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(54) **CRATE FOR THE TRANSPORT OF MOTOR VEHICLES**

KISTEN FÜR DEN TRANSPORT VON KRAFTFAHRZEUGEN

CAISSE POUR LE TRANSPORT DE VÉHICULES AUTOMOBILES

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Description

[0001] The present invention relates to crates, and more specifically, to re-usable crates in which goods may be transported, for example in sea going freight containers. More specifically, the invention has particular use in the transport of motor vehicles such as cars, enabling packing to a high density in standardised large shipping containers. The invention also enables the crate to be collapsed to reduce space for transportation or storage when not in use.

[0002] It is known to provide containers adapted for the transport of motor vehicles. However, such containers require special loading techniques or apparatus to load the motor vehicles into the container. For example, in EP 1 930 260 vehicles are loaded end to end onto an elongate frame outside of a freight container and following reorientation the vehicles are subsequently moved into the container on the frame. Tilting platforms are provided on which the vehicles are arranged such that during transport the vehicles are disposed at an inclined angle. There is also a problem that unless the container is full, that is all the tilting platforms are occupied, the container will be transporting air. Since this is not economic, in practice, there is a requirement that all of the tilting platforms must be filled before use.

[0003] It is known from WO 2012/138295 to provide a structure in which vehicles are loaded on end, that is vertical storage of each vehicle, during transport. There is again the problem that unless the container is filled, use of this solution is not economic. Further it will be appreciated that such a structure requires special apparatus to load the vehicle and also that there is a risk or danger that the vehicle may become damaged during loading and unloading from the structure. JPH02191180 describes a container for a motor vehicle.

[0004] Accordingly there is a need for a crate that allows the transport of motor vehicles, that does not require specialized equipment for loading of the motor vehicle and yet is flexible enough to allow the transport of one or more, indeed many more, motor vehicles within a shipping container. It is an advantage of the present invention that it provides for an improved crate, for example a collapsible crate, for transporting motor vehicles.

[0005] According to a first aspect of the present invention a crate comprises a rectangular base having left and right sides and front and rear ends, left and right hand side walls connected along the respective sides of the base, each side wall carrying at a front end and a rear end a pivoting frame member, each frame member comprising a first leaf and a second leaf, a first end of the first leaf being connected to an end of the side wall and a second end connected to a first end of the second leaf. One or more of the base elements are provided with one or more support members moveable between a retracted position and a deployed position. In use, the support members may be moved to the deployed position and secured to hold the crate at an angle.

[0006] The side walls may be pivotally connected to the base. Alternatively the side walls may be releasably connected to the base.

[0007] The base may comprise a plurality of elements, for example four base elements, a centre beam provided between two of the base elements and side beams disposed to the front and rear ends of the base.

[0008] Each side wall may comprise two wall elements, each connected to a side of the respective base element.

[0009] Preferably, each second end of each second leaf is adapted to be releasably connected to an opposing second end of the opposing second leaf.

[0010] Preferably, each pivoting frame member is provided with a bracing member. In use, the bracing member releaseably retains the first and second leaves of the pivoting frame member in position relative to one another.

[0011] Preferably a first end of the bracing member is pivotally connected to the second leaf and a second end is adapted to be releaseably secured to the first leaf.

[0012] The crate may additionally be provided with a plurality of frame members for securing to and across the front and rear ends of the crate. Preferably each of the frame members are provided with receiving means. In use the receiving means are for receiving a lower portion of a base of a further crate in accordance with the present invention.

[0013] The invention will now be described, by way of example only, in relation to the attached Figures, in which

Figure 1 shows a schematic exploded view of components of a crate in accordance with the present invention;
Figure 2 shows a schematic view of the components of Figure 1 shown in a collapsed configuration;
Figure 3 shows a schematic view of the crate of Figure 2 in an open configuration;
Figure 4 shows a schematic view of the crate of figures 2 and 3 in a closed configuration;
Figure 5 shows in more detail the structure of the front pivoting frame members of Figures 1 to 5;
Figure 6 shows in more detail the structure of the rear pivoting frame members of Figures 1 to 5;
Figure 7 shows a schematic view of the crate of Figures 2 to 4, to which further frame members have been added;
Figure 8 shows the use of such further frame members in enabling stacking of crates in accordance with the present invention;
Figure 9 shows a perspective view of a crate in accordance with the present invention which two supports are provided in a deployed position;
Figure 10 shows a support in such the deployed position; and
Figure 11 shows three crates in accordance with the present invention illustrating how an optimum configuration may be obtained.

