Figure 3a is the trailer of Figure 3 with the lower deck fully lowered into the belly of the trailer and with the upper deck lowered down so as to be close to the top of the load on the lower deck.

Figure 3b shows the trailer of Figure 3 carrying a vehicle load on the upper deck instead of a container load.

Figure 4 is, in side elevation view, the view of Figure 3 with the over-cab deck inclined so as to carry a vehicle load with the upper deck of the head ramp elevated so as to carry a vehicle on both the upper and lower decks of the head ramp, and with the front end of the upper and lower decks of the trailer slightly lowered so as to carry a vehicle load.

Figure 5 is the view of the trailer of Figure 1.

~~Figure 5a is the trailer of Figure 5 showing a load of panel vans being carried on the upper deck.~~

~~Figure 5b is the trailer of Figure 5 showing a forty-foot long container being carried on the upper deck.~~

Figure 6 is, in partially cutaway perspective view, the forward portion and wheel well portion of the lower deck of the trailer with the floating belly ramps of the forward portion of the trailer fully lowered and horizontal.

Figures 6a is the forward portion of the trailer of Figure 6 in side elevation view.

abut the front end of ramp section 44a against the rear end of floating belly front ramp 42a. The continuously adjustable length of floating belly rear ramp 42b accommodates the various inclinations that may be desirable for the front and rear ramps 42a and 42b depending on the load being carried.

As also seen in Figures 12, 13 and 14, advantageously planking 46, which is understood to include not only wood planking but also planking of other materials or other removable decking, panels or sections, are removably installed at least in and along the open central corridors ~~14d and~~ 16d in the gap between the pairs of parallel wheel engaging members ~~14e and~~ 16e on which vehicles are driven (so that their tires roll along the ramp members ~~14e and~~ 16e). Planking 46 so installed, and preferably removably installed along the central corridors ~~14d,~~ 16d, substantially provide a decking or sheeting over the larger openings on the upper and lower decks to assist in the carrying of for example pallets 34. In particular, advantageously the upper surfaces 46a of planking 46 are raised at least slightly above the corresponding upper surfaces of wheel engaging members ~~14e and~~ 16e so that when pallets 34 are deposited during loading down onto the upper and lower decks, the bottom of the pallets, which typically are of wood, rest on upper surfaces 46a instead of resting on the metal of wheel engaging members ~~14e,~~ 16e. Planking 46 thus provides increased friction between the decks and the undersides of the pallets to inhibit slipping of the loads during transport.

In the embodiment illustrated, cross members 48 span laterally across and between the members ~~14e,~~ 16e so as to support the undersides of planking 46. The arrangement of cross members 48 is not intended to be limiting as longitudinally extending rigid members may also be employed, whether they are beams or channels or the like. Further, in some embodiments of trailers 10, there may be side gaps formed between the laterally outer side edges of members ~~14e,~~ 16e and the corresponding side rails 40, which gaps may also be sheeted with planking to cover the side gaps.

Although limited embodiments of stanchions and actuators 18 are illustrated, it will be understood to those skilled in the art, that various actuation assemblies and systems may be employed to selectively raise, lower, and incline the upper and lower decks 14, 16 and in particular in the lower deck 16 the forward and rear floating bellies 42a, 42b without departing from the scope of the present invention. It will also be understood by those skilled in the art how to provide the hydraulic actuation systems corresponding to the actuators and stanchions 18 and how to pivotally mount the ends thereof to the side rails or other trailer structure and to the upper and lower deck structure so that the upper and lower decks 14, 16 and in particular the forward and rear floating belly ramps 42a, 42b may be smoothly and stably actuated and locked in their desired positions so as to attain the desired orientations of the upper and lower decks, and within the lower deck the desired orientations of the floating belly front and rear ramps.

