June 5, 1951 M. BATTS 2,555,529

PALLETING ARRANGEMENT FOR TRANSPORTING DEVICES

Filed Dec. 6, 1949 3 Sheets-Sheet 1

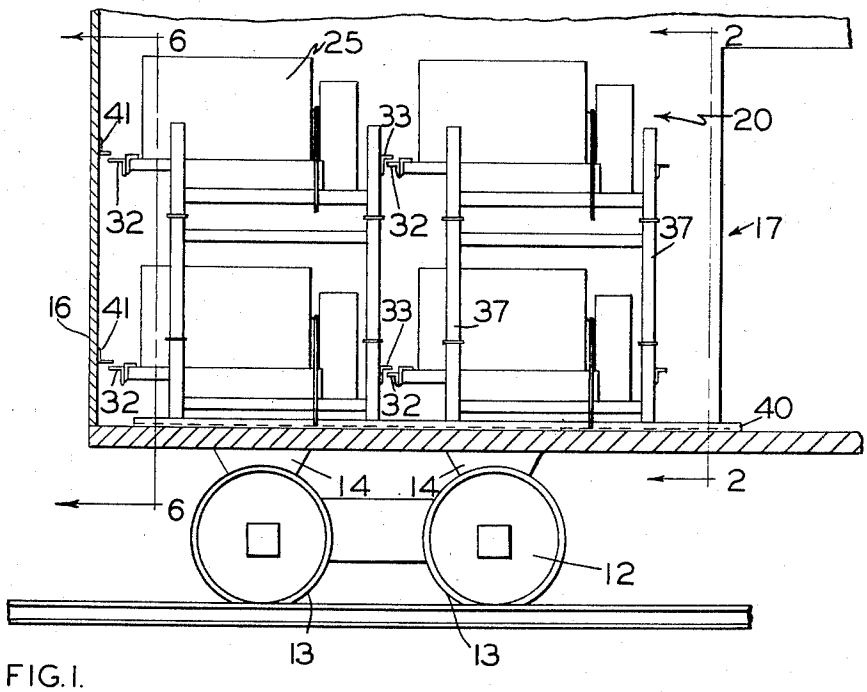


FIG. 1.

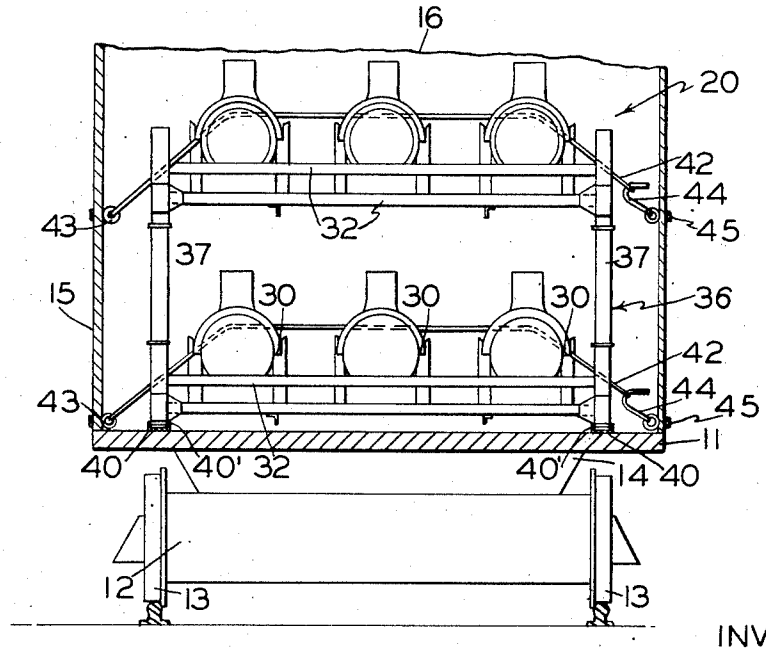


FIG. 2.