[0014] Referring first to Figure 1, there can be seen a

schematic exploded view of components of a crate in accordance with the present invention. Four base elements 2,4,6,8 are provided. These may be known base elements for collapsible containers such as that described in GB 2 445 878 B, provided with side portions having openings that allow entry of tines of a fork lift vehicle to enable lifting of such base elements.

[0015] Two of the base elements 2,8 are located side by side to form a front section of the base, and the other two 4,6 are located side by side to form a rear section of the base. A centre beam 10 is provided between the front and rear sections of the base. The front and rear sections are connected to the centre beam 10 in any suitable manner. In the illustrated embodiment the centre beam 10 is provided with centrally located fixtures 12 for connecting the centre beam to the respective base sections. The ends 14 of the centre beam 10 may also be provided with connecting elements to enable the ends of the centre beam to be secured to the adjacent base elements.

[0016] End beams 16,18 are provided to the front and rear of the base secured in any suitable manner to the respective ends of the base elements 2,4,6,8 to complete the base. In the illustrated embodiment the end beams 16,18 are each provided with respective centrally located fixtures 20,22 for connecting the end beams 16,18 to the respective base sections. The ends 14 of each end beam 16,18 may also be provided with connecting elements 24,26 to enable the ends 14 of each end beam 16,18 to be secured to the adjacent base elements.

[0017] The base constructed in this manner can be seen to have left and right hand sides (formed by the base elements 2,4 and 6,8 respectively) and front and rear ends.

[0018] Left and right hand side walls are provided for pivoting engagement with the respective left and right hand sides of the base. The left and right hand side walls are essentially identical so only one will be described. It will be understood that the features of one side wall are replicated on the other and like reference numerals are used in the Figures to reflect like parts.

[0019] Each side wall comprises a plurality of wall elements. In the illustrated embodiment, each side wall comprises two wall elements 30,32. Each wall element is sized to correspond to the length of a base element. A lower edge of the wall element is adapted to engage with an outer edge of a respective base element to pivot with respect to said base element. The wall element may be adapted to be releasably connected to the base element to allow for full disassembly but as will be described, this is not essential.

[0020] Each wall element 30,32 is constructed with end posts connected at their lower ends by a connecting beam. The lower edges of the each wall element are provided with suitable engagement means to engage with receiving means provided at the outer edge of the respective base element. Conveniently, such engagement means are provided at the lower ends of the posts with the receiving means provided at the corners of the base element. An upper end of each end post is conveniently provided with an upwardly extending projection. In the case of adjacent wall elements a connecting element 34 may be used to secure the upwardly extending projections of adjacent wall elements 30,32 together (shown most clearly in Figures 3, 4 and 5).

[0021] Each side wall is provided at a front end and a rear end with a pivoting frame member 40,42,44,46. While there are differences between the front and rear pivoting frame members, they share certain common features and similar reference numerals will be used to refer to similar parts in the following description.

[0022] Each pivoting frame member 40,42,44,46 comprises a first leaf and a second leaf. A first end of the first leaf is connected to an end of the respective side wall element. In the illustrated embodiment the first leaf is located in a fixed position with respect to the side wall element. A second end of the first leaf is pivotally connected to a first end of the second leaf. A second end of the second leaf on one side of the crate is adapted to be moved adjacent to a second end of the second leaf on the opposite side of the crate as will be described below.

[0023] Figure 2 shows an assembled crate in a collapsed configuration. As may be seen the collapsed crate occupies comparatively little volume. The side walls are folded down against the adjacent base elements. The pivoting frame members are arranged such that the second leaf is folded back against the first leaf element, such that a portion of the second leaf element rests against an adjacent wall element and the first leaf element extends outwardly as an extension of the adjacent side element.

