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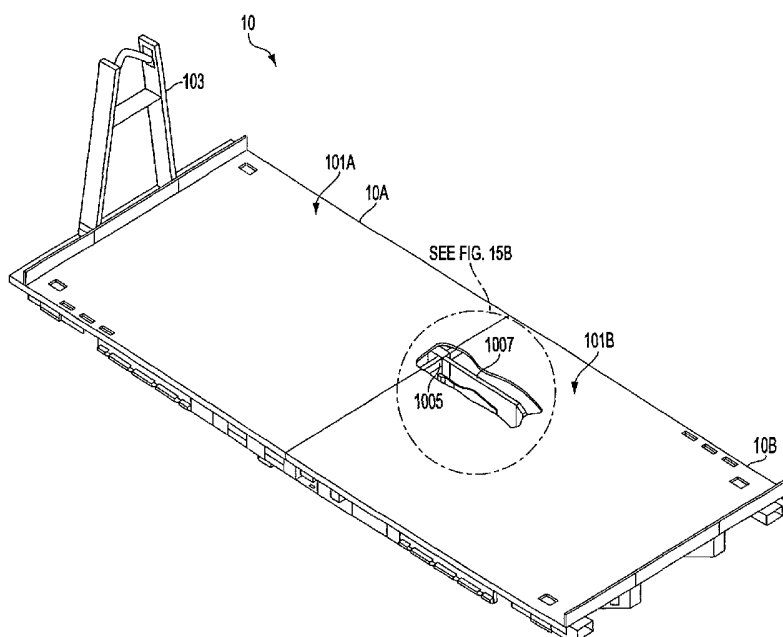
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(54) Title: AIRCRAFT AND TRUCK TRANSPORTABLE PALLET



(57) Abstract: A pallet designed to be loadable onto both an aircraft and a truck (in particular a PLS truck or other truck utilizing a hook system such as those used to load traditional CROPs or flatracks) and interface with restraint systems on both the aircraft and the truck without the pallet having to be unpacked and repacked in the transition. This will generally be a pallet for use with both United States C-130 and C-17 aircraft and United States HEMTT-LHS or PLS trucks, but can be adapted for use with aircraft and/or transportation vehicles of different types and/or used by different militaries or civilian organizations throughout the world.



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

BACKGROUND

1. FIELD OF THE INVENTION

This disclosure relates to the field of pallets for transporting cargo. In particular, to military pallets designed to be usable on both aircraft and ground vehicles without the need for unloading the cargo from the pallet between the aircraft and the ground vehicle.

2. DESCRIPTION OF THE RELATED ART

Military units around the world use a wide variety of transport vehicles for getting large quantities of diverse materials needed for effective combat operations from the plants or factories where those materials are manufactured, or from other positional sites for distribution, to the point where those materials are utilized. Logistical activities support a broad range of operations. One of the most critical materials that needs to be transported is ammunition. However, the movement of ammunition can be challenging because of its variety of shapes, its weight, and its explosiveness. In combat operations, these factors can lead to numerous logistical issues in getting ammunition from either the manufacturer or ammunition supply point to the soldier in the field. For instance, ammunition will often need to be transported by aircraft to reach a distant theater, but normally transport aircraft cannot land at the forward edge of the battle area or other similar points where the ammunition is most needed. Instead, specialty trucks usually move the material to an Ammunition Supply Point (ASP) where it can be distributed to combat forces.

Traditionally, the movement of materials, such as ammunition, in aircraft used specially constructed pallets generally referred to as 463L pallets (United States Air Force part number 98752 or identifying numbers NAS1921-B06-504, NAS 1399D6-4A, and/or NAS 1721H6-4F). These pallets are of a specifically designed shape and size for the loading and securing of the pallet in the aircraft through the locking rail restraint systems present in the aircraft, and, moreover, they are specifically constructed to be very strong for their weight.

The pallets used by transport trucks, on the other hand, are generally different because trucks are not as dependent on weight limits as aircraft, and instead generally utilize larger and more rugged transport pallets. In particular, the transport of pallets is generally performed by trucks with Pallet Load/unload Systems (PLS trucks). These trucks generally use pallets or "skids" such as those referred to as "flatracks" or "Container Ready On/off Platforms (CROPs)." Embodiments of these pallets are shown in United States Patent Nos. 4,911,318 and 5,799,585, the entire disclosures of which are herein incorporated by reference. These pallets are loaded using an overhead hook system (a PLS or a Load Handling System (LHS)) which pulls the pallet onto the back of the truck but heretofore has been unusable in connection with aircraft.

Because the two different transport systems generally use very different pallets, in order to transfer cargo from the aircraft to the truck (or vice-versa) it was necessary to remove the 463L pallet from the aircraft (often using what is commonly referred to as a K-loader, a specialized vehicle designed to handle and manipulate 463L compatible pallets), remove the 463L pallet from the K-loader, unpack the cargo from the 463L pallet, repack the cargo on a CROP or similar pallet, and then load the CROP on a truck for transport. This series of steps is inefficient as having to unpack and repack the materials on the different types of pallet requires significant man-hours of labor and is a hindrance in getting cargo such as ammunition, to a final destination as quickly as possible.

SUMMARY

Because of these and other problems described herein, and other issues known by those in the art, set forth herein is a pallet designed to be loadable onto both an aircraft and a truck (in particular a PLS truck or other truck utilizing a hook system such as those used to load traditional CROPs or flatracks) without the pallet having to be unpacked and repacked in the transition. This pallet will generally be described as a pallet for use with both United States C-130 and C-17 aircraft and United States Heavy Expanded Mobility Tactical Trucks (HEMTTs) including LHS systems (HEMTT-LHS) or other trucks with PLS or LHS systems. However, one of ordinary skill in the art would understand how the discussion can be adapted for use with aircraft and/or transportation vehicles of different types and/or used by different militaries throughout the world.

There is disclosed herein, in an embodiment, a pallet for use with a truck and an aircraft comprising: a deck having two spaced apart ends and two sides; a bail attached to the deck at a first of the spaced apart ends; an interface structure arranged along each of the two sides; and an inner set of longitudinal channels; wherein the interface structure allows the pallet to interface with a restraint system on an aircraft; and wherein the inner set of longitudinal channels and the bail allow the pallet to interface with a restraint system on the truck.

In an embodiment the restraint system on the aircraft is 463L compatible the restraint system on the truck is a Pallet Load/unload System (PLS), such as that. on a HEMTT-LHS truck.

In another embodiment, the pallet fits inside a standard 20 foot ISO container.

In another embodiment, the interface structure comprises an outer set of longitudinal channels, one of the longitudinal channels of the set attached to each of the sides and may include an adjustable pad attached to each of the longitudinal channels which may be moved

between at least two different positions relative to the deck such in the first position the pallet can to interface with the restraint system on an aircraft when the restraint system on an aircraft is arranged in a 88 inch configuration and a second of the at least two positions allows the pallet to interface with the restraint system on an aircraft when the restraint system on an aircraft is arranged in a 108 inch configuration.

In an embodiment, the bail is foldable relative to the deck, removable from the pallet, or rigidly attached to the pallet. The deck may comprise at least two 463L pallets. The pallet may be separable into at least two portions. If separable into two portions each of the portions comprises a 463L pallet, the two portions may be supported by support beams which can be moved relative to the deck through the use of a screw, or the two portions may be able to be separated, each independently rotated 90 degrees, and then interface with the restraint system on an aircraft.

In another embodiment, the pallet includes an articulating pad, the deck is removable from the inner set of channels or the aircraft is selected from the group consisting of: a C-17 and a C-130.

In a yet further embodiment of the invention, there is described in an embodiment, a pallet for use with a truck and an aircraft comprising: a deck having two spaced apart ends and two sides; means for interfacing the pallet with a restraint system on an aircraft; and means for interfacing the pallet with a restrain system on a truck.

Brief Description of the Drawings

FIG. 1 provides a perspective view of an embodiment of a pallet usable on both a truck and an aircraft.

FIG. 2 provides a perspective view of another embodiment of a multi-piece pallet usable on both a truck and an aircraft and including two bails.

FIG. 3 provides a more detailed view of a portion of the pallet of FIG. 1.

FIG. 4 provides a cutaway view of a portion of a pallet usable on both a truck and an aircraft.

FIG. 5 shows the embodiment of FIG. 1 with the adjustable pads retracted in their 88 inch configuration.

