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Glassmeyer

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[54] CARGO TRANSPORTING DEVICE

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[51] Int. Cl. B65d 19/38

[58] Field of Search 108/51-58; 220/6-8;
114/72; 214/10

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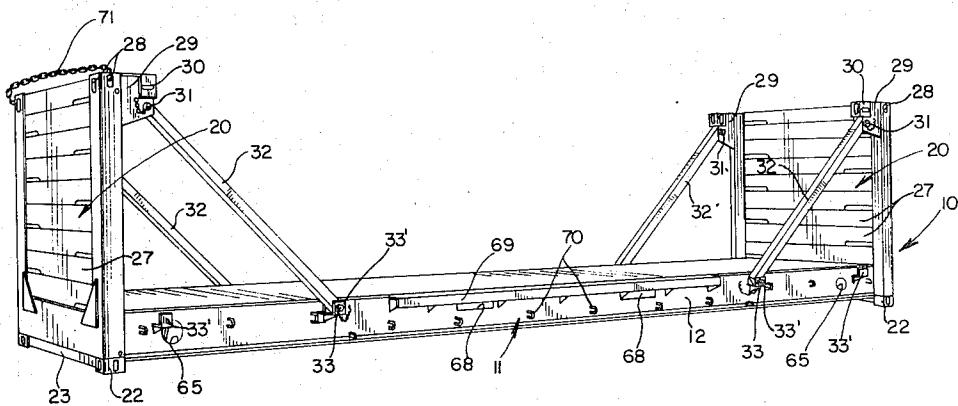
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[57]

ABSTRACT

A cargo transporting device which comprises a platform and frame assembly having at longitudinally opposite ends bulkheads, which in an upright position relative to the base, permit the handling and transporting of cargo secured to the platform. In another adaptation the bulkheads are movable in a hinged relation outwardly from the opposite ends of the platform and then are slideable horizontally underneath the frame to provide a different configuration providing for the handling of another type of cargo.