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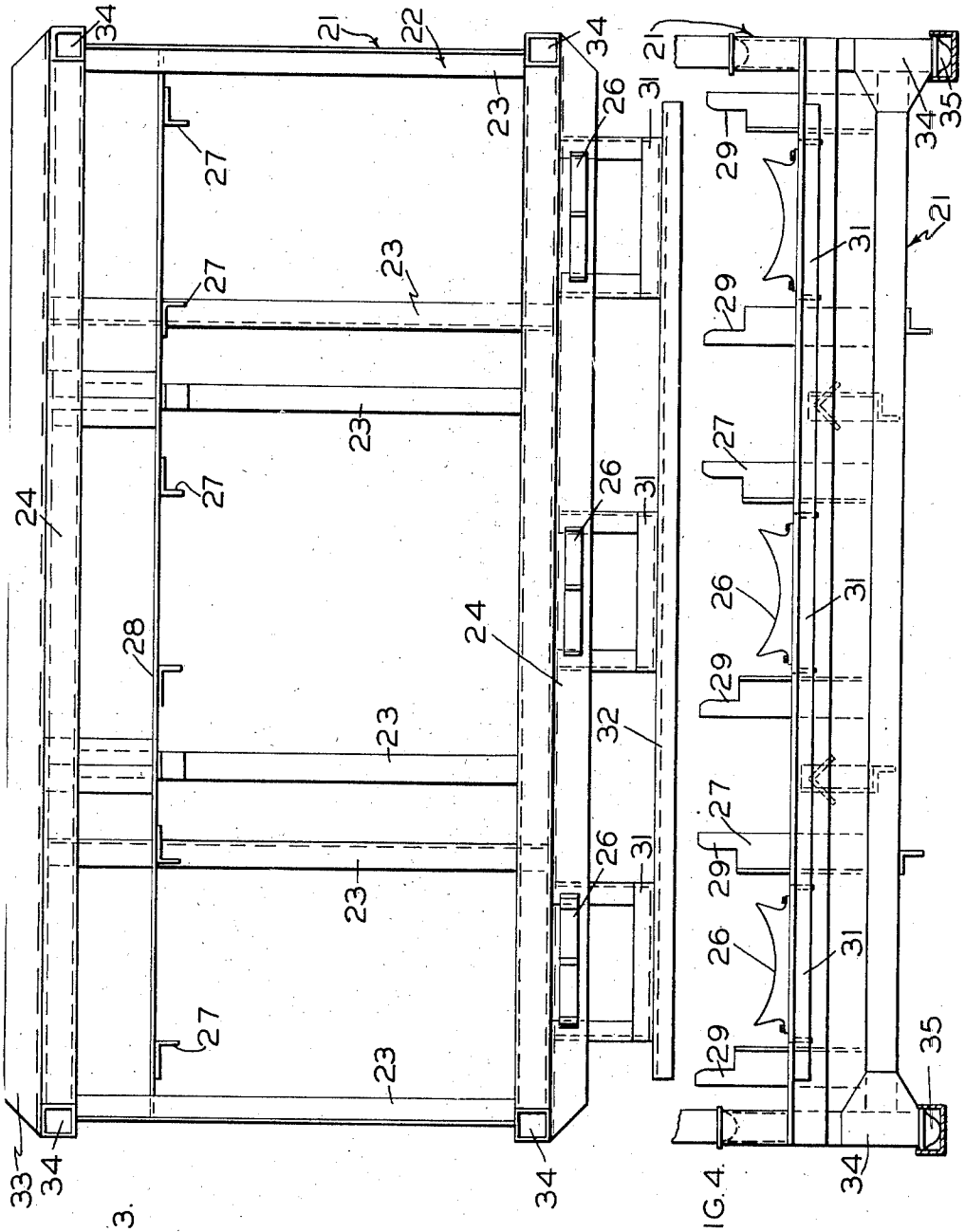


FIG. 3.

FIG. 4.

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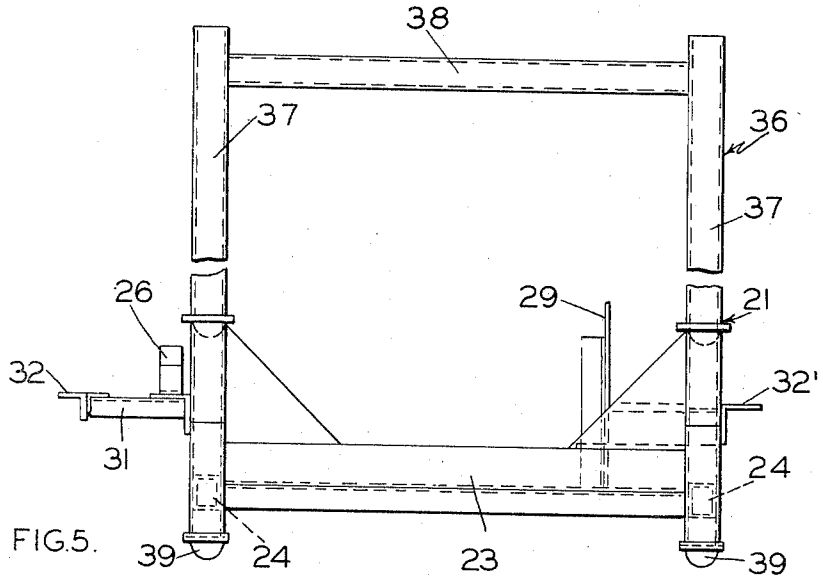


FIG.5.

