, Ohio, assignor to The Youngstown Steel Door Company, Cleveland, Ohio, a corporation of Ohio

Application April 22, 1931, Serial No. 531,925

14 Claims. (Cl. 294—72)

This invention relates to improvements in containers and more particularly containers for use with railroad equipment in the transportation of merchandise, although the containers are obviously adaptable for use with other systems of transportation.

Heretofore, it has been the general practice in using railroad type of containers, to employ a box-like unit provided with doors in one or more walls thereof, which doors are held closed by any suitable form of door operators and the handles then sealed with the usual railroad car seals. In the use of such type of containers, the same are loaded at the place of business of the consignor, the containers then transported usually by truck to the forwarding railroad station, a plurality of such containers then placed upon a car of open top type, the individual containers delivered at the respective stations of destination and then transported, usually by truck, to the place of business of the consignee.

In the use of containers of the type referred to, serious disadvantages arise. One such disadvantage is due to the presence of the doors in the container which doors, generally in pairs, occupy substantially the entire end or side and thus weaken the container on account of the absence of solid walls, which weakness must be compensated for by the use of heavier framing elements and sheets in the remaining walls, thus adding to the initial cost of material and dead weight to be transported. Another of the disadvantages arises from the necessity of maintaining weather-sealed joints around the edges of the doors, which is exceedingly difficult, the doors often becoming sprung, thus permitting entrance of rain or other foreign matter to the interior of the containers and causing damage to the contents. Furthermore, it is evident that such door type of railway car containers may be easily broken into with resultant theft of the contents during shipment. Another factor which is gradually becoming of greater importance, on account of the stricter regulations governing operations of trucks on paved roads, arises because of the limitations of load that trucks are permitted to haul on paved roads. Containers of the type in question are, as well known, very heavy, requiring handling by cranes, so that in many places, trucks are restricted to the carrying of a very limited number of such containers at a time.

One object of my invention is to provide a container for transportation of articles, especially merchandise, in less than carload lots, which container may be loaded or unloaded with maximum facility.

Another object of my invention is to provide a container of the type indicated such that, while in transit on a railway car or vessel, the contents are perfectly and completely protected from weather damage and are also absolutely proof against theft.

Another object of my invention is to provide a container of the type hereinbefore indicated which consists essentially of two main parts, one an inside cage or retainer of relatively very light construction, merely sufficient to retain the merchandise or other freight in properly loaded condition or position, and the other part an outer shell or housing of substantial, rugged, weather-proof construction throughout, adapted to be telescoped over the cage and temporarily locked or fastened thereto whereby, when said two main parts are assembled, they may be handled and transported in the usual way as a single unit without danger of damage to the contents from any of the usual hazards of transportation.

Another object of my invention is to provide a container of the type indicated, wherein the transfer of the merchandise or other freight from the place of business of consignor to warehouse at city of origin and from warehouse at city of destination to place of business of consignee, may be done in a cage or retainer of minimum weight so that the transfer trucks may carry greater pay loads without excessive weight and at less expense per unit of load.

Another object of my invention is to provide a type of container, such that the original investment for a given amount of business is substantially less than that now required for the handling of the same volume of business in containers of the usual type heretofore employed, this object being attained by using only such minimum number of outer shells as necessary to convey the freight from station to station while a much larger number of inner cages or the like may be utilized in the conveyance of the freight between the warehouses and places of business within the cities of origin and destination.

Other objects of my invention will more clearly appear from the description and claims hereinafter following taken in connection with the drawings.

In the drawings forming a part of this specification, Figure 1 is a side, elevational view of a container embodying my improvements. Figure 2 is an end, elevational view of the container shown in Figure 1. Figure 3 is an enlarged, de-

tailed, vertical, sectional view, corresponding to the line 3—3 of Figure 1. Figure 4 is a similar vertical, sectional view, corresponding to the line 4—4 of Figure 3. Figure 5 is an enlarged, detailed, vertical, sectional view, corresponding to the line 5—5 of Figure 2, and illustrating more particularly the means of attachment between the inner cage and outer shell. Figure 6 is a horizontal, detailed, sectional view, corresponding to the line 6—6 of Figure 5. Figure 7 is an enlarged, horizontal, sectional view, corresponding to the line 7—7 of Figure 1, parts being broken away to better accommodate the view on the sheet. Figure 8 is a detailed, perspective of one of the blocks entering into the construction of the inner cage. Figure 9 is a part plan, part horizontal, sectional view of the inner cage of the container, certain portions of the flooring being broken away in order to better illustrate details of construction. Figure 10 is an enlarged, vertical, sectional view corresponding to the line 10—10 of Figure 9. Figure 11 is a horizontal, sectional view, corresponding to the section line 11—11 of Figure 10. Figure 12 is an enlarged, vertical, sectional view, corresponding to the line 12—12 of Figure 2, parts being broken away to better accommodate the view on the sheet. And Figure 13 is a view similar to Figure 12, illustrating a modified form of inner cage.