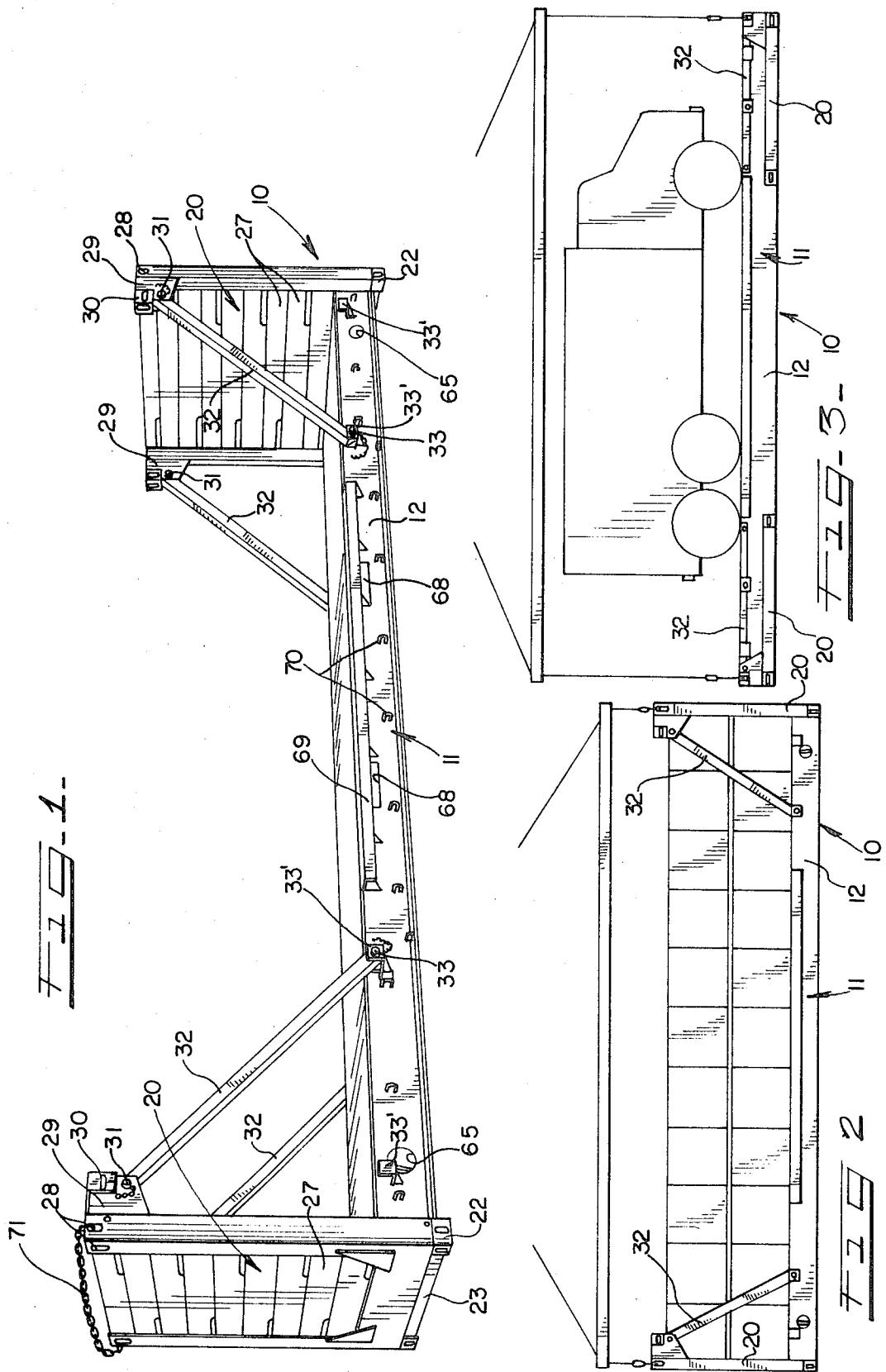
12 Claims, 16 Drawing Figures



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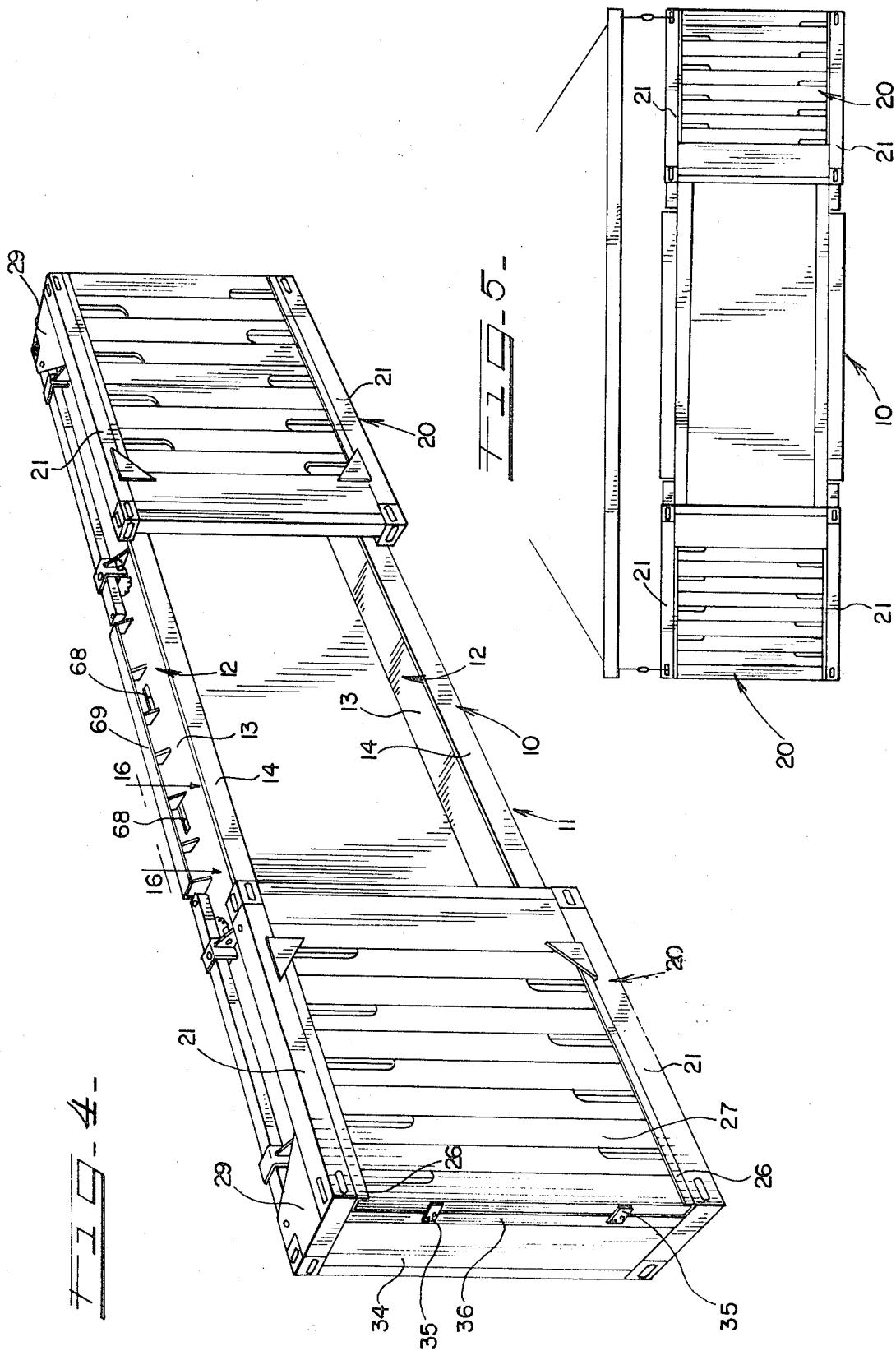
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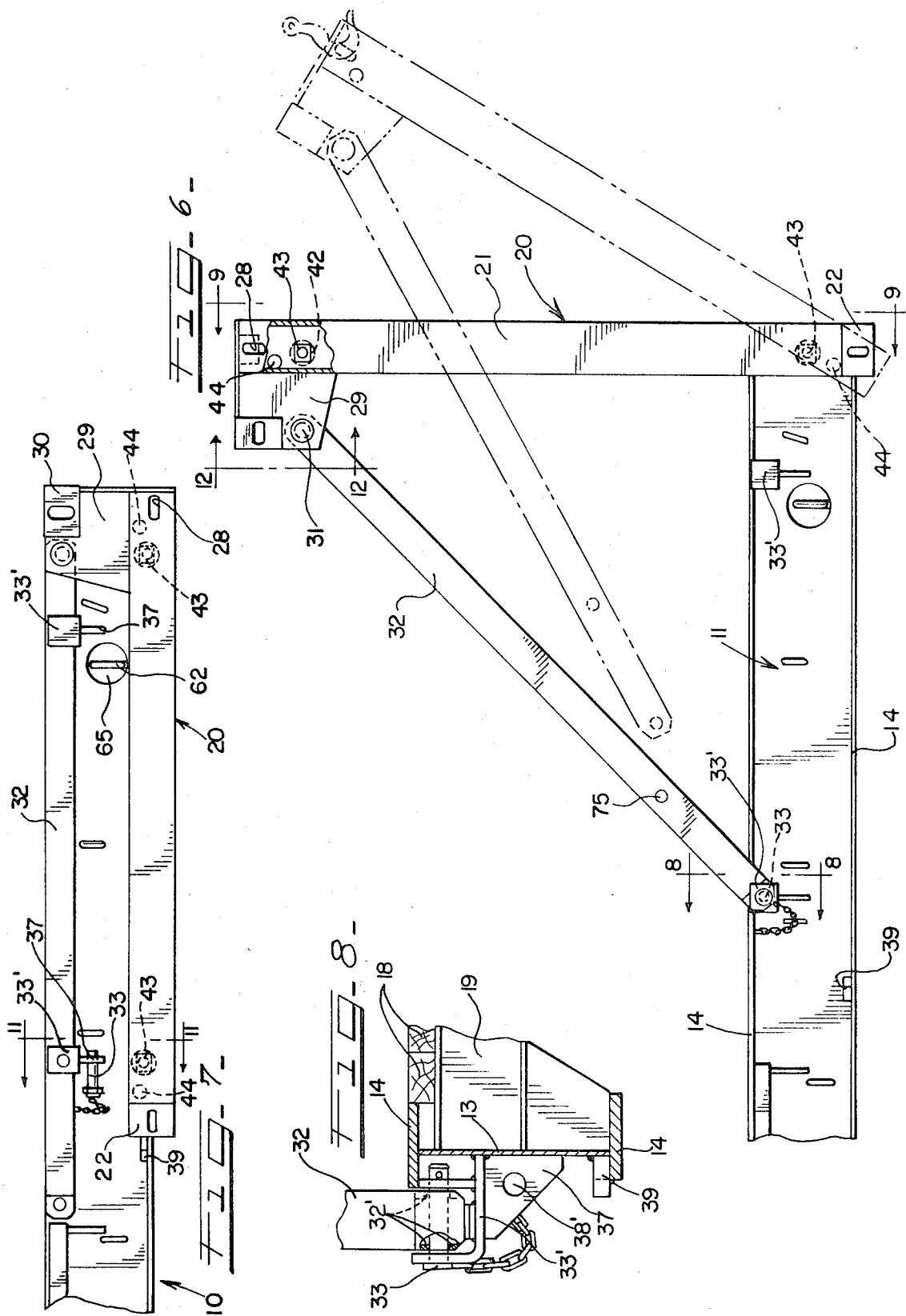