FIG. 6 shows the embodiment of FIG. 1 which the horizontal pads extended in their 108 inch configuration.

FIG. 7 shows the embodiment of FIG. 1 with the articulating pad deployed, as it might be when loading an aircraft.

FIG. 8 shows various surface views of the embodiment of FIG. 1 with the various pads removed. FIG. 8A is a top down view and FIG. 8B is view from one of the ends.

FIG. 9 shows the steps involved in transferring the cargo to and from an aircraft and to and from a firing position using a pallet usable on both a truck and an aircraft.

FIGS. 10-11 show various different views of a further embodiment of a pallet usable on both a truck and an aircraft which can have four portions of the deck be removable from the other structure. FIG. 10 is a perspective view, FIG. 11A is a top down view, FIG. 11B is a side view and FIG. 11C is an end view.

FIGS. 12-13 show various different views of a yet another embodiment of a pallet usable on both a truck and an aircraft which can have two portions of the deck be removable

from the other structure. FIG. 12 is a perspective view, FIG. 13A is a top down view, FIG. 13B is a side view and FIG. 13C is an end view.

FIG. 14 shows yet another embodiment of a pallet usable on both a truck and an aircraft which can have two pieces separable from each other, with the pieces separated. FIG. 14A shows the whole pallet, FIG. 14B shows detail of a cutaway section.

FIG. 15 shows a perspective view of the embodiment of FIG. 14 with the pieces connected. FIG. 15A shows the whole pallet, FIG. 15B shows detail of a cutaway section.

DESCRIPTION OF PREFERRED EMBODIMENT(S)

For the purposes of discussion, the embodiments discussed below will be pallets designed to interface with HEMTT-LHS style trucks and C-130 or C-17 aircraft. This is done purely for simplicity of description and one of ordinary skill in the art would understand how the description and discussion below could be adapted for use with other trucks and other aircraft.

The device discussed will generally be referred to as a "pallet." This term is intended to be used generically to refer to any generally flat deck transportation device where items to be transported can be placed thereon, and the device can then be placed on any type of transportation vehicle through any means known to one of ordinary skill in the art. Therefore, the term "pallet" is intended to include, but is not limited to, items which could alternatively be referred to as skids, flatracks, or "Container Ready On/off Platforms (CROPs)." A pallet can have enclosed sides or may be a six-sided container in addition to simply being a flat deck, depending on the embodiment. Additionally, the below disclosure will often refer to functionality or structure of existing devices. One of ordinary skill in the art would understand that this functionality is not necessarily limited to these devices and that the

functionality or structure of these devices is intended merely to be exemplary of how a pallet of the instant invention could be understood to operate or be designed.

FIG. 1 provides a depiction of the first discussed embodiment of the invention. The pallet (10) utilizes a unique structure to minimize weight while retaining current CROP characteristics and providing the necessary interfaces to be useable on the PLS truck and on the aircraft. The pallet (10) preferably retains many features of the current production CROP including a flat deck (101) upon which the materials to be transported are placed and attached (through tie downs (105), chains and/or any other method).

The deck (101) is preferably constructed so as to lend itself to the use of slip-sheets, or equivalent low friction surface, for "dumping" the cargo (load) off the platform as also is known to those of ordinary skill in the art. Also included is at least one bail (103), which is used by the PLS to lift the pallet on or off the truck, tie downs (105), stowage for equipment if necessary, and the appropriate interface with the PLS truck chassis.

Additionally, pallet (10) has unique features which permit direct interface with the cargo restraint rails of both the C-17, Logistics (88" bias) and Aerial Delivery System (108" bias), and the C-130 aircraft. In the embodiments of FIG. 1, the deck (101) of the pallet is comprised of at least one (more preferably exactly two) 463L pallets (131) and (133) (or sections of similar construction) which are placed adjoining each other and permanently attached to a series of cross beams (135) which are in turn permanently attached to two sets of longitudinal channels (137) and (139) that form the structural backbone of the pallet.

FIGS. 14 and 15 provide for an alternative construction to the rigid structure of FIG. 1. In FIG. 1 the longitudinal channels (137) and (139) are arranged so that the 463L pallets (131) and (133) are permanently attached relative to each other. In FIGS. 14 and 15 there is shown an embodiment whereby the two 463L pallets (131) and (133) can be separated by manufacturing the pallet (10) into at least two portions. Further, the principles of FIGS. 14

and 15 allow for alternative embodiments which do not utilize 463L pallets (131) and (133) but utilize similar construction methods to manufacture the deck (101).

In FIGS. 14 and 15, the longitudinal channels (137) and (139) are all separable into at least two distinct portions (e.g. (139A) and (139B)) so that the deck (101) can essentially be broken in half. This feature can facilitate storage of the air transportable pallet (10) in several configurations when empty, or could be used to make the size of the air transportable pallet (10) smaller for transport or loading into aircraft.

There are many mechanisms which may be used to attach the two portions of the air transportable pallet (10) together. In the depicted embodiment, the portions are attached in the following manner and using the following structure. One of ordinary skill in the art would understand, however, that alternative structures could be used in alternative embodiments of the invention. Beginning with the arrangement of FIG. 14, a front half (10A) and back half (10B) section are brought together so that the deck surfaces (101A) and (101B) are generally coplanar. The portions are then pushed together by any known method placing alignment pins (1001) and (1003) into the corresponding receptacles (not visible). Once so arranged, the two halves (10A) and (10B) are aligned in the proper manner. The user may then lock them together.

In the depicted embodiment, the locking occurs by utilizing two separate mechanisms. First load binders (1005) are removed from their stowage position and are used to attach the two halves (10A) and (10B) together. The user then extends support beams (one of which is visible in the cutaway of FIG. 15 as support beam (1007)) which will extend from inside at least one of the longitudinal channels (in this case channel (139A)) into a hollow portion of a corresponding longitudinal channel on the other half. One of these hollow "pockets" is shown as (1107) in the cutaway section of FIG. 14.

This extension may be accomplished by any methods and mechanisms known to one of ordinary skill in the art but it is preferred that they be extended through the use of screw shafts and some form of wrench, preferably with the screw head accessible when the air transportable pallet (10) is sitting on a flat surface (e.g. the screw head may be located on the edge of the air transportable pallet (10) down near the connector for the bail (103)). Once the support beams (1007) are fully extended, the two halves (10A) and (10B) are essentially bound together and are secured with the crack between them supported over the support beams (1007). This helps to prevent the two halves (10A) and (10B) from separating when weight is placed on the deck (101). To separate the two halves (10A) and (10B), the steps above need merely be reversed.

FIGS. 2 and 10-13 provide for yet other alternative embodiment. In these embodiments the deck (101) is designed to be constructed of modular components. These components are attachable and detachable to/from each other and the rest of the structure through specially constructed interfaces. In an embodiment, the components of the deck (101) are 463L pallets of the type known to those of ordinary skill in the art. As will be understood, the 463L pallets can be removed from the other supporting structure so as to be generally the same size and shape as a 463L pallet of the prior art. This unique feature allows the connected units to be loaded/unloaded from a HEMTT-LHS or PLS vehicle in a conventional manner and also permits pre-configured loads to be separately delivered to individual locations without the need for other material handling equipment (MHE), such as fork trucks or cranes, for either repacking or unloading of cargo. Further, it allows for the load to be removed from the structure of the pallet (10), if necessary, while still retaining the load in a prepacked form suitable for use with 463L compatible restraint systems.

In an alternative embodiment, the deck (101) need not be constructed of 463L pallets but may be constructed using similar techniques to the 463L pallet to maintain rigidity and

weight, while having the deck (101) formed of a single piece, or of pieces of different shapes from 463L pallets which may or may not be separable. In still another embodiment, the deck (101) could be manufactured of sheet metal and/or transverse extrusions, or deck (101) may comprise a composite of specially manufactured components and 463L pallets.

FIGS. 3 and 4 show additional detail of the embodiment of FIG. 1 but the discussion is equally relevant to all the depicted embodiments. The components of the pallet (10) are arranged for use in loading systems for either a PLS truck or an aircraft. Looking at the PLS truck first, the inner set (139) of longitudinal channels are preferably placed so as to duplicate the location of the center rails on current production CROPs. That is, the inner set (139) of longitudinal channels is positioned so as to interface with a LHS or PLS system of the prior art in a manner similar to the interaction currently used. By "recreating" this interface, the pallet (10) can be readily loaded and/or unloaded onto trucks designed to carry CROPs such as the HEMTT-LHS. The inner set (139) of channels provides the surface area for the interface between the pallet (10) and the truck.