In said drawings, the container, considered as an entirety, consists broadly of an outer shell A and an inner cage or retainer B, the former being telescoped over the latter when the parts are assembled for handling by the crane and mounting on the railway equipment.

The outer shell A, which is the main strength protecting and housing member of the complete container, is made of substantial, rugged, weather-proof construction and to that end has a bottom or base framework comprised of four angles 20—20, one on each side and constituting bottom sills, four vertically extending angle corner posts 21—21; Z-bar end plates 22 and Z-bar side plates 23.

The frame elements just referred to are securely united together as follows. The four base angles or sills 20 are connected at the four corners of the container by four corner castings 24—24 each of which, as best shown in Figures 1, 2, 6, and 7, is of right angular, horizontal section with two vertical webs 25 and 26 riveted at their lower edges, as indicated at 27—27, to the respective side and end base angles 20. Said webs 25 and 26 are also riveted to the respective flanges of the corner angles, as indicated at 28—28, thus providing a rigid construction at the lower corners of the shell. Said castings 24 also provide the mountings for the attaching bolts hereinafter referred to.

At the upper corners, the side and end Z-bar plates and the corner posts are secured together by other castings 29—29, the details of which are best illustrated in Figures 1, 3, and 4. As clear from the drawings, each of the side and end Z-bar plates is arranged with the web 30 thereof disposed horizontally, the inner flange 31 extending vertically upward and the outer flange 32 extending vertically downward. Each of the corner castings 29 is conformed to the Z-bar plates, as clearly shown in Figures 3 and 4 and also to the slope or pitch of the side plates, as shown, said castings being riveted both to the vertical flanges 31 of the Z-bars, as indicated at 33—33 and to the depending flanges 32, as indicated at 34—34. Each of said castings 29 is also provided with a depending right angular corner section conforming to the angular corner post 21 and to which the latter are riveted, as indicated at 35—35. The corner castings 29 are each formed with an upstanding lifting hook 36 to permit of the attachment of a sling and the handling of a container by a crane in the usual manner.

The side and end walls of the shell are all what may be termed solid or fully closed, that is, there are no doors or other openings so that the walls of the shell are absolutely weather proof. Each of the side and end walls preferably comprises two sheet metal panels 37—37 integrally strengthened or rigidified by a plurality of vertically extending corrugations 38—38. Each of said panels is riveted along its bottom edge, as indicated at 39—39, to the vertically extending flange of the respective base angles 20, and on the outer sides of the latter. At their upper ends, each of the panels 37 is riveted to the inner side of the depending flange 32 of the corresponding Z-bar side and end plates, as indicated at 40—40. In this connection, it will be understood that the panels for the ends, as shown in Figure 2, are square across the top, whereas the panels for the sides, as shown in Figure 1, slant to conform to the roof pitch. Along their vertical edges, each of the panels has its margin riveted to the inner face of the corresponding flange of the corner post, as indicated at 41—41 and it will also be seen from inspection of Figures 3, 4, 5, 6, and 7 that certain of the rivets for securing the corner castings 24 and 29 to the frame elements are also utilized in securing the panel sheets to the respective frame elements. In order to properly rigidify the side and end walls along their vertical median lines, a special joint is there employed as best illustrated in Figure 7. As there shown, the vertical joints between each pair of panels is obtained by using an inner plate 42 and an outer plate 43, said plates 42 and 43 along each set of vertical edges being riveted to the interposed edge of the corresponding panel by a vertical series of rivets 44—44. The outer plate 43 of each joint is vertically outwardly corrugated so that a tube-like post is formed which affords great strength against collapse, buckling or bending in any direction, it being understood that the upper and lower ends of each said post joint construction is secured to the corresponding side or end plate and base angle 20.

The roof is completed preferably by a single sheet of metal having the desired roof pitch incorporated therein, the marginal edges of the roof sheet being bent downwardly along all four edges and riveted to the upstanding flanges 31 of the Z-bars, as indicated at 45—45.