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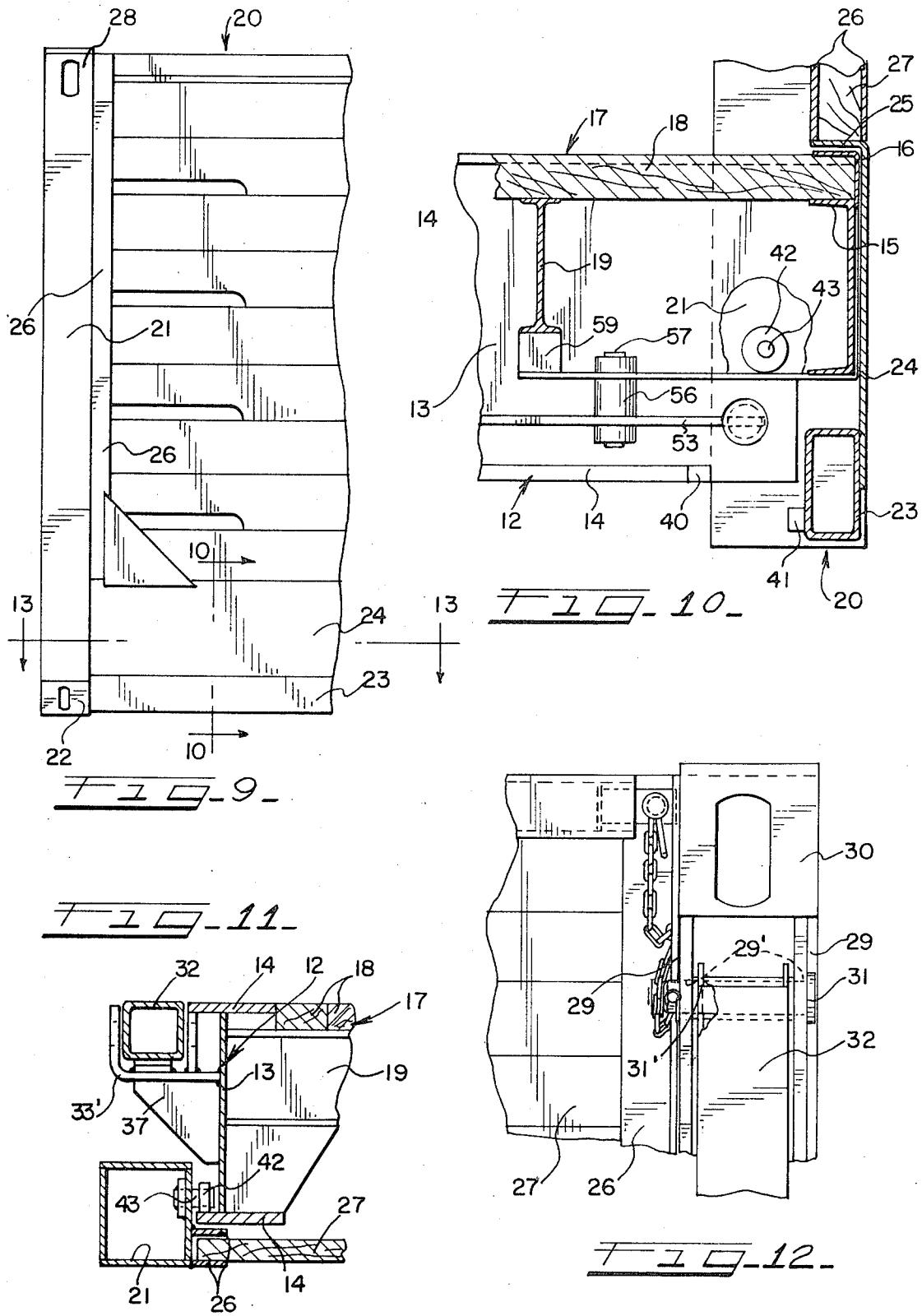
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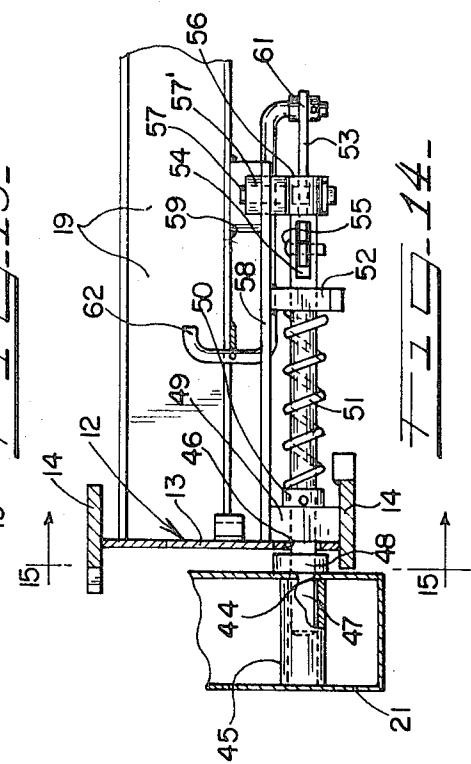
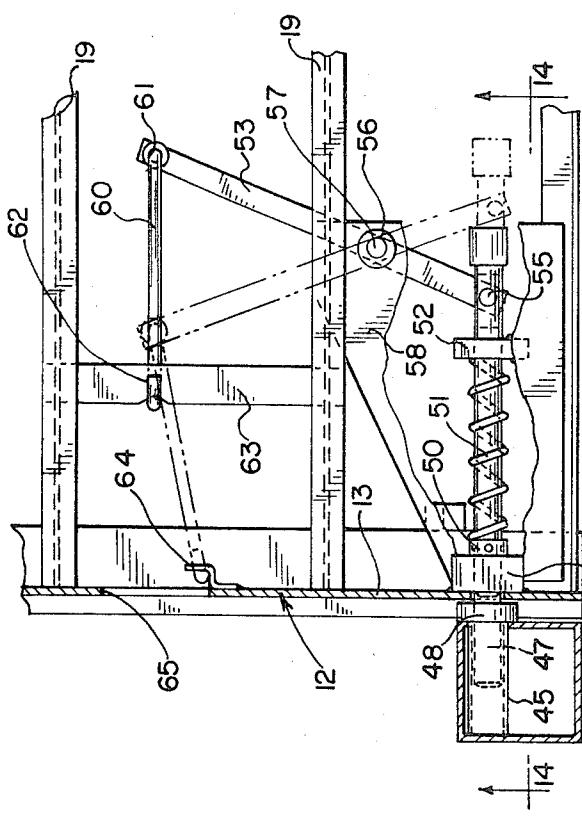
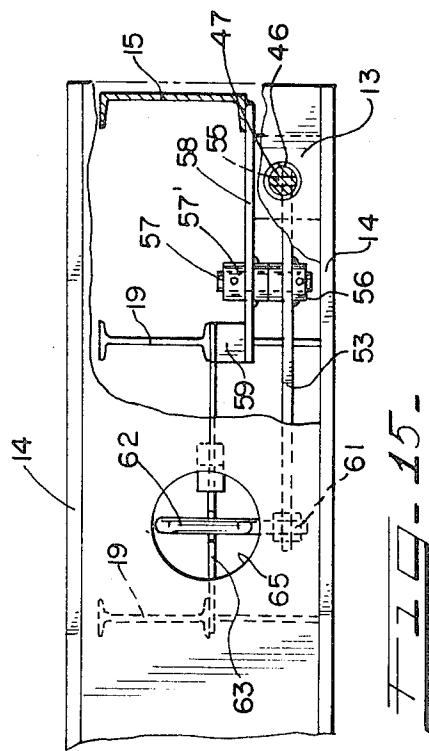
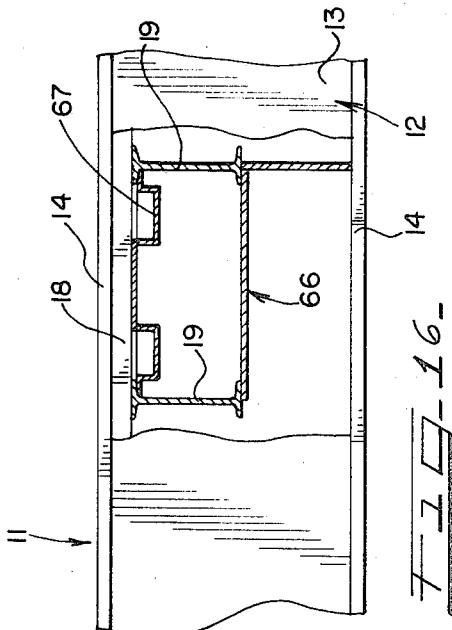
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CARGO TRANSPORTING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to transporting devices adapted to carry cargo thereon, the said devices being movable by material handling trucks or cranes, etc. into the hold of cargo ships or other shipping vehicles.