The pallet (10) also includes bail (103) so that the PLS or LHS can lift the pallet in the same manner it lifts a traditional CROP. In an embodiment, the bail (103) may be rigidly attached or may be collapsible. If collapsible, the bail may be foldable such as the bail shown in United States Patent No. 5,799,585, may be retractable by "folding" underneath the deck (101) of the pallet (10), may be removable and separately stowed, or may fold into another position.

The interface structure, which in the depicted embodiment includes the outer set (137) of channels and the adjustable pads (141) is preferably located at the outer edges of the deck (101) and/or is positioned to align with the cargo rollers found in an aircraft. Loads will be transferred through these two structural members when on/off loaded and when secured into

the cargo compartment of the aircraft. The surface area of the channels can help to ensure sufficient roller contact.

In an embodiment, there may be horizontally adjustable pads (141) attached to the outer channels (137). These pads (141) can allow the pallet (10) to be locked in place in the aircraft or on K-loaders regardless of the width of the area where loading occurs. This adjustable feature preferably allows the pads to swing, slide, extend, or otherwise move between positions that allow appropriate interface with at least the 88 inch and 108 inch restraint rail systems commonly found in the C-17 and the C-130 aircraft, such as is shown in FIGS. 5 and 6. These adjustable pads (141) will preferably also provide the fore and aft load path. Adjustable pads (141) may also serve as or include a locking mechanism (161) for use onboard the aircraft for engaging the restraint system. The pallet (10) therefore can incorporate features which mate with the roller and restraint rails found in both the C-17 and C-130 aircraft.

The longitudinal structure of the channels (137) and adjustable pads (141) are generally configured to distribute the load from the pallet (10) across a sufficient number of rollers to ensure roller ratings are not exceeded as the pallet (10) is loaded into the aircraft or onto the K-loader. The pads (141) are also positionable to accommodate either the 108 inch or 88 inch rail spacing without the use of additional materials or reconfiguration of cargo allowing for use with an unexpected aircraft arrangement. In an embodiment, to improve interfacing, the spacing will be similar to an HCU-6E two or three pallet train. This arrangement may eliminate the need for chaining of the load as is understood by those of ordinary skill in the art, but the need for chaining will generally still be dictated by the capacity of the aircraft restraints, the gross weight, and/or the discretion of the aircraft loadmaster.

In the embodiment of FIGS. 14 and 15, loading may be accomplished by either the above, or, after separation of the two halves, each half may be loaded and secured separately. In an embodiment this can involve rotating each half 90 degrees from the position in which it is placed when the two halves are connected together and inserting the halves into the aircraft in that configuration. This essentially places the halves side to side instead of front to back as shown in FIGS. 14 and 15.

In an embodiment, the pallet (10) is configured and sized so as to generally be placed fully loaded in a standard 20-foot ISO container. In particular, the pallet (10) may provide capability to ship configured loads from the depot level to the user without the need for reconfiguration. The pallet (10), in an appropriately configured embodiment, will then be able to be inserted into and removed from a 20 foot ISO container utilizing only the PLS truck in the same manner that a traditional CROP is so utilized and preferably without removal of cargo from the pallet.

FIGS. 10-13 provide for two more alternative embodiments. In particular, in these embodiments, one or more portions of the deck (101) (which may correspond to one or more 463L pallets) may be removable from the main structure such as through the use of a forklift. It is preferable in this embodiment, that the materials on the portion need not be removed when the portion is removed. This allows for the portion to remain loaded instead of having to be unloaded when removed. This portion could then be placed in another structure, depending on what is to happen with it (for instance it may be attached directly to a specially designed transport truck, or a 463L pallet could be loaded into an aircraft to interface directly with the locking system of the aircraft in the standard fashion). The embodiments of FIGS. 10-13 also show some alternative arrangements of locking the components of the deck (101) to the structural backbone of the pallet. There are also shown alternative embodiments of adjustable pads (141) and articulating pads (701).

In an embodiment, the weight of the pallet (10) has been calculated to be about 2,000 pounds. This is accomplished with the use of lightweight materials assembled to form an efficient structure. The structure in this embodiment, although lightweight, will generally support a gross weight of about 26,400 pounds in all operating environments.

In an embodiment, the pallet (10) can be loaded directly onto the aircraft by the PLS truck without the need for a K-loader. In another embodiment, the pallet (10) can be loaded directly to or from the PLS truck from or to a K-loader which can interface with the aircraft. This allows for flexibility in loading. The operations described below envision that the PLS truck is permitted at or near the aircraft for loading and unloading operations to directly load from the PLS truck to the aircraft.

For off-loading an aircraft, the pallet would be positioned onto the horizontal aircraft ramp. The PLS truck is positioned to up-load the pallet (10) by the PLS grasping the bail (103) and loading the pallet (10) from the ramp in the same way it would if loading from the ground. Loading the pallet (10) onto the aircraft from a PLS truck would be the reverse of aircraft unload described above. The pallet would be “dumped” off the truck onto the aircraft ramp (or into the aircraft body). In an embodiment, the pallet (10) may also include an integral articulating pad (701) to help with loading/unloading of aircraft. This pad will generally have two positions, a stowed position (such as that shown in FIG. 1) and a loading position (such as that shown in FIG. 7). This pad (701) distributes the load of the pallet across an increased number of cargo rollers during the pallet’s insertion into the aircraft. The articulating pad (701) therefore preferably compensates for the angular difference between the pallet and the aircraft ramp or loader. The articulating pad (701) is preferably manually brought into position before the pallet is offloaded from the transport vehicle, but may be utilized, or not utilized, in any manner.

Combat offload of the pallet (10) would generally be accomplished in accordance with existing combat offload doctrine and according to the steps of FIG. 9. The aircraft lowers its ramp so it is inches above the ground as shown in step (901) of FIG. 9. The pallet and cargo are released to slide down the ramp. The front edge of the pallet (10) (coming down the ramp) hits the ground first, the aircraft then drives out from underneath the rest of the pallet (10), allowing it to fall flat once the ramp clears. The PLS truck later approaches the pallet (10) in step (903) of FIG. 9, lifts it onboard, and transports it to the firing point in step (905) of FIG. 9. Loading the aircraft essentially reverses the steps, although in FIG. 9 an optional step of loading a K-loader from the PLS truck for use in loading the aircraft is included. In particular, the PLS truck picks up the pallet (10) and transports it to the vicinity of the aircraft in step (911) of FIG. 9 the pallet is then off-loaded from the PLS truck directly to the K-loader or to the ground and then the K-loader in steps (913) and (915) of FIG. 9 (or alternatively to the aircraft is loaded directly). The pallet (10) is then loaded on the aircraft in step (915) of FIG. 9.

In an embodiment, Cargo offloading and retrograde of the pallet (10) would be performed in the same fashion as the current production CROP. Although there are additional features added to the basic CROP configuration, the pallet (10) can be configured so that the features will not interfere with the ability to stack the platforms for retrograde. In the embodiment of FIGS. 14 and 15 the pallets (10) could also be broken down into component halves for retrograde.

While the invention has been disclosed in connection with certain preferred embodiments, this should not be taken as a limitation to all of the provided details. Modifications and variations of the described embodiments may be made without departing from the spirit and scope of the invention, and other embodiments should be understood to be

encompassed in the present disclosure as would be understood by those of ordinary skill in the art.