[0024] It will be appreciated that when in the collapsed configuration multiple crates may be staked one on top of another for storage or transportation. A fork lift vehicle may conveniently be used for this task.

[0025] Figure 3 shows an assembled crate in an open configuration. The side walls have been moved, for example by pivoting, into an upright position. The side walls are conveniently provided with means to lock the side walls into this position. For example the walls may be connected by a lift and pivot mechanism such as that disclosed in GB 2 445 878 B. The pivoting frame members remain in the same relative position to the side walls as in the collapsed configuration.

[0026] With the crate in the open configuration a motor vehicle may be driven onto the base. The pivoting frame members 40,42,44,46 may then be manipulated such the second end of the second leaf on one side of the crate is adjacent to a second end of the second leaf. In the illustrated embodiment, each second leaf is rotated through a 270 degree angle such that the second end of one leaf is adjacent the second end of the second leaf. Conveniently the adjacent second ends may additionally be releasably secured together by any suitable means.

[0027] In the illustrated embodiment, each pivoting frame member is provided with a bracing member. In use, the bracing member releaseably retains the first and

second leaves of the pivoting frame member in the closed configuration position relative to one another.

[0028] Preferably a first end of the bracing member is carried on the second leaf and is pivotally connected thereto. A second end of the bracing member is adapted to be releaseably secured to the first leaf.

[0029] Example front pivoting frame members 40,42 will now be described in more detail with reference to Figure 5. The first end of the first leaf 50 comprises a first upright 52, sized to correspond to the height of the wall element to which it will be secured. The second end of the first leaf comprises a shorter upright 54. Lower ends of each upright are connected by a horizontal beam 56. A beam having first and second angled elements 58,60 connects upper ends of the first and second uprights 52,54.

[0030] The first end of the second leaf 70 comprises an upright 72 corresponding in height to upright 54 forming the second end of the first leaf 50. Upright 72 is pivotally connected to upright 54 to allow relative rotation of at least 270 degrees. In the illustrated embodiment, the uprights are linked together to allow such relative rotation with an upper link 90 being shown. The second end of the second leaf comprises an upright 74 of similar height to that of the first end of the second leaf. Lower ends of each upright are connected by a horizontal beam 76. A beam having first and second angled elements 78,80 connects upper ends of the first and second uprights 72,74. As may be seen from Figures 2 and 3 the angled elements connecting the upper ends of the second end of the first leaf and the first end of the second leaf are of similar length and extend from their respective uprights at similar angles.

[0031] It will be recognised that the front pivoting frame members of Figures 1 to 4 and 7 are slightly modified with respect to those shown in Figure 5, in that the lower ends of each upright are connected by an angled beam, such that in the closed configuration of Figures 4 and 7 the relative location of the second leaf with respect to the remainder of the crate is raised.

[0032] A bracing member 92 is provided connected pivotally at a first end to one of the first and second leaves 50,70 and provided at a second end with releasable means for securing the second end of the bracing member to the other of the first and second leaves 50,70. In the illustrated embodiment (shown most clearly in Figures 2 and 3), the bracing member 92 is carried on the second leaf secured at the bend between the first and second angled elements 78,80. As may be seen in Figures 4, 5 and 7, when secured to the first leaf the bracing element and the respective adjacent angled elements 58,78 of the first and second elements form a triangle creating a robust structure fixing the second leaf in position relative to the first leaf (and so the walls and to the remainder of the crate).

[0033] While this structure could be used at the rear of the crate, a different arrangement is preferred. In the case of the first leaf the first and second angled elements 158,160 have different relative arrangements in that the angled element 160 connected to the upper end of the upright 152 at the first end of the first leaf is substantially horizontal, and similarly in the case of the second leaf, the angled element 180 connected to the upper end of the upright 174 at the second end of the second leaf is also substantially horizontal. Nevertheless, the bracing member 192 and the respective adjacent angled elements 158,178 of the first and second elements form a triangle creating a robust structure fixing the second leaf in position relative to the first leaf (and so the walls and to the remainder of the crate).