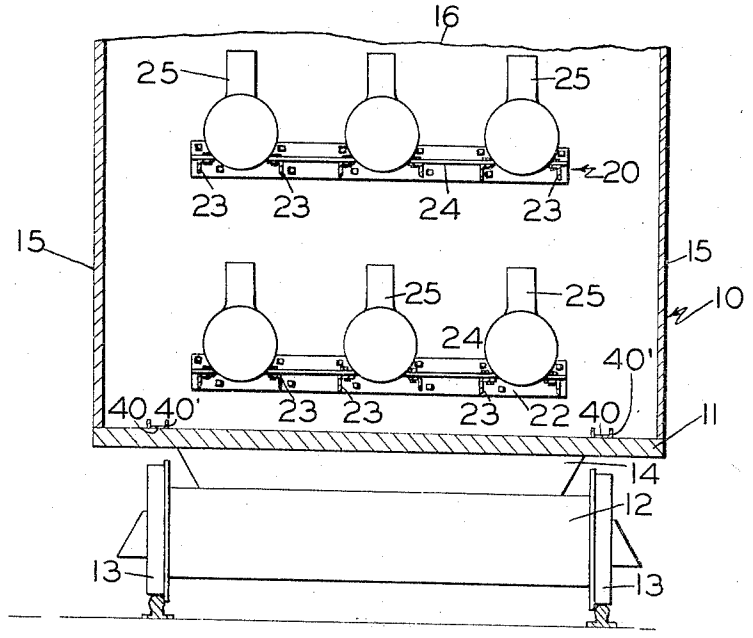


FIG.6

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PALLETING ARRANGEMENT FOR TRANSPORTING DEVICES

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Application December 6, 1949, Serial No. 131,399

7 Claims. (Cl. 105—369)

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This invention relates to an improved palleting arrangement and more specifically to an improved means for positioning article-containing pallets on a transport device such as a truck or railroad car. More particularly, the invention relates to an improvement in a shipping pallet arrangement wherein the loading and securing operations are greatly facilitated.

In the transporting of large and heavy objects on transporting units such as railroad or box cars, many difficulties are encountered in properly securing the articles against possible damage during shipment. It is extremely desirable that the articles be securely positioned relative to the box car and relative to each other so that damage to the objects will be held at a minimum. In order to facilitate transportation the practice has developed of utilizing a series of pallets which may be positioned in superposed relation. Various difficulties, however, have been encountered in an attempt to provide suitable tie-down means for securing the series of stacked pallets within the box car or truck. During the loading operation the pallets containing the articles to be shipped are positioned within the box car by moving the pallets through an opening positioned either at the rear or at the side of the car. It is usually a relatively simple matter to fasten the rear end of the pallet once it has been placed in position. Since the sides of the car, however, are usually immediately adjacent to the outermost sides of the palleting arrangement, it is difficult for an operator to find sufficient access so that he may secure the forward end of the pallet to the car. The necessity of securing both ends of the pallet is believed to be obvious since any sudden stop of the truck or humping of the box car may be sufficient to upset the pallet and thus result in damage to the articles carried thereon. Applicant has provided an improved palleting arrangement wherein the pallets may be stacked in superposed relationship within a transporting device where both ends of the pallet are securely held within the car permitting the maximum use of possible space therein. It is a prime object of the invention, therefore, to provide an improved palleting arrangement.

A further object is to provide a series of superposed pallets adapted to be positioned in a transporting device in a novel manner wherein the pallets may readily be secured against relative movement.

A still further object is to provide a series of pallets that may readily be positioned in superposed relationship by the utilization of separating frames.

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A still further object is to provide an improved structure for facilitating loading of pallets on a transporting device, the structure including tracks wherein the pallets may readily be moved into position.

A still further object is to provide a series of superposed pallets that may be positioned within a transporting device, the pallets including an improved means wherein the pallets may be readily secured against possible dislocation.