As seen in Figures 8 – 11, in a further embodiment ~~of~~ truck 22, ~~the head ramp upper deck may have~~ a ~~forward and rear portion which may be independently articulated. Thus the forward ramp 24a of~~ head ramp upper deck 24 may be ~~independently~~ elevated and inclined, ~~independently of rear ramp 24b~~. This combined with the ability of over-cab ramp 20 to incline, ~~the combination~~ of over-cab ramp 20, and ~~front and rear ramps 24a and 24b of~~ head ramp upper deck 24 may be combined to carry various loads. Thus for example, a loading of pallets may be carried as seen in Figure 10 wherein the upper decks of the head ramp and the over-cab ramp are substantially co-planar and horizontal. This provides room on the lower deck of the head ramp to also carry further pallets. As seen in Figure 11, over-cab ramp 20 may be inclined to accommodate carrying a vehicle and allowing a further vehicle to be carried on the ~~forward and rear ramps of the~~ head ramp upper deck while allowing room to carry a further vehicle on the head ramp lower deck.

With the ~~forward and rear ramps of the~~ head ramp upper deck in ~~their~~ fully lowered position such as seen in Figure 9, loads such as the panel van of Figure 9a and the

WHAT IS CLAIMED IS:

1. A convertible trailer system comprising:

a convertible trailer having a segmented lower deck, a segmented upper deck mounted onto said lower deck by selectively actuable telescopic stanchions, said stanchions actuable by actuators so as to raise and lower said upper deck over said lower deck between a lowered position, an intermediately elevated position, and a fully elevated position, wherein in said fully elevated position said upper deck is elevated above said lower deck so as to allow loading of vehicles or freight onto said lower deck, wherein in said intermediately elevated position said upper deck is below said fully elevated position so as to be snugly adjacent uppermost extremities of said vehicles or freight on said lower deck, wherein in said lowered position said upper deck rests on a mid-section of said lower deck and on elevated wheel-wells of said lower deck,

wherein said trailer includes a spaced apart longitudinally extending parallel pair of side rails and wherein said segmented lower deck includes a floating ~~forward segment~~ forward of said mid-section and independently actuable so as to be selectively raised and lowered relative to said pair of side rails, and wherein when in said fully lowered position said forward segment is lowered to a lower extremity between said pair of side rails substantially entirely below uppermost edges of said pair of side rails, and wherein when in said elevated position said forward segment is elevated so as to be co-planar with or above said uppermost edges of said side rails whereby freight is loadable laterally sideways onto said forward segment over said pair of side rails,

wherein said ~~forward segment is a floating forward segment and wherein said~~ segmented lower deck further includes a floating rear ~~segment~~ interposed between said floating ~~forward segment~~ and said mid-section of said lower deck, said floating rear ~~segment~~ independently actuable so as to be selectively raised and lowered and inclined

relative to said pair of side rails and independently of said floating ~~forward segment~~, and wherein, when in said fully lowered position, said floating rear ~~segment~~ is lowered to a lower extremity between said pair of side rails entirely below uppermost edges of said pair of side rails and substantially aligned with lower edges of said pair of side rails, and wherein, when in said elevated position, said floating rear ~~segment~~ selectively positionable so as to be inclined or so as to be to horizontal and substantially co-planar with or above said uppermost edges of said side rails, whereby freight is loadable from a direction laterally oriented relative to the length of said trailer so as to load sideways onto said floating rear ~~segment~~ over said pair of side rails.

2. The system of claim 1 further comprising:

a head ramp having a lower deck and an upper deck mounted thereover, said head ramp upper deck having a vertical actuator for vertically selectively actuating said head ramp upper deck, an over-cab platform mountable over the cab of a truck, said head ramp upper deck elevatable into a horizontal raised position substantially horizontally aligned with said over-cab platform when said over-cab platform is mounted over the cab of the truck and positionable in positions between a horizontal fully lowered position and said horizontal raised position while remaining substantially horizontal,

wherein said head ramp upper and lower decks are stacked one over the other and extend rearwardly of said over-cab platform so that rearmost ends of said head ramps upper and lower decks extend cantilevered rearwardly so as to be positioned over a hitch of the truck,

and wherein said trailer further includes a coupling extending forwardly from the trailer so as to engage and mate with a corresponding coupling on the truck.