[0034] Again, it will be recognised that the rear pivoting frame members of Figures 1 to 4 and 7 are slightly modified with respect to the arrangement shown in Figure 6, in that the lower ends of each upright are connected by an angled beam, such that in the closed configuration the relative location of the second leaf with respect to the remainder of the crate is raised. It will also be recognised that the respective adjacent angled elements of the first and second elements are no longer of similar length to one another or provided at similar angles to their respective uprights, though the use of the bracing member to produce the robust triangular structure remains present.

[0035] It will be understood that the described structure allows for other ways of using the invention. An operator may choose to close either of the front or rear pivoting frame members, then drive the vehicle onto the base and then close the other of the pivoting frame members. Alternatively, a used could arrange the side walls flat away from the base, drive the vehicle onto the base and assemble the crate about the vehicle (however, due to the additional space required to lay the crate elements flat and the risk of inadvertent damage to the vehicle during assembly of the crate this is not a preferred manner of use of the invention).

[0036] The crate may additionally be provided with a plurality of lateral frame members 94 for use as illustrated in Figure 7. These are secured to the upwardly extending projections at the front and rear ends of the crate. Each lateral frame member 94 comprises first and second uprights 95,96. Each upright 95,96 is adapted to engage with the upwardly extending projections of the end posts to the front and rear of the side walls. Additional engagement means 97 may be provided at the lower ends of each upright 95,96 to engage with an upper edge of a respective wall element to secure the upright 95,96 in relation to the respective wall element. The uprights 95,96 are held at a suitable distance from one another by a suitably robust transverse structure 98 connecting the uprights. In the illustrated embodiment, the transverse structure 98 is provided between the upper ends of the uprights 95,96. Each upright 95,96 is further provided at an upper end thereof with a planar region 100 bounded on two sides by walls 102. It can be seen that the walls 102 are located on the planar region along the sides of the planar region 100 corresponding to the ends and sides of the crate.

[0037] The lateral frame members 94 are used when it is desired to stack a crate in accordance with the present invention on top of another similar crate. The lateral frame members 94 are secured into position on a first crate following loading of a motor vehicle within the crate. A second loaded crate is then raised, for example using a fork lift or other apparatus readily available in a loading bay, to a height above the first crate, moved and then located above the first crate and finally lowered into position onto the first crate such that the corners of the base of the second crate are located on the planar regions 100 of the lateral frame members 94 within the walls 102 of the planar regions 100. In this way multiple crates according to the present invention can be stacked one on top of another allowing for efficient use of space within a shipping container or other loading area (see for example Figure 8).

[0038] Such crates may be unstacked in the reverse manner when it is desired to remove the motor vehicle from the crate.

[0039] With the base of the crate on a driving surface, the bracing members 92,192 are released allowing the pivoting frame members 40,42,44,46 to be returned to the open configuration, such that the motor vehicle can be driven from the base of the crate.

[0040] It is an advantage of the invention that a motor vehicle manufacturer, motor vehicle exported or other business wishing to transport a number of motor vehicles no longer needs to obtain space on a transport vessel for many thousand vehicles to make economic use of the vessel, but instead by use of the present invention need only acquire the space needed in an suitable transport vessel.

[0041] Depending upon the relative size of the motor vehicle and a container within which the crate is loaded to transport the motor vehicle, it has been found useful to be able to arrange the crate on an incline within the container to make optimum use of the space within the container.

[0042] For example in the case of a container is a 40 feet (12.2 m) in length and a car in a crate according the present invention measures 12 feet (3.7m), three such crates will not fit end to end within such a container, and 2 crates will leave significant unfilled space in such a container. However, by tilting each crate so that it occupies a shorter length three loaded crates may be fitted into a loaded container. Such containers have a maximum height of 9.6 feet (2.9 m)

[0043] For example by tilting a crate 12 feet (12.2m) in length such that one end is raised 4.8 feet (1.5m), the longitudinal footprint is reduced to only 11 feet (3.4m) such that three such crates will fit in a 40 foot (12.2 m) container, with a more efficient use of the space within the container.

[0044] From Figure 11 it can be seen that with such angles of elevation it is possible to a least partially interleave the crates such that the front end of one motor vehicle is located beneath a rear end of another.