These and other objects will become more clearly apparent from a reading of the description when examined in connection with the accompanying sheets of drawings.

In the drawings:

Figure 1 is a side elevational view partially in section showing a transporting device containing the improved palleting arrangement.

Figure 2 is a cross sectional view taken substantially along the line 2—2 of Figure 1.

Figure 3 is a plan view of a single pallet of the type used in an improved palleting arrangement.

Figure 4 is a front view in elevation of the same.

Figure 5 is a side elevational view of the pallet shown in Figures 3 and 4.

Figure 6 is a sectional view generally taken along the line 6—6 of Figure 1.

A railroad car or transporting truck is generally designated by the reference character 10. The truck 10 consists of a bottom 11 which is suitably supported on wheel trucks 12, only one of which is shown. The wheel truck includes conventional car wheels 13 as best indicated in Figures 1 and 2. The wheel truck 12 may be secured to the bottom 11 by a conventional connecting structure generally indicated at 14. Vertical side walls 15 and end walls 16 extend upwardly from the bottom 11 in conventional style. One of the side walls is provided with an opening 17 indicated in Figure 1.

A palleting arrangement consisting of a series of superposed pallets is generally indicated by the reference character 20 as best shown in Figures 1, 2, and 6. The pallets are designated by the reference character 21 and reference is made to the disclosure shown in Figures 3, 4, and 5 wherein the pallet is shown in detail. Each pallet 21 consists of a horizontal base 22. The base 22 consists of a plurality of longitudinally extending brace members 23 which are connected at their ends by means of transverse beams 24. The pallets 21 are especially suited for carrying articles such as motors or engines generally designated by

the reference character 25. Each pallet is adapted to carry three engines, and cradles 26 are positioned at the forward ends of each pallet 21. The cradles 26 are shaped to the contour of the engines 25 so that one end of the engine is suitably nested in each cradle. The rear portion of the engine may be supported by angle irons 27 which extend vertically and are suitably connected to supporting members 28. The angles 27 may be cut out as indicated at 29 so that projecting portions of each engine may be suitably supported on the angle irons 27 as generally indicated at 30.

As best shown in Figure 3 and 4 each pallet is provided with a plurality of projecting bracket structures 31. These structures are positioned in transverse relative relation and are provided to rigidly support a retaining member consisting of an angle 32. The angle 32 projects outwardly from the forward end of the pallet 21 and a similar angle or retaining member 33 is positioned at the opposite side of the pallet 21 as best shown in Figures 1 and 5. The purpose of these retaining members will presently become apparent. Each pallet 21 is supported by upright tubular leg members 34 which are rigidly secured at the four corners of the pallet. The tubular leg members 34 project downwardly and upwardly with respect to the base 22 so that the base is supported free of the truck or ground when positioned in article carrying relation. Each tubular leg member 34 includes a foot 35 which is rounded at its end in order to facilitate sliding movement of the legs on a flat surface.

As best shown in Figures 1, 2, and 5 the pallets 21 may be positioned in superposed relation by the utilization of separator frames 36. In order to position one pallet 21 on top of the other two, separator frames 36 are utilized. Each separator frame includes a pair of spaced upright legs 37. The legs 37 are of similar construction as the leg members 34. A cross brace 38 suitably connects the legs 37 in rigid relation. The legs 37 also include feet 39 which may be of a rounded contour for a purpose which will presently be described.

The truck or car 10 is provided with a track 40 which is positioned on the bottom 11. The track consists of channels 40' which have their legs extending in an upright direction. The channels 40' are transversely spaced and extend longitudinally with respect to the bottom 11.