2. Description of the Prior Art

In the prior art which is exemplified in such patents as U.S. Pat. No. 2,956,763, Oct. 18, 1960, U.S. Pat. No. 2,780,382, Feb. 5, 1957, U.S. Pat. No. 3,499,398, Mar. 10, 1970 and U.S. Pat. No. 3,568,608, Mar. 9, 1971, portable pallets or collapsible containers are provided with platforms and vertical end walls or supports which are collapsible so that the pallets or the containers may be collapsed to a storage position, thus particularly facilitating the transporting of the empty pallets or containers when they are returned to the point of original shipment. Also, such devices may be useful in that the end walls which are hinged may be used in the vertical position for providing support during stacking operations when the pallets contain cargo to be stored. These arrangements, however, do not lend themselves readily for the adaptation of different handling configurations and the platform of such devices is not usable when the end walls are placed in the collapsed or storage positions. The present invention provides a distinctly different transporting device in that the configuration of the device is changed so that it may be used in a plurality of different transporting applications.

SUMMARY OF THE INVENTION

It is a prime object of the present invention to provide an improved transporting device for carrying cargo, the said device including a platform and frame assembly on which cargo is positioned. The device also includes at opposite ends bulkheads which may be secured in an upright position for containing cargo with the bulkheads also having provisions for being attached to a hoisting sling of a crane assembly so that the device may be readily transported and moved unto a cargo transporter. The bulkheads also include slidable means adapted to engage tracks carried on a frame assembly whereupon pivoting of the bulkhead in outward direction relative to the ends of the platform provides for hinging and simultaneous sliding movement of the bulkhead to a position underneath the platform whereupon the device may be utilized for other adaptations desired in the handling and transporting of cargo.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a transporting device;
FIG. 2 is a side elevational view of a transporting device showing one configuration thereof;

FIG. 3 is another view of the transporting device showing another configuration for transporting cargo;
FIG. 4 is a perspective view of a transporting device with bulkheads in a folded position;

FIG. 5 is a schematic side elevational view showing the hoisting of a transporting device;
FIG. 6 is an enlarged side elevational view showing one end of a transporting device with a bulkhead in an upright position;

FIG. 7 is a side elevational view of one end of a transporting device showing a bulkhead positioned in a folded position;

FIG. 8 is a cross sectional view taken substantially along the line 8-8 of FIG. 6;

FIG. 9 is an end elevational view taken substantially along the line 9-9 of FIG. 6;

FIG. 10 is a cross sectional view taken along the line 10-10 of FIG. 9;

FIG. 11 is a cross sectional view taken substantially along the line 11-11 of FIG. 7;

FIG. 12 is a cross sectional view taken along the line 12-12 of FIG. 6;

FIG. 13 is a cross sectional view taken substantially along the line 13-13 of FIG. 9;

FIG. 14 is a cross sectional view taken substantially along the line 14-14 of FIG. 13;

FIG. 15 is a cross sectional view taken substantially along the line 15-15 of FIG. 14; and

FIG. 16 is an elevational view taken along the line 16-16 of FIG. 4 showing a portion of a frame structure of a transport device with certain portions broken away.