[0045] A user will also understand that it will be possible to use crates of different size to accommodate different length of motor vehicle. A user will also understand that it is not necessary too use crates of the same size in a single container, for example there may be mix of crates of various sizes, some inclined, others not, in order to make optimum use of the space available within a container of a particular size.

[0046] A suitable support means 200 is shown in most detail in Figures 9 and 10. In Figure 9 two such support means are shown to the rear of a crate. No other support means are shown for reasons of clarity. Each support means is secured to an underside of a base element.

[0047] Conveniently, each support means comprises a retaining portion 202, a support member 204 and an abutment 206. The retaining portion is formed as an elongate substantially U-shaped member having depending side members 208,210 joined by a connecting web 209. An end wall 222 located at or towards one end retaining portion extends across the retaining portion 202. The end wall 222 is provided to one side with a through opening (not shown). The retaining portion 202 is secured to the base element in any suitable manner, for example along one of the depending side members 208,210 and/or the connecting portion 209. The free depending side member 208 is provided at a first end with a through opening 212. The second end of the retaining portion 202 is provided with a bolt, pin or similar extending between the depending side members 208,210 to provide a pivot pin 214 upon which the support member 204 is secured for pivoting movement.

[0048] The support member 204 comprises a tubular member, in the illustrated embodiment a tube of rectangular, preferably square section. The support member 204 is provided on an end remote from the pivot pin with an inwardly directed foot 220 for engaging with a floor surface when the support is in a deployed position. The support member is provided on at least one side with a through opening 216. The support member 204 is further provided with a through opening disposed normally to the pivot pin 214.

[0049] The abutment member 206 extends from one side of the support member 204 and terminates prior to the portion of the support member204 engaging with the pivot pin 214. The abutment member 206 preferably comprises another tubular member of rectangular, preferably square section, a first side of which is permanently secured in any suitable manner with the support member 204.

[0050] In a retracted position the support member 204 and the abutment member 206 are seated within the retaining portion 202. In the retracted position, the openings 212,204 in the depending wall 208 of the retaining portion 202 and the support member 204 are aligned. A retaining pin or bolt 224 extends through these openings 212,216 to keep the support member 204 and the abutment member 206 in the retracted position.

[0051] With the crate in a raised position, the retaining

pin 224 can be removed allowing the support member 204 and the abutment member 206 to pivot with respect to the base element toward the deployed position. Once the upper end of the abutment member 206 has cleared the side of the base element, the support member 204 is slid along the pivot pin from one side of the retaining portion 202 to the other, such that an upper end of the abutment member 206 is beneath the underside of the base element. The retaining pin 224 may then introduced into the upper opening in the upper end of the support member 204 and into the opening in the end plate 222 of the retaining portion 202 to locate the support member 202 in position. The crate is further lowered until the foot 220 of the support member 204 comes into contact with the floor.

[0052] To allow the motor vehicle to be removed from the crate, the crate is lifted to allow the support member 204 to be returned to the retracted position. This is achieved by removing the retaining pin 224 from the support member 204 and the end wall 222 of the retaining portion 202, sliding the support member 204 back along the pivot pin 214 to allow the support member 204 and abutment member 206 to be pivoted to the retracted position within the retaining portion 202 and the retaining pin 224 inserted once again through the support member 204 and the side wall 208 of the retaining portion 202 to hold the support member 204 (and the abutment member 206) adjacent the underside of the crate. The crate can then be lowered to a horizontal position and subsequently opened to allow the motor vehicle to be removed.

Claims

1. A crate for the transport of motor vehicles, for fitting in a shipping container, the crate comprising a rectangular base having left and right sides and front and rear ends, left and right hand side walls connected along the respective sides of the base, each side wall carrying at a front end and a rear end a pivoting frame member (40, 42, 44, 46), **characterised in that**:

   each frame member comprises a first leaf (50) and a second leaf (70), a first end of the first leaf (50) being connected to an end of the side wall and a second end connected to a first end of the second leaf (70);
   the crate further comprises one or more deployable support members (204) moveable between a retracted position and a deployed position; and
   the one or more support members (204) are securable in the deployed position to hold the crate at an angle.