In order to properly load the pallets 21 the engines 25 are positioned so that the cradles 26 and the angle irons 27 suitably support the engines in an upright position. After one pallet has been loaded with the three engines the separator frames 36 are placed in position. Two separator frames 36 are utilized for each pallet. The legs 37 are positioned in vertical alignment so that the feet 39 are positioned in telescoping arrangement with the tubular upright legs 34 of the pallets 21. After the frames 36 are in position the pallet 21 is positioned on the frames 36 in superposed relation. The legs 34 of the upper pallet are positioned so that the rounded feet 35 engage the upper ends of the legs 37 of the separator frame 36 in telescoping or socket-like engagement. In this manner the pallets are rigidly supported in superposed relation. After the pallets are thus stacked they are positioned so that the rounded feet 35 of the lowermost pallet engage the channels 40' in nesting engagement. The stacked pallets may thereupon be moved to the forward or rearward end of the car in order to position the same for transport. As the first group of stacked pallets is placed into position the retaining members 32 positioned at the forward ends of the pallets are, as best shown in Figure 1, moved into position beneath a retaining member 41 which is securely connected to one of the end walls 16 of the car. The retaining members 41 extend transversely and are substantially coextensive with the retaining members 32. As best shown in Figure 1 the retaining members 32 and 41 may be positioned in somewhat spaced vertical relation since these members need not engage each other under normal operating conditions. After the first group of stacked pallets has been thus positioned the operator ties down the rear end of the stacked pallets by means of flexible cables 42. This arrangement is best shown in Figures 1 and 2. The flexible cables are positioned so that they are connected at one end by means of eye-bolts 43 to one of the side walls 15 of the car. The cables are then stretched over the articles positioned on the pallets and they are securely connected by means of hooks 44 and eye-bolts 45 to an opposite side wall 15 of the car. The cables are stretched sufficiently taut so that the pallets are rigidly secured in the tracks 40 against possible vertical displacement.

After the first group of pallets has thus been stacked a subsequent group is moved along the tracks 40 to a position wherein the retaining member 32 of the pallets in the second group is in the position shown in Figure 1. It may be again pointed out that in this position the retaining member 32 is positioned in vertical registry with the retaining member 33 of the adjacent pallet. The retaining members need not engage each other during normal operation since they are provided merely to act as hold-down means during unusual conditions arising through the humping or sudden stopping of the car or transport device.

Subsequent groups of stacked pallets may be positioned in the car in the same arrangement. It can readily be seen that in order to properly secure the pallets against vertical displacement during ordinary transport the cables are sufficient to secure the pallets to the transport device. During abnormal conditions where the cars may be humped or sudden stops may occur the retaining members 32 and 41 and 32 and 33 respectively are sufficient to prevent the pallets from tipping or becoming vertically displaced with respect to the transport device. By the novel arrangement shown the full maximum space of the car may be utilized and it is not necessary to leave sufficient space for the shipper to have access for manually tying down both ends of the pallets. All the shipper or the operator must do is to place the flexible cables over the articles in the position shown in Figure 2 where one end of the device is securely held against vertical displacement. The cable is effective to secure the articles on the pallet and at the same time the pallet is secured to the bottom of the car. The opposite ends of the pallets are also positioned against possible vertical displacement by means of the retaining members which effectively operate as above indicated during extraordinary conditions. The track provides a means whereby the upper and lower pairs of stacked or superposed pallets may readily be moved in position and removed when the transport device has reached its ultimate destination.

It is believed the many advantages of this im-

proved construction are clearly apparent. The specification describes and the drawings show a preferred embodiment but it must be understood that changes in design and structure may be made without departing from the spirit of the invention as shown or the scope thereof as defined in the appended claims.

What is claimed is:

1. For a transport carrier having vertical walls; a palleting structure comprising lower and upper pallets, each having an article supporting base, leg members for supporting each base, means supporting the upper pallet on the lower pallet in spaced superposed relation, means for securing one end of each pallet to the carrier comprising a flexible member connected to the carrier and extending transversely over one end of each pallet, and a retaining member projecting outwardly from the other end of each pallet, the retaining members of the pallets being adapted to engage adjacent retaining members projecting outwardly from one of the walls for securing said pallets on the carrier against vertical displacement.

2. For a transport carrier; a palleting structure comprising a series of lower and upper pallets, each pallet including an article supporting base, upright leg members connected to opposite ends of the base for supporting each pallet, means supporting the upper pallets on the lower pallets in spaced superposed relation, means for securing each pallet on the carrier including a flexible member connected transversely across the pallet at one end thereof, and retaining members projecting outwardly from opposite ends of each pallet, the retaining members being arranged to engage retaining members connected to adjacent pallets for securing said pallets against vertical displacement.

3. For a transport carrier having a bottom, a palleting structure comprising a series of lower and upper pallets, each pallet including an article supporting base, upright leg members for supporting the base, separator frames positioned on the lower series of pallets, the frames including vertical supports adapted to register with the upper and lower pallets for supporting the upper pallets on the lower pallets in spaced superposed relation, means for securing the pallets to said carrier comprising a flexible member extending laterally over one end of each pallet for engaging and securing articles on each pallet, and retaining members projecting from opposite ends of the pallets, the retaining member at one end of a pallet being adapted to engage a retaining member projecting outwardly from an adjacent end wall, the retaining member at the opposite end of the pallet being adapted to engage a projecting retaining member connected to an adjacent pallet whereby the flexible members and the retaining members secure said pallets against vertical displacement with respect to said carrier.