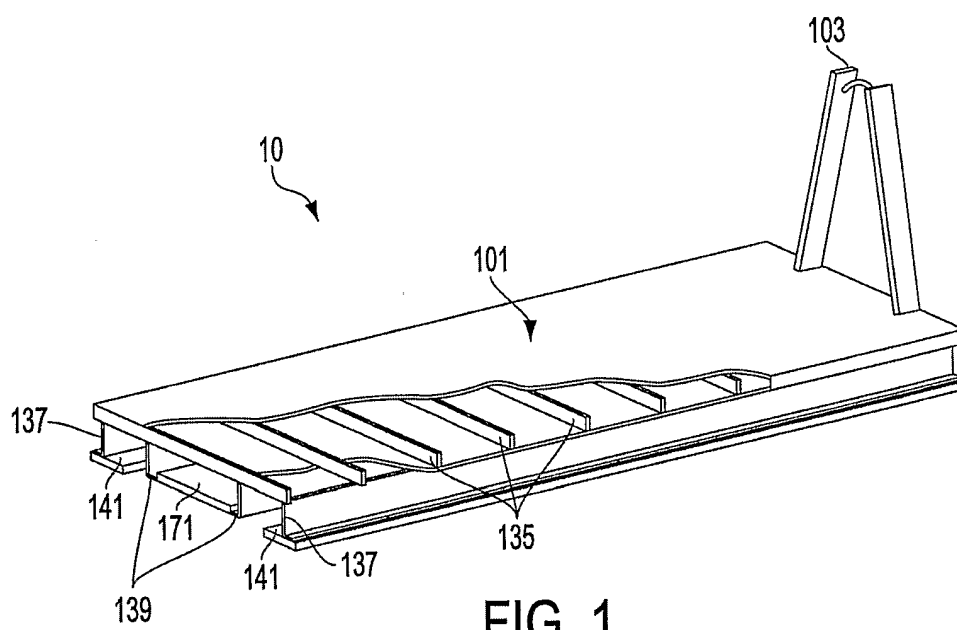
CLAIMS

1. A pallet for use with a truck and an aircraft comprising:
 - a deck having two spaced apart ends and two sides;
 - a bail attached to said deck at a first of said spaced apart ends;
 - an interface structure arranged along each of said two sides; and
 - an inner set of longitudinal channels;wherein said interface structure allows said pallet to interface with a restraint system on said aircraft; and
 - wherein said inner set of longitudinal channels and said bail allow said pallet to interface with a restraint system on said truck.
2. The pallet of claim 1 wherein said restraint system on said aircraft is 463L compatible.
3. The pallet of claim 1 wherein said restraint system on said truck is a Pallet Load/unload System (PLS).
4. The pallet of claim 1 wherein said truck comprises a HEMTT-LHS truck.
5. The pallet of claim 1 wherein said pallet fits inside a standard 20 foot ISO container.
6. The pallet of claim 1 wherein said interface structure comprises an outer set of longitudinal channels, one of said longitudinal channels of said set attached to each of said sides.
7. The pallet of claim 6 wherein said interface structure further includes an adjustable pad attached to each of said longitudinal channels.
8. The pallet of claim 7 wherein said adjustable pad may be moved between at least two different positions relative to said deck.
9. The pallet of claim 8 wherein a first of said at least two positions allows said pallet to interface with said restraint system on an aircraft when said restraint system on an aircraft is arranged in a 88 inch configuration and a second of said at least two

positions allows said pallet to interface with said restraint system on an aircraft when said restraint system on an aircraft is arranged in a 108 inch configuration.

10. The pallet of claim 1 wherein said bail is foldable relative to said deck.
11. The pallet of claim 1 wherein said bail is removable from said pallet.
12. The pallet of claim 1 wherein said bail is rigidly attached to said pallet.
13. The pallet of claim 1 wherein said deck comprises at least two 463L pallets.
14. The pallet of claim 1 wherein said pallet can be separated into at least two portions.
15. The pallet of claim 14 wherein said pallet can be separated into exactly two portions.
16. The pallet of claim 15 wherein the deck of each of said portions comprises a 463L pallet.
17. The pallet of claim 15 wherein said two portions are supported by support beams.
18. The pallet of claim 17 wherein said support beams can be moved relative to said deck.
19. The pallet of claim 18 wherein said movement is accomplished through the use of a screw.
20. The pallet of claim 15 wherein said two portions can be separated, each independently rotated 90 degrees, and then interface with said restraint system on an aircraft.
21. The pallet of claim 1 further including an articulating pad.
22. The pallet of claim 1 wherein said deck is removable from said inner set of channels.
23. The pallet of claim 1 wherein said aircraft is selected from the group consisting of: a C-17 and a C-130
24. A pallet for use with a truck and an aircraft comprising:
a deck having two spaced apart ends and two sides;
means for interfacing said pallet with a restraint system on an aircraft; and
means for interfacing said pallet with a restrain system on a truck.

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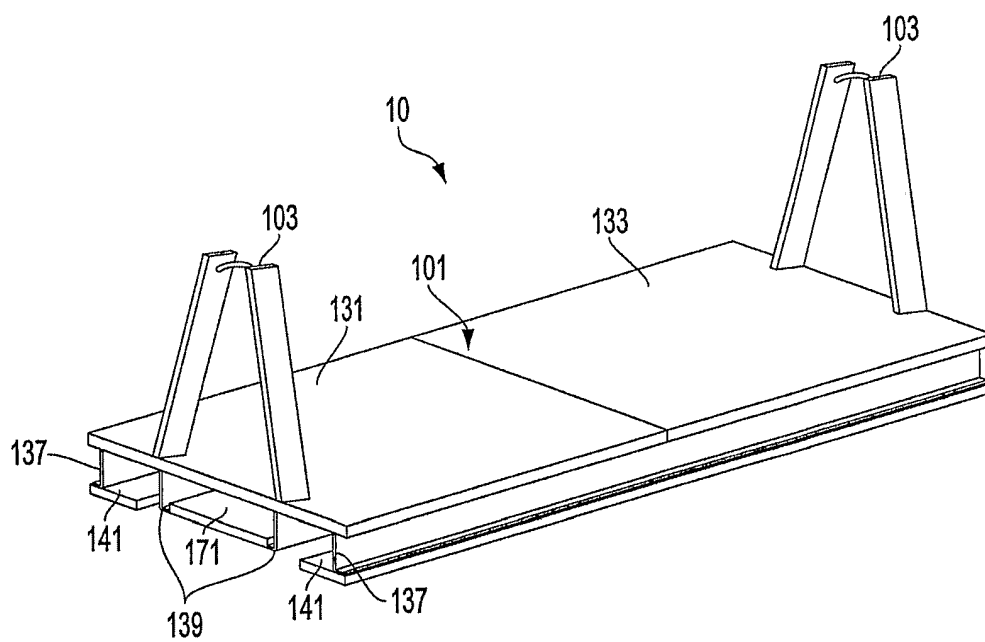


FIG. 2

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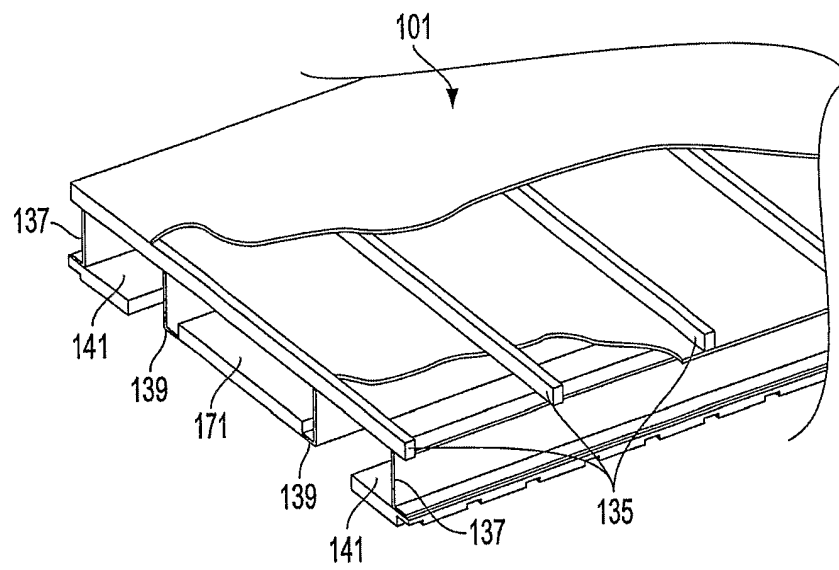