2. The crate according to claim 1, in which the side walls are pivotally connected to the base.

3. The crate according to claim 1, in which the side walls are releasably connected to the base.

4. The crate according to any of claims 1 to 3, in which the base comprises a plurality of elements (2, 4, 6, 8), a centre beam (10) provided between two of the base elements and side beams disposed to the front and rear ends of the base.

5. The crate according to claim 4, in which each side wall comprises two wall elements (30, 32), each connected to a side of the respective base element (2, 4, 6, 8),.

6. The crate according to any of claims 1 to 5, in which each second end of each second leaf (70) is adapted to be releasably connected to an opposing second end of the opposing second leaf (70).

7. The crate according to any of claims 1 to 6, in which each pivoting frame member (40, 42, 44, 46) is provided with a bracing member (92).

8. The crate according to claim 7, in which a first end of the bracing member (92) is pivotally connected to the second leaf (70) and a second end is adapted to be releaseably secured to the first leaf (50).

9. The crate according to any of claims 1 to 8, in which the crate additionally comprises a plurality of frame members (94) for securing to and across the front and rear ends of the crate.

10. The crate according to claim 9, in which each of the frame members (94) are provided with receiving means for receiving a base of a further crate, thereby allowing for stacking of one crate upon another.

11. The crate according to any of claims 1 to 10, in which the one or more deployable support members (204) are arranged such that in the deployed position, a longitudinal footprint of said crate is reduced.

Patentansprüche

1. Kiste für den Transport von Kraftfahrzeugen, passend zum Einlegen in einen Versandcontainer,
   wobei die Kiste eine rechteckige Basis umfasst, welche linke und rechte Seite und vorderes und hinteres Ende besitzt, linke und rechte Seitenwand, die entlang der jeweiligen Seite der Basis verbunden sind, wobei jede Seitenwand an einem vorderen und einem hinteren Ende ein schwenkbares Rahmenglied (40, 42, 44, 46) trägt,
   dadurch gekennzeichnet, dass:

   jedes Rahmenglied ein erstes Blatt (50) und ein

zweites Blatt (70) umfasst, wobei ein erstes Ende des ersten Blattes (50) mit einem Ende der Seitenwand verbunden ist, und ein zweites Ende mit einem ersten Ende des zweiten Blattes (70) verbunden ist;
die Kiste zudem eines oder mehrere ausklappbare Trägerglieder (204) umfasst, die zwischen einer eingezogenen und einer ausgeklappten Position beweglich sind; und
das eine oder die mehreren Trägerglied(er) (204) in der ausgeklappten Position zum Halten der Kiste in einem Winkel gesichert werden kann/können.

2. Kiste nach Anspruch 1, bei welcher die Seitenwände schwenkbar mit der Basis verbunden sind.

3. Kiste nach Anspruch 1, bei welcher die Seitenwände lösbar mit der Basis verbunden sind.

4. Kiste nach einem der Ansprüche 1 bis 3, bei welcher die Basis eine Vielzahl von Elementen (2, 4, 6, 8), einen Mittelträger (10) zwischen zwei der Basiselemente und Seitenträger besitzt, die an den vorderem und hinterem Ende der Basis angeordnet sind.

5. Kiste nach Anspruch 4, bei welcher jede Seitenwand zwei Wandelemente (30, 32) umfasst, welche jeweils mit einer Seite des jeweiligen Basiselements (2, 4, 6, 8) verbunden sind.

6. Kiste nach einem der Ansprüche 1 bis 5, bei welcher jedes zweite Ende eines jeden zweiten Blattes (70) geeignet ist, lösbar mit einem gegenüberliegenden zweiten Ende des gegenüberliegenden zweiten Blattes (70) verbunden zu werden.

7. Kiste nach einem der Ansprüche 1 bis 6, bei welcher jedes schwenkbare Rahmenglied (40, 42, 44, 46) mit einem Stützglied (92) versehen ist.