The inner cage or retainer for the merchandise consists essentially of a suitable base or platform of proper strength to sustain the weight of the merchandise, and a very light, more or less skeletonized superstructure, which latter may vary in detail as hereinafter indicated. The base or platform of the inner cage preferably comprises two side angles 46—46, two end angles 47—47, four corner castings 48—48, cross channels 49—49 and suitable supporting angles and braces hereinafter referred to. Each of the base angles 46 and 47 is arranged with its lower narrow flange 50 disposed horizontally and adapted to rest on the floor or other support and with its longer flange 51 extending vertically, the bottom flange 50 being extended outwardly for the purpose hereinafter described. Said angles 46 and 47 are

rigidly united at the four corners by the corner castings 48, which, as best shown in Figure 11, are of generally angular, horizontal section with inwardly offset portions 52—52 riveted to the inner sides of the flanges 51. The vertical flanges 52 of the corner castings are braced by a triangular corner web 53 at the top, which webs 53 also provide supports for the flooring hereinafter referred to. The channels 49, preferably four in number and uniformly spaced, extend from side angle 46 to side angle 46 and are united to the latter by suitable corner angles 54—54, the lower flanges of the channels 49 being in the same plane as the flanges 50 of the base angles 46 and 47 so as to obtain a uniform support throughout the area of the bottom of the cage.

The floor of the base is preferably provided by a metal sheet 55 conforming to the area of the platform structure and supported around its edges by suitable angles 56 and 57 secured to the base angles 46 and 47 respectively. On top of the sheet 55 are placed the wood planks 58—58, which may be secured in place by suitable wood screws passed upwardly through the metal sheet 55. In this connection, it will be noted that the top surface of the planking is flush with the top edges of the base angles 46 and 47. By thus, in effect, inserting the planking within the base frame flush with the upper edges of the base angles, the latter effectively protect the edges of the wood flooring against splintering or chipping off, which might otherwise possibly occur from trucking the goods or when the shell is lowered over the cage.

As shown, each of the corner castings 48 is provided at its outer corner with an upstanding angle-shaped spud or projection 59 to which the superstructure frame elements are secured. Preferably, the superstructure frame elements are two in number, each in the form of an angle bar 60 having two vertical sections 61 united at their tops by inclined sections 62 and 63 to just clear the end Z-bar plates 22 and to conform to the pitch of the roof, as best shown in Figure 12. These two members 60, which together provide the four corners of the inner cage superstructure frame, may be anchored to the spuds 59 either permanently by riveting or by bolts, as indicated at 64—64. Where bolts are used, it is obvious that the superstructure may be removed and interchanged with others of somewhat different form so as to afford greater range in the handling of different kinds of merchandise. In the form of inner cage shown in Figure 12, only the sides thereof are provided with retainer walls which, in the form shown, may consist of heavy wire cloth suitably riveted to the frame elements 60. With this construction, it is evident that the two ends of the cage are fully open and available for the loading and unloading of the merchandise within the cage. For other classes of merchandise, the cage may be modified, as for instance shown in Figure 13, where a plurality of horizontal shelves or partitions 65—65 are employed, the same being supported at their ends and sides by suitable angles 66 riveted to the frame elements 60. In this construction, a roof sheet 67 may also be employed if desired to obtain somewhat greater rigidity for the superstructure. Any suitable devices may be employed at the open ends of the cage to help retain the loading in place, which devices may be in the form of removable or hinged gates or bars which I have not deemed it necessary to illustrate.

Referring particularly to Figures 12 and 13, it will be noted that the base angles 20 of the outer shell are all in the same plane with the lower flanges thereof extended outwardly and horizontally, so that the same are adapted to rest firmly with full surface contact on the corresponding out-turned, horizontal flanges 50 of the base angles 46 and 47 of the inner cage, thus providing a weather seal between the inner and outer members of the container. It will also be observed that the level of the floor of the cage is disposed several inches above the bottom edges of the outer shell, thus further minimizing any tendency of rain or the like to reach any of the contents while in transit.