FIG. 3

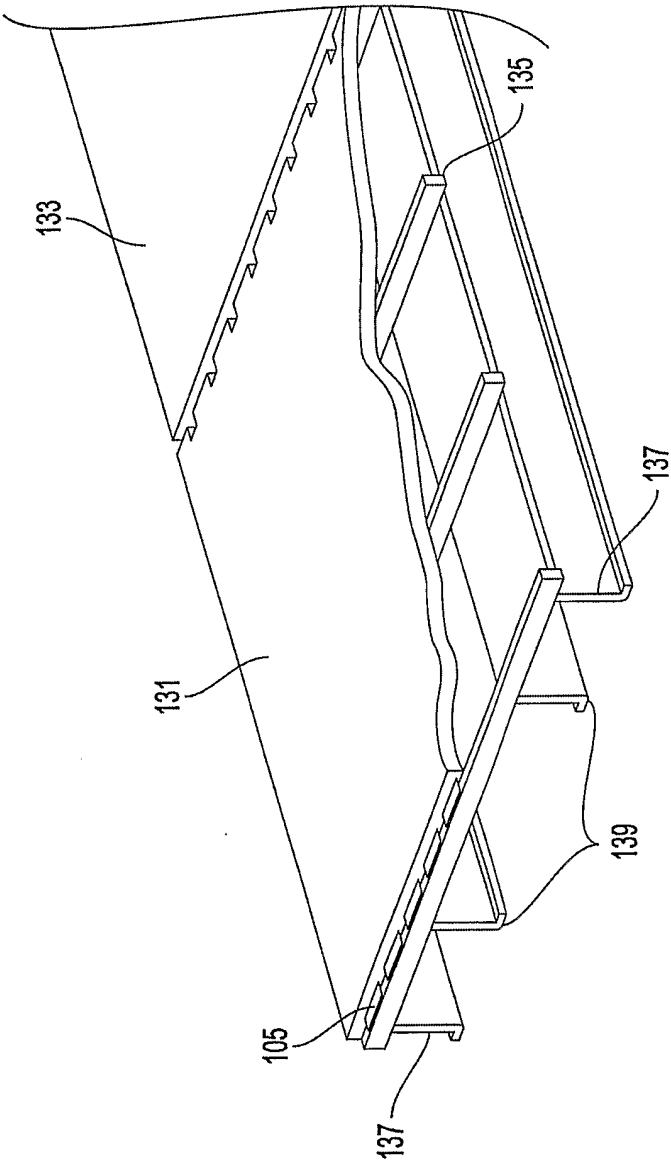


FIG. 4

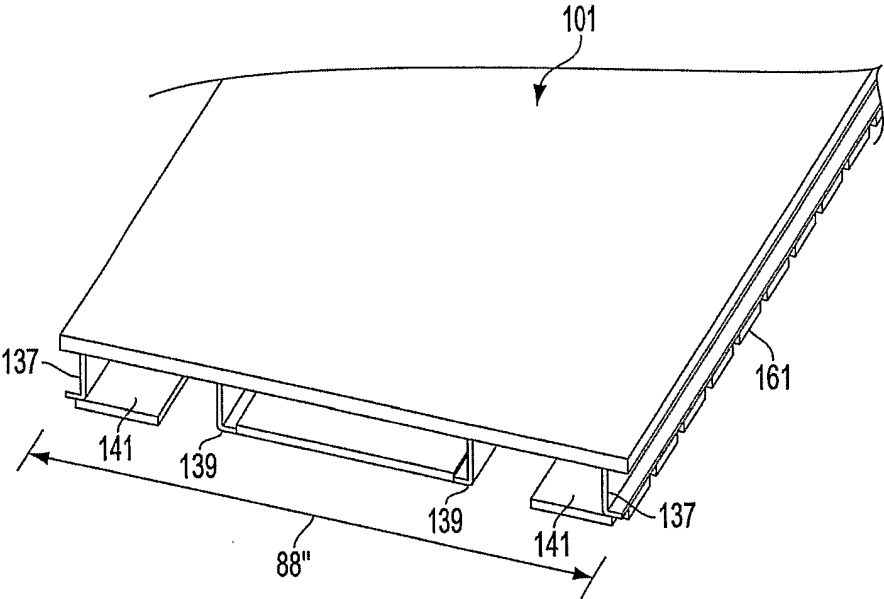


FIG. 5

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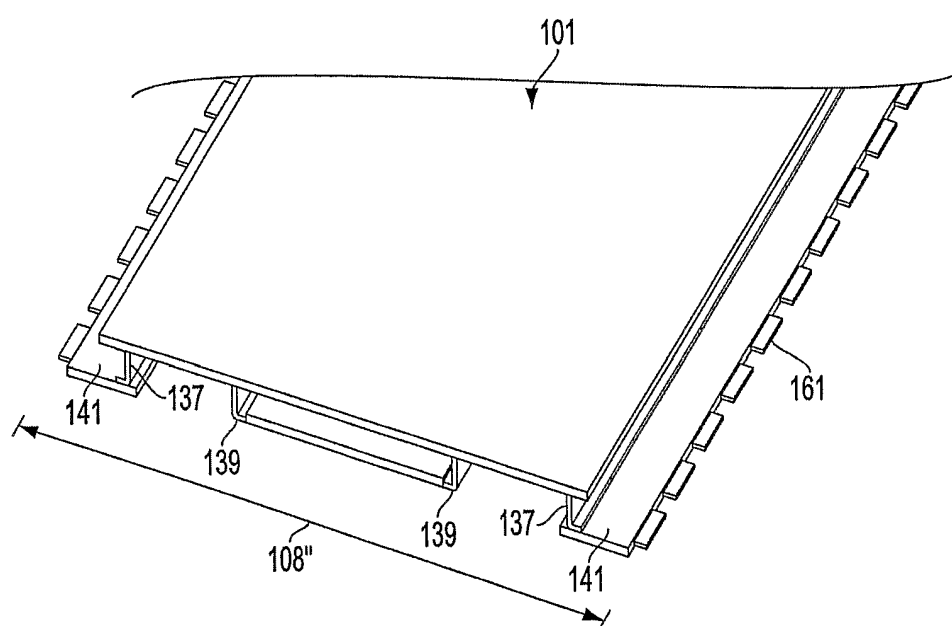