DESCRIPTION OF THE PREFERRED EMBODIMENT

An improved transporting device 10 is disclosed in FIGS. 1, 2 and 3. The device 10 comprises an elongated frame 11 consisting of a pair of longitudinally extending and horizontally spaced I-beams 12. Each of the I-beams 12 includes an upright web 13 having connected thereto upper and lower flanges 14. As best shown in FIG. 10, a channel shaped end member 15 is suitably connected to the webs 13 and extends transversely with respect thereto for rigidly connecting the longitudinal ends of the I-beams 12. Each of the channel members 15 also has connected thereto an angle member 16 which confines and supports the longitudinal ends of a platform 17. The platform 17 comprises a plurality of longitudinally extending wooden beams 18 positioned in contiguous side by side relation and being supported on the channel members 15. Transversely extending I-beams 19 are longitudinally spaced throughout the length of the I-beams 12 and are suitably connected to the webs 13 for providing a rigid cross member structure.

Bulkheads 20 are positioned at opposite ends of the frame 11. Each bulkhead 20 comprises horizontally spaced corner posts 21 consisting of square tubing and each of these is provided at its lower end with a standard container corner fitting 22. Standard corner fittings 22 are of conventional construction and are standard in the container industry each including a plurality of openings through which container connecting members, crane hooks and other securing means may be inserted and connected in the standard operations of handling of containers. These are not described in detail since they are well known and conventional in the art.

As best shown in FIG. 10, each of the bulkheads 20 also includes at its lower end a rectangular, tubular cross member 23 rigidly connected to the corner posts 21. A plate 24 is connected to the members 23 and extends upwardly, being provided at its upper end with an inwardly turned flange 25. The flange 25, as indicated in FIG. 10, is spaced slightly above the angle member 16 and supports guide flanges 26 at their lower ends, the said guide flanges 26 also being connected to the inner surfaces of the corner posts 21 and extending upwardly therewith. The guide flanges 26 confine a plu-

rality of contiguous transversely extending boards 27 positioned in contiguous side by side relation. The upper ends of the corner post 20 also may contain special fittings provided with openings 28 which may be utilized for receiving the hoisting hooks of a crane assembly. As best shown in FIG. 12, a pair of spaced plates 29 are suitably secured to the upper ends of the corner posts 21 and project therefrom in parallel relation. Standard corner container fittings 30 are suitably secured to the plates 29 in a rigid manner. The plates 29 also include aligned openings 29' which support a locking pin 31. Each of the bulkheads 20 is secured in the upright position by means of two diagonal braces 32 provided at their upper ends with aligned openings 31' through which the pin 31 extends to secure the diagonal braces 32 to the base plates 29. The lower ends of the diagonal braces 32 include transversely extending openings 32' which receive a locking pin 33 removably connected to a U-shaped bracket 33' positioned on each of the vertical webs 13, whereby the braces 32 may be removably and rigidly connected to the frame 11 in order to support the bulkheads in their upright position, as shown in FIG. 6. As best shown in FIG. 4, a header plate 34 extends across the bulkhead and is secured to the inner spaced plates 29 and also includes a strip 36 to which tabs 35 are attached. The strip 36 may be removed to permit the boards 27 to be moved outwardly of the guides 26 in the event that it is desired to load the transporting device from the ends when the bulkheads 20 are in an upright position.

As best shown in FIG. 8, each of the U-shaped brackets 33' also is secured rigidly to the webs 13 by means of a gusset 37 having an opening 38 therein. Removable securing pins 33 which, as shown in FIG. 8, lock the lower ends of the diagonal struts 32 onto the brackets 33', may be inserted and carried in the openings 38 when the bulkheads are moved into a stored position. FIG. 6 also discloses stops 39 positioned on the lower flanges 14, these being engaged by the lower end of the corner post 21 when the bulkheads are moved to the lowered underneath position. As best shown in FIG. 10, stops 40 are provided on the flanges 14 and also stops 41 are secured to the rectangular tubular cross member 33. The stops 41 engage the stops 40 as the bulkheads are slid outwardly from underneath the frame, as will be described in more detail below. As best shown in FIG. 11, each of the corner posts also is provided with roller bearings or rollers 42 carried on shafts 43 suitably supported on the inner walls of the corner posts 41. As best shown in FIG. 6, two rollers 42 are provided for each post, one being located at the upper end of the post 21 and the other at the lower end. The rollers are adapted to slide or roll on the lower flanges 14. The lower ends of the corner posts 21 also on the inner surfaces are provided with lock openings 44 in alignment with the bore of a sleeve 45 suitably secured within the corner post 21, as best shown in FIG. 14. In the upright position of the bulkheads, as shown in FIGS. 6 and 14, the opening 44 of each corner post 21 is in alignment with an opening 46 provided in the corners at opposite ends of each of the webs 13. A lock rod 47, as shown in FIG. 14, projects through the openings 46 and 44 into the tubular sleeve 45 to lock the post 21 in an upright position. The lock rod 47 extends through an apertured block 48 secured to the inner side of the corner post 21 and extends inwardly through a guide block 49 secured to the web 13. A stop 50 is secured to the rod