3. The system of claim 2 further comprising bridging members mounted so as to cooperate between said rearmost ends of said head ramp upper and lower decks and forward-most ends of said trailer upper and lower decks to bridge between said upper and lower decks of said head ramp and said trailer respectively when said upper decks of said head ramp and said trailer are substantially horizontally aligned or when said lower decks of said head ramp and said trailer are substantially horizontally aligned,

4. The system of claim 2 wherein said over-cab platform is selectively inclinable from the horizontal so as to selectively raise and lower a rear end of said over-cab platform.

5. The system of claim 4 wherein said head ramp upper deck is selectively inclinable from the horizontal.

6. The system of claim 2 wherein said trailer is a stinger steer trailer.

7. The system of claim 1 wherein said floating rear ~~segment~~ is extendable in length between said mid-section and said floating ~~forward segment~~ so as to lengthen when forming an inclined ramp between said mid-section and said floating ~~forward segment~~.

8. The system of claim 7 wherein said floating rear ~~segment~~ is telescopically extendable.

9. The system of claim 1 wherein said segmented lower deck includes a lower pair of wheel-engaging members, and wherein said pair of wheel-engaging members are parallel and laterally spaced apart and wherein said pair of wheel-engaging members are adjacent to said side rails of said pair of side rails so as to form a longitudinally extending central opening between said pair of wheel-engaging members,

and wherein said central opening is adapted to support removable decking mounted therealong,

and wherein said segmented lower deck further comprises removable decking mountable in said central opening to form a substantially solid continuous floor over said central opening,

10. The system of claim 9 wherein said decking has a upper surface which, when said decking is mounted in said central opening is raised slightly above an upper surface of said ramp members.

11. The system of claim 10 wherein said upper surface of said decking is adapted to increase friction between said decking a load resting on said decking.

12. The system of claim 11 wherein said decking is of wood.

~~13. The system of claim 9 wherein said segmented upper deck is formed of an upper pair of ramp members substantially vertically aligned over said lower pair of ramp members, so as to form a second central opening between said upper pair of ramp members,~~

~~and wherein said segmented upper deck further includes removable decking mountable into said second central opening to form a second substantially solid continuous floor over said second central opening.~~

Although limited embodiments of stanchions and actuators 18 are illustrated, it will be understood to those skilled in the art, that various actuation assemblies and systems may be employed to selectively raise, lower, and incline the upper and lower decks 14, 16 and in particular in the lower deck 16 the forward and rear floating bellies 42a, 42b without departing from the scope of the present invention. It will also be understood by those skilled in the art how to provide the hydraulic actuation systems corresponding to the actuators and stanchions 18 and how to pivotally mount the ends thereof to the side rails or other trailer structure and to the upper and lower deck structure so that the upper and lower decks 14, 16 and in particular the forward and rear floating belly ramps 42a, 42b may be smoothly and stably actuated and locked in their desired positions so as to attain the desired orientations of the upper and lower decks, and within the lower deck the desired orientations of the floating belly front and rear ramps.

As seen in Figures 8 – 11, in a further embodiment, truck 22, has a head ramp upper deck 24 which may be elevated and inclined.

This combined with the ability of over-cab ramp 20 to incline, over-cab ramp 20, and head ramp upper deck 24 may be combined to carry various loads.
Thus for example, a loading of pallets may be carried as seen in Figure 10 wherein the upper decks of the head ramp and the over-cab ramp are substantially co-planar and horizontal. This provides room on the lower deck of the head ramp to also carry further pallets. As seen in Figure 11, over-cab ramp 20 may be inclined to accommodate carrying a vehicle and allowing a further vehicle to be carried on the head ramp upper deck while allowing room to carry a further vehicle on the head ramp lower deck.