FIG. 6

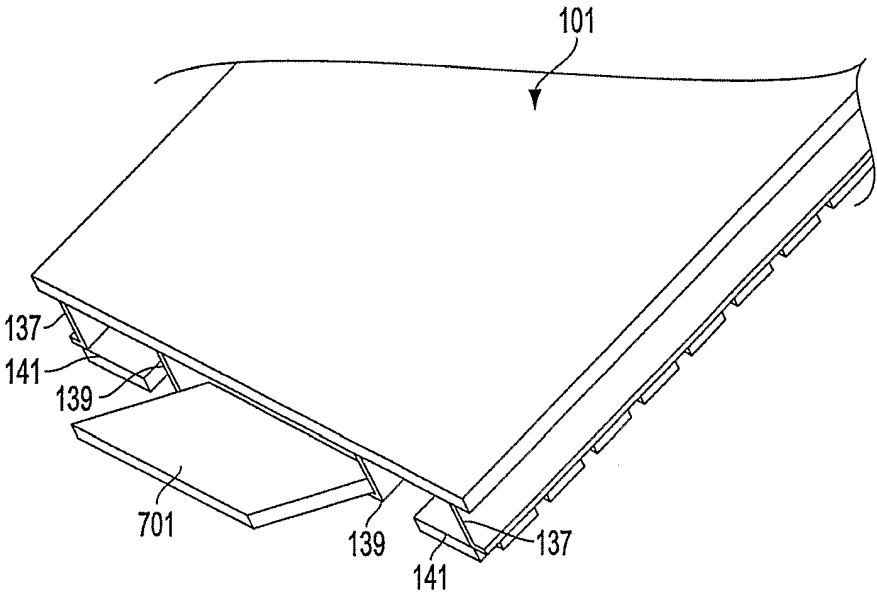


FIG. 7

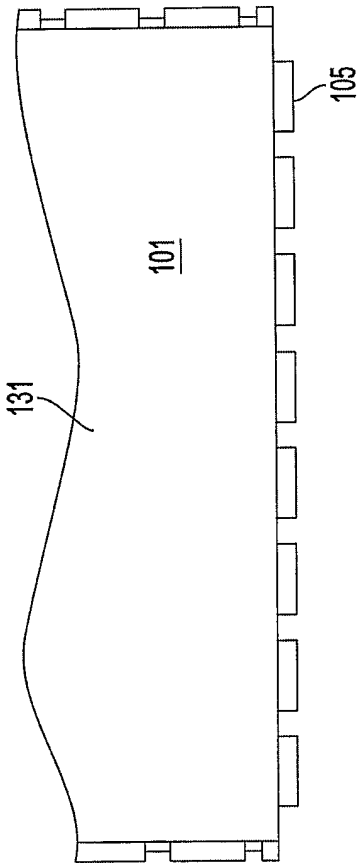


FIG. 8A

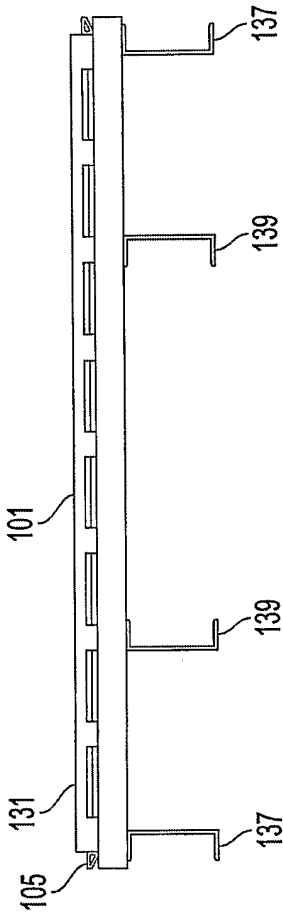


FIG. 8B

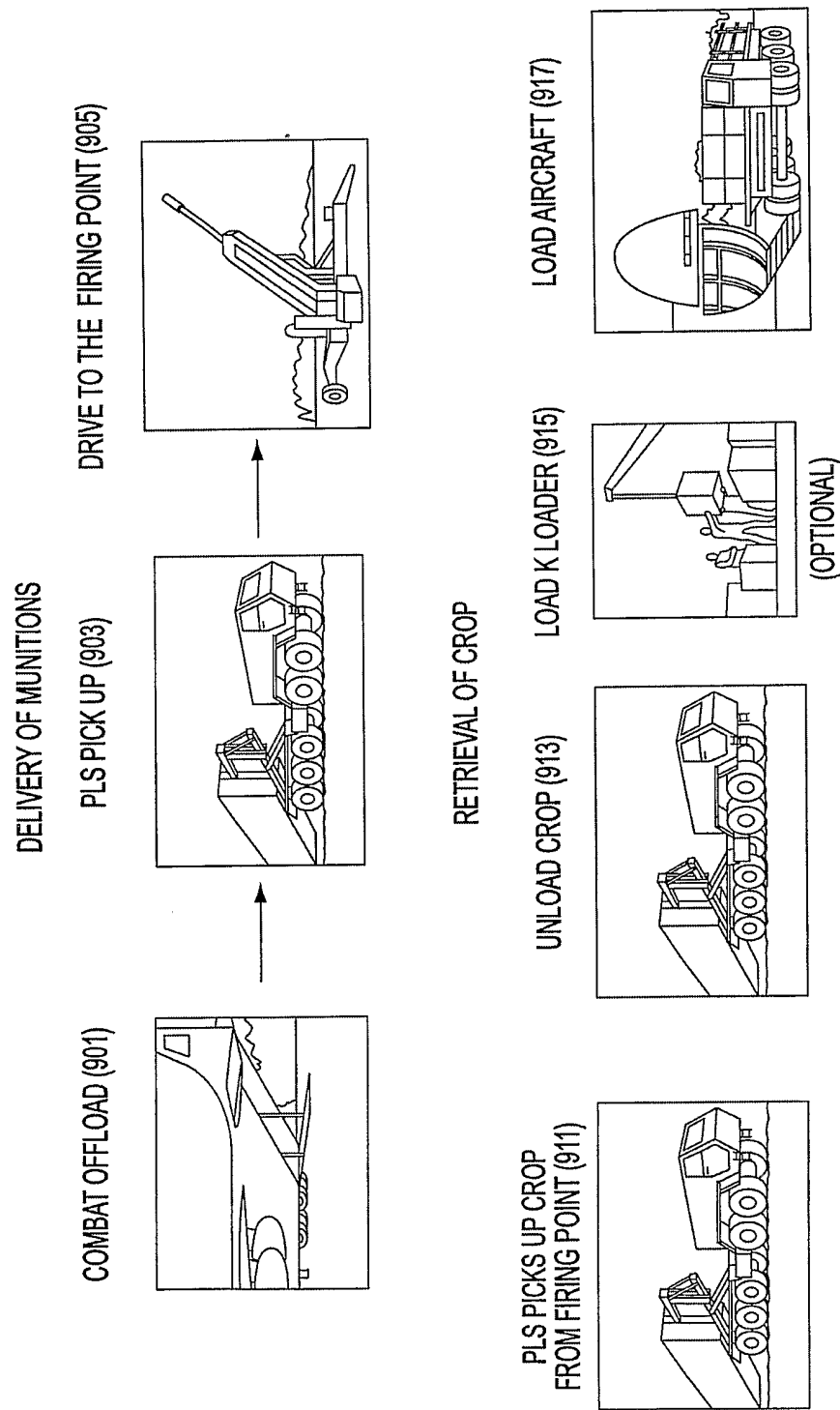


FIG. 9

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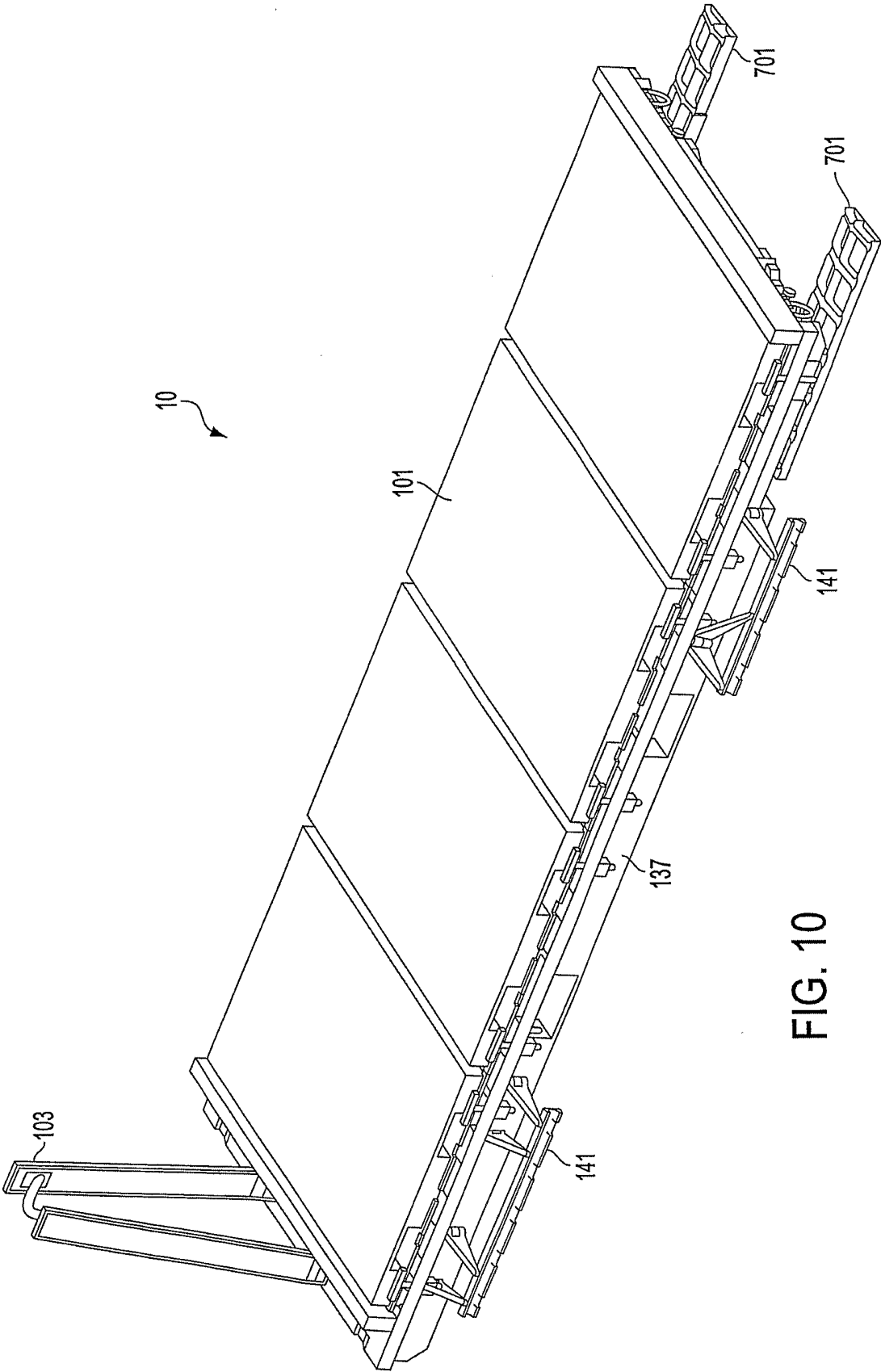