4. For a transport carrier having a bottom; a palleting structure comprising a series of lower and upper pallets, each pallet including an article supporting base, upright leg members for supporting the base, separator frames positioned on the lower series of pallets, the frames including vertical supports adapted to register with the upper and lower pallets for supporting the upper pallets on the lower pallets in spaced superposed relation, a track supported on the bottom of the carrier, the track including longitudinally extending laterally spaced channels, the lower ends of said leg member being arranged to nest in said channels for securing the pallets against later displacement, means for securing the pallets to said carrier comprising a flexible member extending laterally over one end of each pallet for engaging and securing articles on each pallet, and retaining members projecting from opposite ends of the pallets, the retaining member at one end of a pallet being adapted to engage a retaining member projecting outwardly from an adjacent end wall, the retaining member at the opposite end of the pallet being adapted to engage a projecting retaining member connected to an adjacent pallet whereby the flexible member and the retaining member secure said pallets against vertical displacement with respect to said carrier.

5. For a transport carrier having bottom, side and end walls; a palleting structure comprising a series of lower and upper pallets, each pallet including a longitudinally extending article supporting base, upright leg members connected to the ends of the base, separator frames positioned on the lower series of pallets, the frames including vertical supports adapted to register with the upper and lower pallets in telescoping relation for supporting the upper pallets on the lower pallets in spaced superposed relation, a track supported on the bottom of the carrier, the track including longitudinally extending laterally spaced channels, the lower ends of said leg members being arranged to nest in said channels whereby the pallets may be moved in relative sliding relation with respect to the channels, means for securing the pallets to said carrier comprising flexible members extending laterally over one end of the pallets for engaging and securing articles on the pallets, means connecting the ends of the flexible members to the side walls of the carrier, and transversely extending retaining members projecting from opposite ends of the pallets, the retaining member at one end of a pallet being adapted to engage a retaining member projecting outwardly from an adjacent end wall, the retaining member at the opposite end of the pallet being adapted to engage a projecting retaining member connected to an adjacent pallet whereby the flexible member and the retaining member secure each pallet against vertical displacement with respect to said carrier.

6. For a transport carrier having bottom, side and end walls; a palleting structure comprising a series of lower and upper pallets, each pallet including a longitudinally extending article supporting base, upright leg members connected to the base at opposite ends thereof, separator frames positioned on the lower series of pallets, the frames including vertical supports adapted to register with the upper and lower pallets for supporting the upper pallets on the lower pallets in spaced superposed relation, a track supported on the bottom of the carrier, the track including longitudinally extending laterally spaced channels, the lower ends of said leg members being arranged to nest in said channels whereby the pallets may be moved in relative longitudinal sliding relation with respect to the channels, means for securing the pallets to said carrier comprising a flexible member extending laterally over each pallet for engaging and securing an article on each pallet, means connecting the flexible members to the side walls of the carrier, and transversely extending retaining members projecting from opposite ends of the pallets, the retaining member at one end of a pallet being adapted to engage a retaining member projecting outwardly from an adjacent end wall, the retaining member at the opposite end of the pallet

being adapted to engage a projecting retaining member connected to an adjacent pallet whereby the flexible member and the retaining member secure said pallets against vertical displacement with respect to said carrier.

7. For a transport carrier having bottom and end walls; a palleting structure comprising a series of lower and upper pallets, each pallet including a longitudinally extending article supporting base, upright leg members connected to the base, separator frames positioned on the lower series of pallets, the frames including vertical supports adapted to register with the upper and lower pallets for supporting the upper pallets on the lower pallets in spaced superposed relation, a track supported on the bottom of the carrier, said leg member being adapted to slide in the tracks whereby the pallets may be longitudinally moved on the bottom, means for securing the pallets to said carrier comprising a flexible member extending laterally over each pallet for engaging and securing an article on each pallet, means connecting the ends of the flexible members to the carrier, and retaining members projecting from opposite ends of the pallets, the retaining member at one end of a pallet being adapted to engage a retaining member projecting outwardly from an adjacent end wall, the retaining member at the opposite end of the pallet being adapted to engage a projecting retaining member connected to an adjacent pallet whereby the flexible member and the retaining member secure said pallets against vertical displacement with respect to said carrier.

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