47 and is engaged by a coil spring 51 seated against an apertured stop 52, suitably carried by a plate 58 supported on the web 13 and a cross member 19. A lever 53 is disposed in a slot 54 in the rod 47. The lever 53 is pivoted to said lever 47 by means of a pivot pin 55. A tubular bearing 56 on the lever 53 in turn is journaled on a pivot pin 57 supported in a bearing 57', in turn supported on the plate 58. As best shown in FIG. 15, the plate 58 is secured at one end by means of a spacer block 59 to one of the transversely extending cross members 19 and at its other end to the end channel 15. An actuating rod 60 is pivoted as indicated at 61 to the lever 53 and is provided at its end with a hook or handle portion 62, the same being retained on a longitudinally extending bracket 63, suitably supported on the cross members 18. The hook 62 may be secured to a bracket or catch 64 in a position wherein the lever 53 is moved to disengage and maintain the rod 47 from engagement with the corner post 41. As best shown in FIGS. 13 and 15, the webs 13 are provided with access openings 65 adjacent to the hook 62 so that the same may be engaged by an operator for actuating the mechanism. Similar lock rods and associated mechanism are provided in the other three corners of the frame.

25 As best shown in FIGS. 4 and 16, the frame 11 is also provided with a pair of transversely spaced box structures 66 which are supported on adjacent cross members 19. The box structure 66 includes fork engaging guides 17 which are in communication with openings 30 68 in the webs 13, as best shown in FIG. 4. Thus, lift forks may enter into the opening 68 and into the guides 67 whereby the transporting device may be lifted or hoisted by the conventional type of lift truck. An edge protecting structure 69 is also provided and suitably 35 supported on the webs 13, as best shown in FIG. 4. Further, a plurality of longitudinally spaced hooks 70 are positioned on the webs 13 for cooperating with cargo tie-down elements.

THE OPERATION

The present transport device is adapted to be placed into two configurations. In the configuration disclosed in FIG. 1, the device provides a flat deck type of container with the upright bulkhead end frames. The adaptation is disclosed in FIG. 2 wherein this type of configuration permits the loading of a plurality of different boxes, etc. which are carried on the platform and protected at their ends by the bulkheads which also retain them on the platform in stacked relation.

50 In the configuration shown in FIGS. 3 and 7, the bulkhead type of end frames have been retracted beneath the platform and the flat deck type of container or platform is provided without end frames or corner posts.

55 The configurations provide for three particular transport applications.

In the first configuration the transport device is capable of being loaded with suitable cargo to a height dictated by the location of the plane of the top surface of 60 the container fittings on top of the corner posts. A transport device so loaded can be placed anywhere in a stack with the standard type of box container having the same dimension and corner fittings either on the deck of a ship, in a ship's cell or in a marshaling yard. 65 Or the transport devices of similar configuration, of course, can be stacked one on top of the other in the same way that all box type of containers may be

stacked. In this same configuration the transport device can be used as a component in a system set upon the deck of a cargo carrying barge.

In the second configuration the transport device is capable of handling a load, which because of excessive height, or incapability of being easily loaded, would require the use of a configuration different than the aforementioned configuration. A large truck or machine tool would exemplify the type of load applicable to the second configuration. In this manner the barge can be horizontally compartmentized by placing the transport devices in horizontally contiguous relation and the absence of end bulkheads or obstructions provide for ready access to the individual units.

Also, in a second configuration, the transport device can be rotated 90° about its longitudinal axis so that it can be used as a vertical compartmentizing bulkhead as might be used to separate bulk commodities transported by barge. In other words, the transport device may serve as a complete bulkhead or compartmentizer between bulk commodities which have to be separated from one another as they are transported by ship or barge.

In the position of FIG. 1 with the bulkheads in an erect position, the device is suited for the transportation of bulk commodities, as shown in FIG. 2. To convert the device to the configuration shown in FIGS. 3 and 4, the following steps must take place:

A. A fork lift truck is actuated to engage the forks through the openings 68 and into the guideways 67 of each of the box structures 66. The forks are now raised, raising the transport device 10.

B. Suitable blocks are placed underneath the frame 11 so that it is maintained approximately 6 inches high from the ground.

C. A chain sling, as shown in FIG. 1, is now attached to the upper corner fittings through the openings 28.

D. The fork truck tines are placed under the chain sling loop and the slack is removed therefrom.

E. The pins 33 are now removed from the lower end of the diagonals 32 and the pins are stored in the openings 38.

F. The fork truck now is actuated to lower the tines, lowering the bulkhead frame to a horizontal position. The bulkhead frame is now also supported on suitable blocks and the rollers 42 closest to the openings 44 are carried on the lower flanges 14, as shown in FIG. 11.