With the head ramp upper deck in its fully lowered position such as seen in Figure 9, loads such as the panel van of Figure 9a and the

WHAT IS CLAIMED IS:

1. A convertible trailer system comprising:

a convertible trailer having a segmented lower deck, a segmented upper deck mounted onto said lower deck by selectively actuable telescopic stanchions, said stanchions actuable by actuators so as to raise and lower said upper deck over said lower deck between a lowered position, an intermediately elevated position, and a fully elevated position, wherein in said fully elevated position said upper deck is elevated above said lower deck so as to allow loading of vehicles or freight onto said lower deck, wherein in said intermediately elevated position said upper deck is below said fully elevated position so as to be snugly adjacent uppermost extremities of said vehicles or freight on said lower deck, wherein in said lowered position said upper deck rests on a mid-section of said lower deck and on elevated wheel-wells of said lower deck,

wherein said trailer includes a spaced apart longitudinally extending parallel pair of side rails and wherein said segmented lower deck includes a floating belly front ramp forward of said mid-section and independently actuable so as to be selectively raised and lowered relative to said pair of side rails, and wherein when in said fully lowered position said forward segment is lowered to a lower extremity between said pair of side rails substantially entirely below uppermost edges of said pair of side rails, and wherein when in said elevated position said forward segment is elevated so as to be co-planar with or above said uppermost edges of said side rails whereby freight is loadable laterally sideways onto said forward segment over said pair of side rails,

wherein said segmented lower deck further includes a floating belly rear ramp interposed between said floating belly front ramp and said mid-section of said lower deck, said floating belly rear ramp independently actuable so as to be selectively raised and lowered and inclined

relative to said pair of side rails and independently of said floating belly front ramp, and wherein, when in said fully lowered position, said floating belly rear ramp is lowered to a lower extremity between said pair of side rails entirely below uppermost edges of said pair of side rails and substantially aligned with lower edges of said pair of side rails, and wherein, when in said elevated position, said floating belly rear ramp selectively positionable so as to be inclined or so as to be to horizontal and substantially co-planar with or above said uppermost edges of said side rails, whereby freight is loadable from a direction laterally oriented relative to the length of said trailer so as to load sideways onto said floating belly rear ramp over said pair of side rails.

2. The system of claim 1 further comprising:

a head ramp having a lower deck and an upper deck mounted thereover, said head ramp upper deck having a vertical actuator for vertically selectively actuating said head ramp upper deck, an over-cab platform mountable over the cab of a truck, said head ramp upper deck elevatable into a horizontal raised position substantially horizontally aligned with said over-cab platform when said over-cab platform is mounted over the cab of the truck and positionable in positions between a horizontal fully lowered position and said horizontal raised position while remaining substantially horizontal,

wherein said head ramp upper and lower decks are stacked one over the other and extend rearwardly of said over-cab platform so that rearmost ends of said head ramps upper and lower decks extend cantilevered rearwardly so as to be positioned over a hitch of the truck,

and wherein said trailer further includes a coupling extending forwardly from the trailer so as to engage and mate with a corresponding coupling on the truck.

3. The system of claim 2 further comprising bridging members mounted so as to cooperate between said rearmost ends of said head ramp upper and lower decks and forward-most ends of said trailer upper and lower decks to bridge between said upper and lower decks of said head ramp and said trailer respectively when said upper decks of said head ramp and said trailer are substantially horizontally aligned or when said lower decks of said head ramp and said trailer are substantially horizontally aligned,

4. The system of claim 2 wherein said over-cab platform is selectively inclinable from the horizontal so as to selectively raise and lower a rear end of said over-cab platform.

5. The system of claim 4 wherein said head ramp upper deck is selectively inclinable from the horizontal.

6. The system of claim 2 wherein said trailer is a stinger steer trailer.

7. The system of claim 1 wherein said floating belly rear ramp is extendable in length between said mid-section and said floating belly front ramp so as to lengthen when forming an inclined ramp between said mid-section and said floating belly front ramp.

8. The system of claim 7 wherein said floating belly rear ramp is telescopically extendable.

9. The system of claim 1 wherein said segmented lower deck includes a lower pair of wheel-engaging members, and wherein said pair of wheel-engaging members are parallel and laterally spaced apart and wherein said pair of wheel-engaging members are adjacent to said side rails of said pair of side rails so as to form a longitudinally extending central opening between said pair of wheel-engaging members,

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