When the shell and cage are assembled in telescopic relation, they are adapted to be firmly secured together by the following means, particular attention being directed to Figures 2, 5, 6, and 8. Each of the corner castings 48 of the cage is provided with a pair of heavy, horizontally, outwardly extended lugs 68, which are accommodated in corresponding recesses 69—69 in the corner castings 24 of the shell when the latter is placed over the cage. Each of said corner castings 24 is formed with an offset rounded web 70 providing, at its ends, partial bearings 71—71 for the cylindrical ends 72—72 of a swinging T-bolt 73, the depending threaded shank of which is adapted to be entered between the corresponding pair of lugs 68 and the parts then rigidly secured together under any desired tension by means of a nut 74 engaging the undersides of the lugs 68. By loosening the nuts 74, it is obvious that the T-bolts 73 may be swung laterally outward, sufficient to clear the lugs 68 and the shell then removed by a crane. With the parts locked or latched together, as shown best in Figures 2 and 5, it is evident that the two parts may be handled as a unit in moving onto and off of the car equipment or elsewhere and that by releasing the T-bolts the shell may be removed and the cage with its lading then handled separately and placed on a truck for delivery.

With the form of container hereinbefore described, it is evident that the outer shells which are the heavy strength and weather-protecting members, need not be used in handling the freight between the warehouse and the places of business of consignor and consignee, so that greater pay loads may be handled by a truck and the loading and unloading of the cages done with maximum ease. Further, when the shell and cage are assembled and latched together for shipment on the railway equipment or otherwise, there is no possibility of damage to the goods from the elements, nor is there any possibility of theft, since the only way access to the lading can be obtained is by removing the outer shell, which on account of its weight, requires a crane. With my improvements, the use of all doors and corresponding expensive door operators may be entirely eliminated; the amount of equipment for handling a given volume of business may be materially reduced; and a greater range is obtained in the handling of small quantities or assorted materials without having to mix the same in transporting from station to station.

While I have herein described my improvements more particularly with reference to railroad transportation, the same is to be understood merely in a descriptive sense and not as limited thereto since I am aware that my improved containers may be used in other forms of transportation, such as on trucks, vessels and

the like. It is further to be understood that the terms "railway car type" or "railway type" used hereinafter in the claims, are likewise used in a merely descriptive sense and not as limiting the containers to use on railroad cars. As will also be apparent to those skilled in the art, certain novel features of my construction, particularly of the outer shell, may be used to advantage in containers other than of the telescope type and the claims are intended to include all such other types except as they may be otherwise limited. All changes and modifications are contemplated that come within the scope of the claims appended hereto.

I claim:

1. A shipping container of the character described having side walls, top and end walls of sheet metal, separate horizontal and vertical binding strips terminating short of the upper corners of the container and connecting its top and side walls with the end walls and corner pieces continuous with the horizontal and vertical binding strips aforesaid, connecting the top, side and end walls of the container and completely filling in the intervals between the binding strips, the said corner pieces being integrally formed with hooks for engagement by lifting tackle.

2. A shipping container of the character described having side walls, top and end walls of sheet metal; separate horizontal and vertical binding strips terminating short of the upper corners of the container and respectively connecting the top and side walls with the end walls; and angle pieces connecting the top, side walls and end walls of the container in the intervals between the binding strips, the said angle pieces overlapping the ends of the binding strips and being formed with hooks for engagement by lifting tackle.

3. A shipping container of the character described having side walls, top and end walls of sheet metal; separate horizontal and vertical angle binding strips terminating short of the upper corners of the container and connecting its top and side walls with the end walls; and corner pieces continuous with the horizontal and vertical binding strips aforesaid, also of angle section connecting the top, side and end walls of the container and completely filling in the intervals between the binding strips, the said corner pieces being integrally formed with hooks for engagement by lifting tackle.

4. A shipping container of the character described having side walls, top and end walls of sheet metal; separate horizontal and vertical angle binding strips terminating short of the upper corners of the container and respectively connecting the top and the side walls with the end walls; and corner pieces also of angle section connecting the top, side walls and end walls of the container in the intervals between the binding strips, the said corner pieces overlapping the ends of the binding strips and being formed with hooks for engagement by lifting tackle.

5. An inner member for a telescopic type of container for less than a carload lot, said member having a platform comprised of a rectangular metal frame, cross braces secured to the frame and flooring supported on the frame and braces, said frame including four corner castings, each having integrally formed attaching lugs extended laterally outwardly therefrom, said lugs being located above the bottom supporting surfaces of the frame.

6. In a container of the railway car type for less than carload lots, the combination with a framework including bottom sills, corner posts secured to said sills, top plates and means connecting the corner posts and top plates; of a pair of sheet metal panels secured at their top and bottom edges to a top plate and bottom sill, respectively, and along their outer vertical edges to corresponding adjacent corner posts, each of said panels being provided with a plurality of vertically extending corrugations; a member of cross section adapted to resist buckling secured at its upper and lower ends to said top plate and bottom sill respectively, the adjacent inner edges of said panels being rigidly united to said member; means adapting the container to be lifted as by a crane; and load-supporting means at the bottom of the container.