FIG. 10

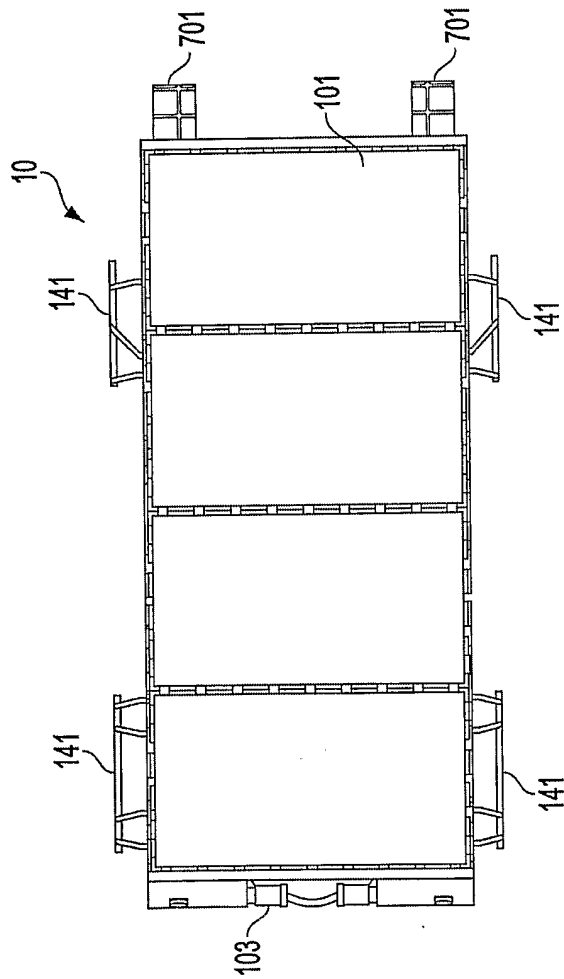


FIG. 11A

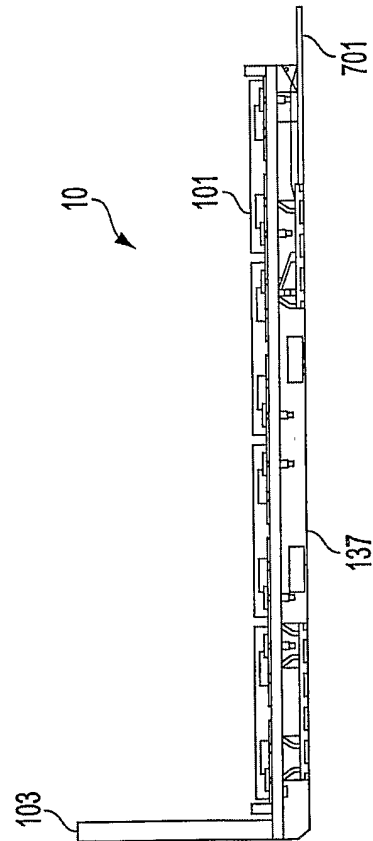


FIG. 11B

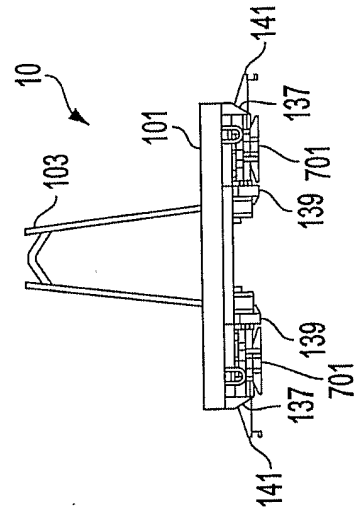


FIG. 11C

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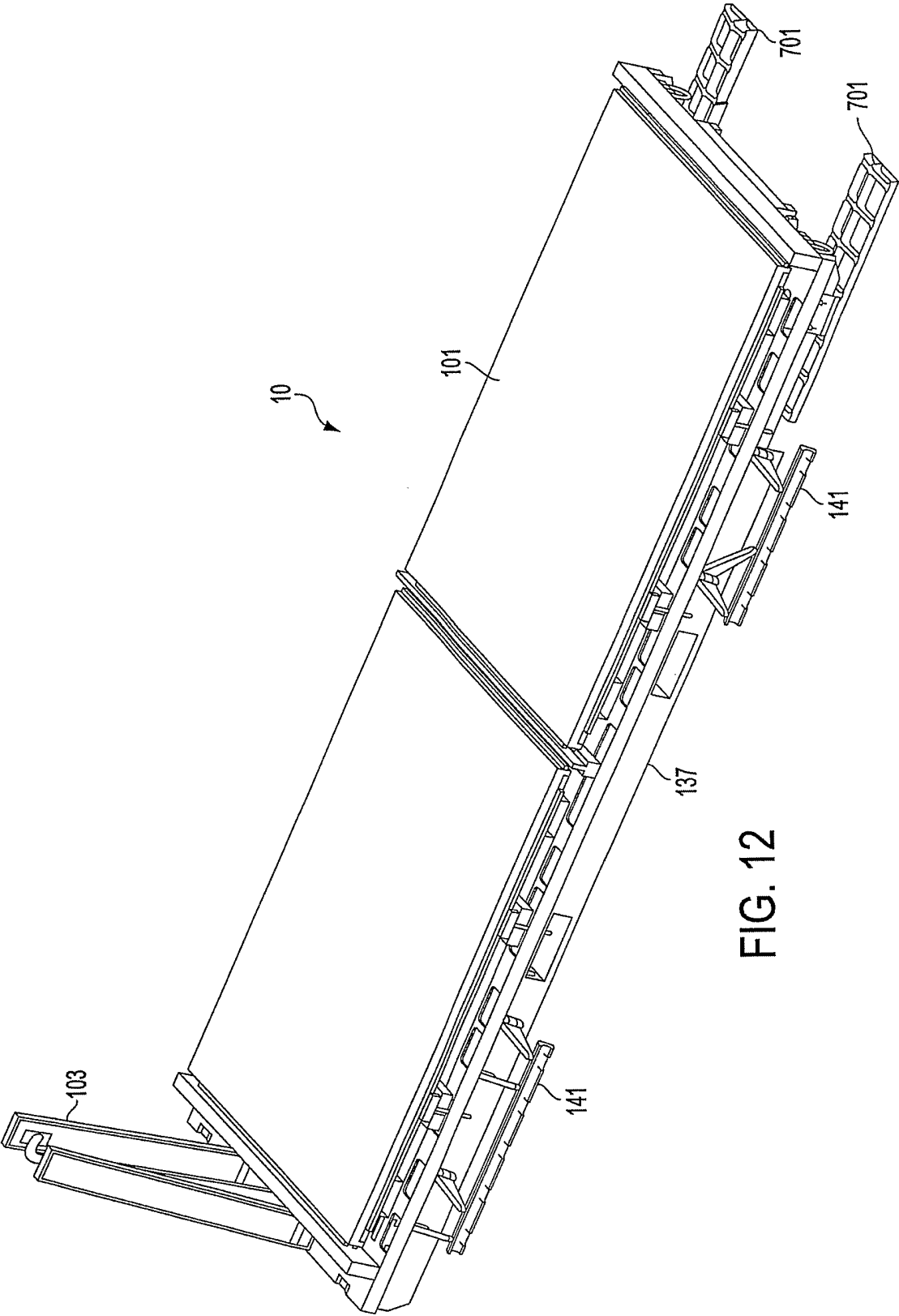
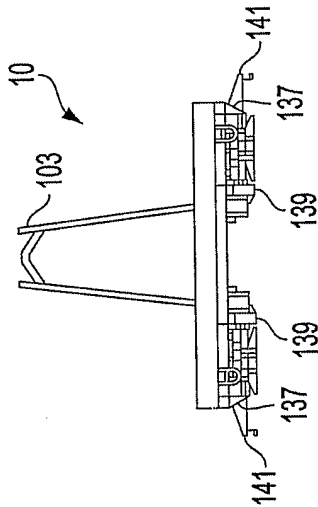
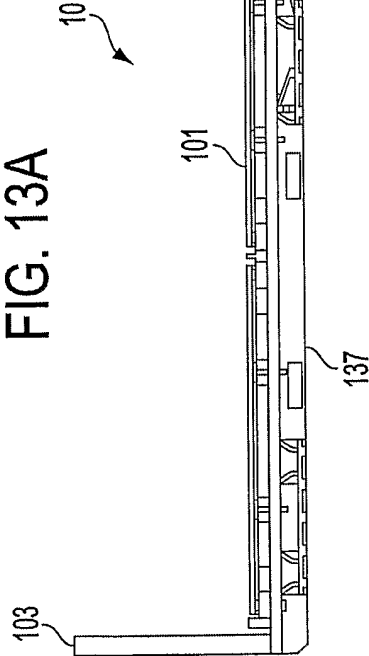
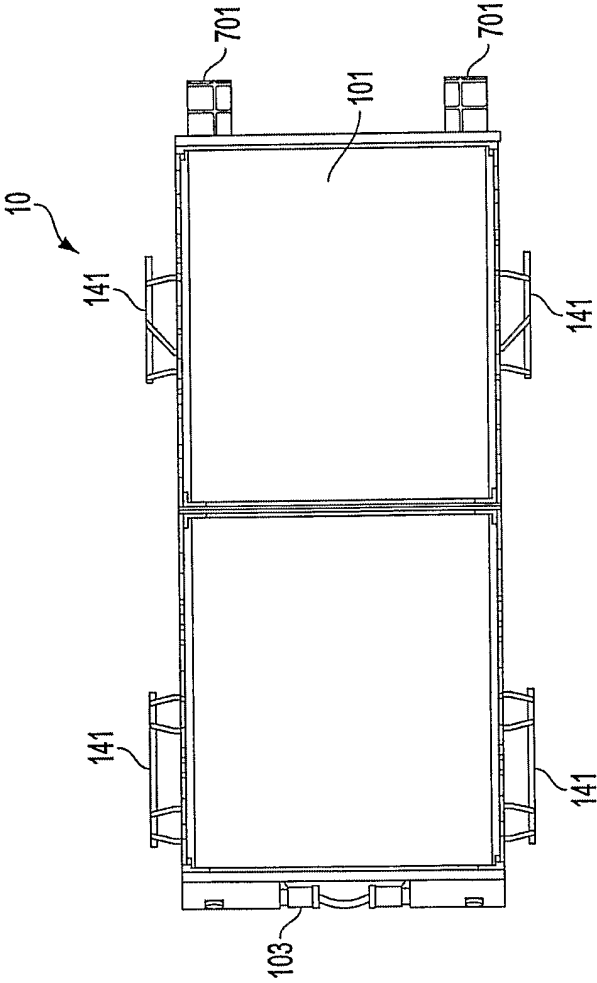