G. The operator reaches through the access holes on each side of the transport device and grasps the release handle or hook 62 and by pulling outwardly disengages the pivot and lock pins 47. The hook is pulled sufficiently outwardly and is placed into the latch position shown in broken lines in FIG. 13. The spring 51 is now in tension and the locking rod 47 is disengaged from the openings 44 and sleeve 45.

H. The fork lift truck is now actuated to push the bulkhead frame longitudinally toward the transport device until the stops 39 are engaged by the corner casting 22, as shown in FIG. 7.

I. The operator now reaches through the access holes 65 on opposite sides and releases the hook or handles 62 from the clips of latches 64, whereupon the spring actuates the locking rods 47 into the openings 44 which are located adjacent to the openings 28. The bulkheads then are firmly retained on the I-beams 12 and beneath the platform in an out of the way position. The diagonals 32 lie and are supported on the brackets 33', as

shown in FIG. 11. In FIG. 7 the diagonals are also shown as carried in the brackets 33', and in order to lock the diagonals on the said brackets they are also suitably apertured, as indicated at 75 in FIG. 6, so that the pin 33 may be placed into one of the brackets 33' through the apertures 75 of the diagonals 32 to maintain them in the reclining position shown in FIG. 7. The same operation now takes place for the bulkhead at the other end of the device and in order to again place the bulkheads in the upright position, the operation as above described is reversed. Referring to FIG. 10, stop 41, when bulkhead 20 is in the horizontal position and is pulled outwardly it engages stop 40, whereupon pivoting of bulkhead about lock rods 47, which act as pivot members, causes stop 41 to move by stop 40 and bulkhead 20 can be raised to vertical position.

The transporting device may also be placed in the position shown in FIG. 4 where it is used as a complete compartmentizer or bulkhead by merely setting it on its end, as indicated. This can be achieved by using a fork truck and a series of chains which may be attached to the hooks 70 which also can be utilized for strapping cargo on the platform 17. In the event that it is desired to load the platform through the ends with the bulkheads in place, it is a simple matter to remove the boards 27 by removing the beam 36 and clips 35, whereupon the boards may easily be moved outwardly from the guide flanges 26, as shown in FIG. 4.

What is claimed is:

1. A transporting device comprising a platform having a frame including a horizontal load supporting surface, a bulkhead at each of the opposite ends of said frame, each bulkhead including a wall, having laterally spaced side members, brace members connected to said bulkheads and to said frame for supporting said bulkheads in one position vertically and extending upwardly with respect to said surface, means providing for movement of said bulkheads to a second position relative to said frame beneath and substantially parallel to said supporting surface, said means including tracks on said frame extending substantially parallel to said surface and inwardly from opposite ends of said frame, slide means on said bulkheads engageable with said tracks and means hingedly connecting said bulkheads to said frame whereby said bulkheads may be hingedly rotated from said first position to a relatively horizontal position and thereupon being slidably movable on said tracks to said second position.
2. The invention in accordance with claim 1, said brace members being disconnectible to provide for movement of said bulkhead between said first and second positions.
3. The invention in accordance with claim 1, said side members comprising corner posts having container brackets at opposite ends thereof adapted to be engaged by hoisting means in either of said positions.
4. The invention in accordance with claim 1, said frame including: horizontally extending laterally spaced beams having vertical webs, said tracks being disposed on said webs, and

said slide means being supported on said tracks outwardly from said webs whereby in said second position said side members of said bulkheads are disposed outwardly of said webs and said bulkhead walls extend horizontally beneath said frame.

5. The invention in accordance with claim 4, said slide means comprising at least a pair of rollers spaced adjacent opposite ends of said posts.

6. The invention in accordance with claim 1, said brace members extending diagonally in the first position of said bulkheads,

means hingedly supporting said brace members on said bulkheads, and

quick disconnect means connecting said brace members to said frame to provide for movement of said bulkheads between said positions.

7. The invention in accordance with claim 4, including apertures in one of said webs aligned horizontally with apertures in said other webs for providing access for the forks of a fork lift truck.

8. The invention in accordance with claim 1, said hinged connecting means comprising pivot members on said frame projecting from opposite sides thereof, said bulkhead side members including first openings

5 in engagement with said pivot members, during said second position of said frame, said first openings being disposed adjacent first ends of said side members,

said side members including second openings adjacent opposite ends of said side members, and said second openings being in engagement with said pivot members during the first position of said bulkheads.

9. The invention in accordance with claim 8, said pivot members being disengaged from said openings and retractable into said frame to provide for movement of said bulkheads between said positions.

10. The invention in accordance with claim 9, said pivot members comprising spring biased pins normally urging said pins into said engaged position.

11. The invention in accordance with claim 1, at least one of said bulkhead walls comprising a plurality of removable panels which upon removal provide an opening in said wall to facilitate end loading of said device.

12. The invention in accordance with claim 6, including means supporting said brace members on said frame on opposite sides thereof in the second position of said bulkheads.

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