7. An inner cage adapted to be telescoped within an outer shell of a railway car type container for less than carload lots, said cage including a rectangular base frame, a superstructure unit having corner posts rigidly united, and means detachably connecting said corner posts of the superstructure unit to said base frame.

8. In a railway type of container for less than a carload lot, the combination with an inner cage including a base and relatively light weight frame superstructure; of an outer metallic rigidified shell adapted for handling by a lifting device such as a crane and having all walls thereof free from openings and arranged to be telescoped over said cage; and means for detachably securing the cage and shell for handling as a single unit, said means including a plurality of bolts and nuts carried by the shell and normally in a depending position, and laterally extended lugs on the cage base, said lugs being spaced an appreciable distance above the bottom supporting surface of the cage base, and the bolts being attached to the shell to support the same clear of the bottom of the shell.

9. In a railway car type of container for less than a carload lot, the combination with an inner cage and an outer detachable telescopic shell, the cage having a bottom, rigid upstanding framework, walls and shelving providing a plurality of separate compartments therein for the lading, the shell having rigid permanent metal walls and roof; and means, accessible for release when the shell and cage are in telescoped assembled relation for detachably securing them together and for handling as a single unit.

10. A railway car type of container for the repeated shipment of less than carload lots of lading comprising an inner cage and an outer shell of relatively sturdy weatherproof construction, said cage having a bottom member for supporting the lading and walls fastened to said bottom member sufficient to retain the lading in properly loaded condition, said walls extending a substantial distance into said shell to establish telescopic relationship therewith when said cage and shell are assembled, said shell having rigid framework and metallic walls and roof and cooperable means on the cage and shell for releasably fastening said cage and shell together when telescoped, said means being accessible from the outside of said shell.

11. A railway car type of container for the repeated shipment of less than carload lots of lading comprising an inner cage and an outer shell of relatively sturdy weatherproof construc-

tion, said cage having a bottom member for supporting the lading and walls fastened to said bottom member sufficient to retain the lading in properly loaded condition, flanges extending outwardly from said bottom member around the sides thereof, said walls extending a substantial distance into said shell to establish telescopic relationship therewith when said cage and shell are assembled, said shell having rigid framework and metallic walls and roof, the walls of said shell resting upon said flanges of said bottom member to form a weather seal, and cooperable means on the cage and shell for releasably fastening said cage and shell together when telescoped, said means being accessible from the outside of said shell.

12. A railway car type of container for the repeated shipment of less than carload lots of lading comprising an inner cage and an outer shell of relatively sturdy weatherproof construction, said cage having a bottom member for supporting the lading and walls fastened to said bottom member sufficient to retain the lading in properly loaded condition, flanges extending outwardly from said bottom member around the sides thereof, said flanges lying below the upper surface of said bottom member, said walls extending a substantial distance into said shell to establish telescopic relationship therewith when said cage and shell are assembled, said shell having rigid framework and metallic walls and roof, the walls of said shell resting upon said flanges to form a weather seal below the upper surface of said bottom member, and cooperable means on the cage and shell for releasably fastening said cage and shell together when telescoped, said means being accessible from the outside of said shell.

13. A railway car type of container for the repeated shipment of less than carload lots of lading comprising an inner cage and an outer shell of relatively sturdy weatherproof construction, said cage having a bottom member for supporting the lading and walls fastened to said bottom member sufficient to retain the lading in properly loaded condition, flanges extending outwardly from said bottom member around the sides thereof, said walls extending a substantial distance into said shell to establish telescopic relationship therewith when said cage and shell are assembled, said shell having rigid framework and metallic walls and roof, said shell having flanges around the bottom edges thereof adapted to rest upon said flanges of said bottom member to form a weather seal, and cooperable means on the cage and shell for releasably fastening said cage and shell together when telescoped, said means being accessible from the outside of said shell.

14. A railway car type of container for the repeated shipment of less than carload lots of lading comprising a bottom load sustaining member, a separate rigidified metallic shell adapted to be assembled over said member and having means adjacent the upper corners thereof by which the same may be lifted as by a crane, cooperable formations around said member and the lower edge of the shell for supporting the latter by said member when assembled and to provide a sealed joint therebetween, and means accessible for engagement and disengagement from the exterior of the assembled shell and member, for detachably securing said member and shell together at a plurality of points whereby, when the shell is lifted, said shell, member and lading thereon may be handled as a single unit.

CLARENCE H. WILLIAMSON.