FIG. 12



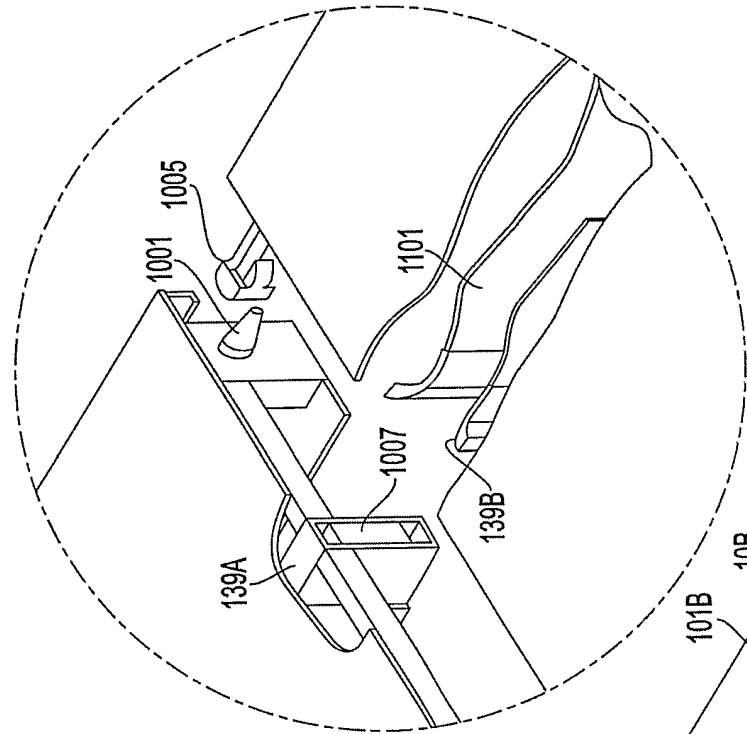


FIG. 14B

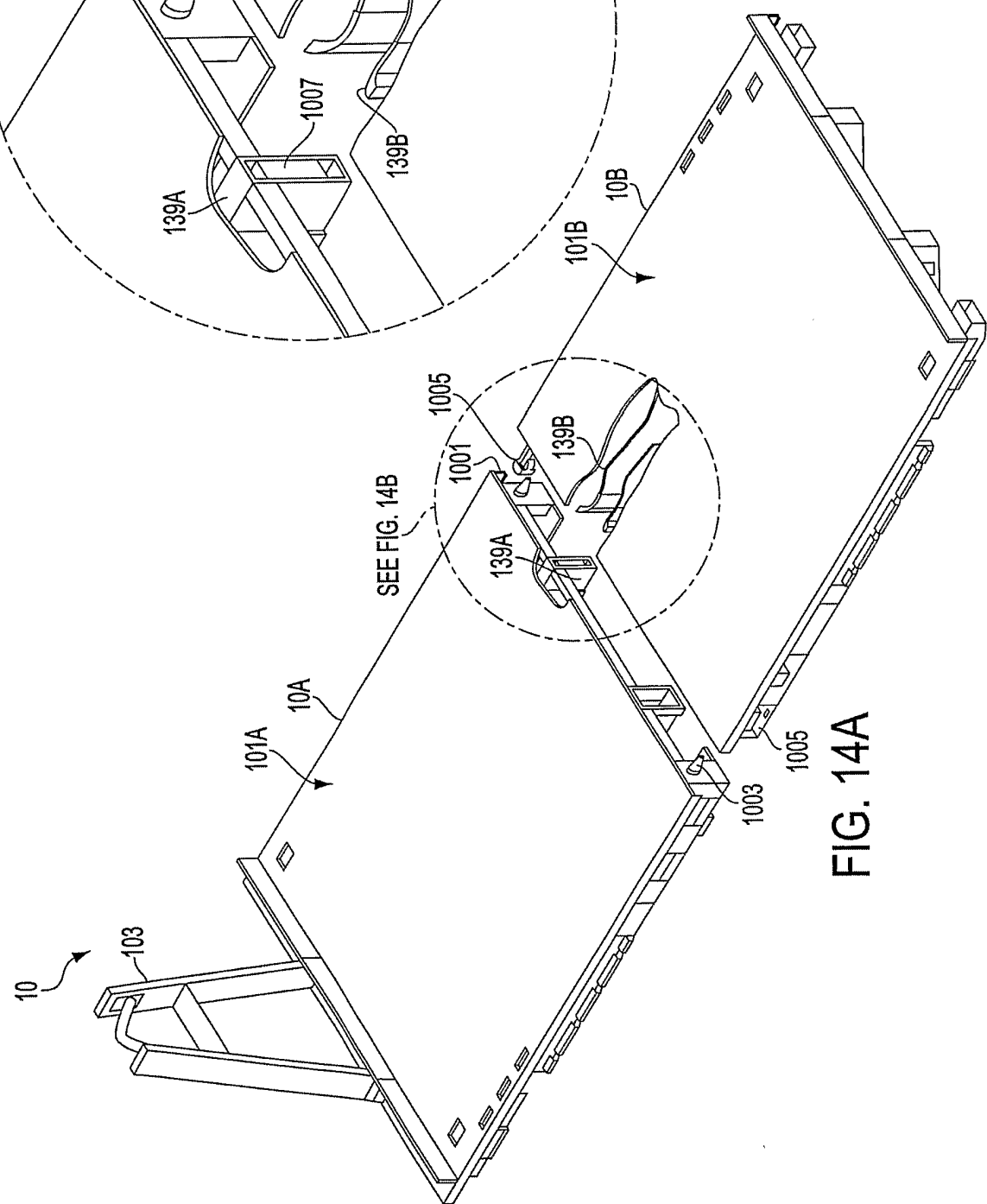


FIG. 14A