8. Kiste nach Anspruch 7, bei welcher ein erstes Ende des Stützgliedes (92) schwenkbar mit dem zweiten Blatt (70) verbunden ist und ein zweites Ende geeignet ist, lösbar am ersten Blatt (50) gesichert zu werden.

9. Kiste nach einem der Ansprüche 1 bis 8, bei welcher die Kiste zusätzlich eine Vielzahl von Rahmengliedern (94) zur Sicherung an und quer zu den vorderen und hinteren Enden der Kiste beinhaltet.

10. Kiste nach Anspruch 9, bei welcher jedes der Rahmenglieder (94) mit einem Aufnahmemittel zur Aufnahme einer Basis einer weiteren Kiste versehen ist, wodurch eine Kiste über der anderen gestapelt werden kann.

11. Kiste nach einem der Ansprüche 1 bis 10, bei welcher das eine oder die mehreren Trägerglied(er) (204) so angeordnet ist/sind, dass eine Längsgrundfläche der Kiste in der ausgeklappten Position reduziert ist.

Revendications

1. Caisse pour le transport de véhicules à moteur, pouvant rentrer dans un conteneur d'expédition,
ladite caisse comprenant une base rectangulaire présentant des côtés gauche et droit et des extrémités avant et arrière, des parois latérales gauche et droite raccordées le long des côtés respectifs de la base, chaque paroi latérale supportant, au niveau d'une extrémité avant et d'une extrémité arrière, un élément de cadre (40, 42, 44, 46) pivotant,
caractérisée en ce que :

chaque élément de cadre comprend un premier vantail (50) et un deuxième vantail (70), une première extrémité du premier vantail (50) étant raccordée à une extrémité de la paroi latérale et une deuxième extrémité étant raccordée à une première extrémité du deuxième vantail (70) ;
la caisse comprend en outre un ou plusieurs élément(s) de soutien (204) déployable(s), mobile(s) entre une position rétractée et une position déployée ; et
le un ou les plusieurs élément(s) de soutien (204) peut/peuvent être immobilisé(s) dans la position déployée afin de maintenir la caisse selon un angle.

2. Caisse selon la revendication 1, dans laquelle les parois latérales sont raccordées pivotantes à la base.

3. Caisse selon la revendication 1, dans laquelle les parois latérales sont raccordées libérables à la base.

4. Caisse selon l'une quelconque des revendications 1 à 3, dans laquelle la base comprend une pluralité d'éléments (2, 4, 6, 8), une poutre centrale (10) fournie entre deux des éléments de base et des poutres latérales agencées contre les extrémités avant et arrière de la base.

5. Caisse selon la revendication 4, dans laquelle chaque paroi latérale comprend deux éléments de paroi (30, 32) respectivement raccordés à un côté de l'élément de base (2, 4, 6, 8) respectif.

6. Caisse selon l'une quelconque des revendications 1 à 5, dans laquelle chaque deuxième extrémité de chaque deuxième vantail (70) est conçue pour être

raccordée libérable à une deuxième extrémité lui faisant face du deuxième vantail (70) qui lui fait face.

7. Caisse selon l'une quelconque des revendications 1 à 6, dans laquelle chaque élément de cadre (40, 42, 44, 46) pivotant est muni d'un élément d'entretoisement (92).

8. Caisse selon la revendication 7, dans laquelle une première extrémité de l'élément d'entretoisement (92) est raccordée pivotante au deuxième vantail (70) et une deuxième extrémité est conçue pour être fixée libérable sur le premier vantail (50).

9. Caisse selon l'une quelconque des revendications 1 à 8, dans laquelle la caisse comprend de manière supplémentaire une pluralité d'éléments de cadre (94) pouvant être fixés sur et entre les extrémités avant et arrière de la caisse.

10. Caisse selon la revendication 9, dans laquelle chacun des éléments de cadre (94) est muni d'un moyen d'accueil permettant d'accueillir une base d'une autre caisse, ce qui permet un empilage d'une caisse sur l'autre.

11. Caisse selon l'une quelconque des revendications 1 à 10, dans laquelle le ou les élément(s) de soutien (204) déployable(s) est/sont agencé(s) de sorte qu'un encombrement longitudinal de ladite caisse est réduit dans la position déployée.

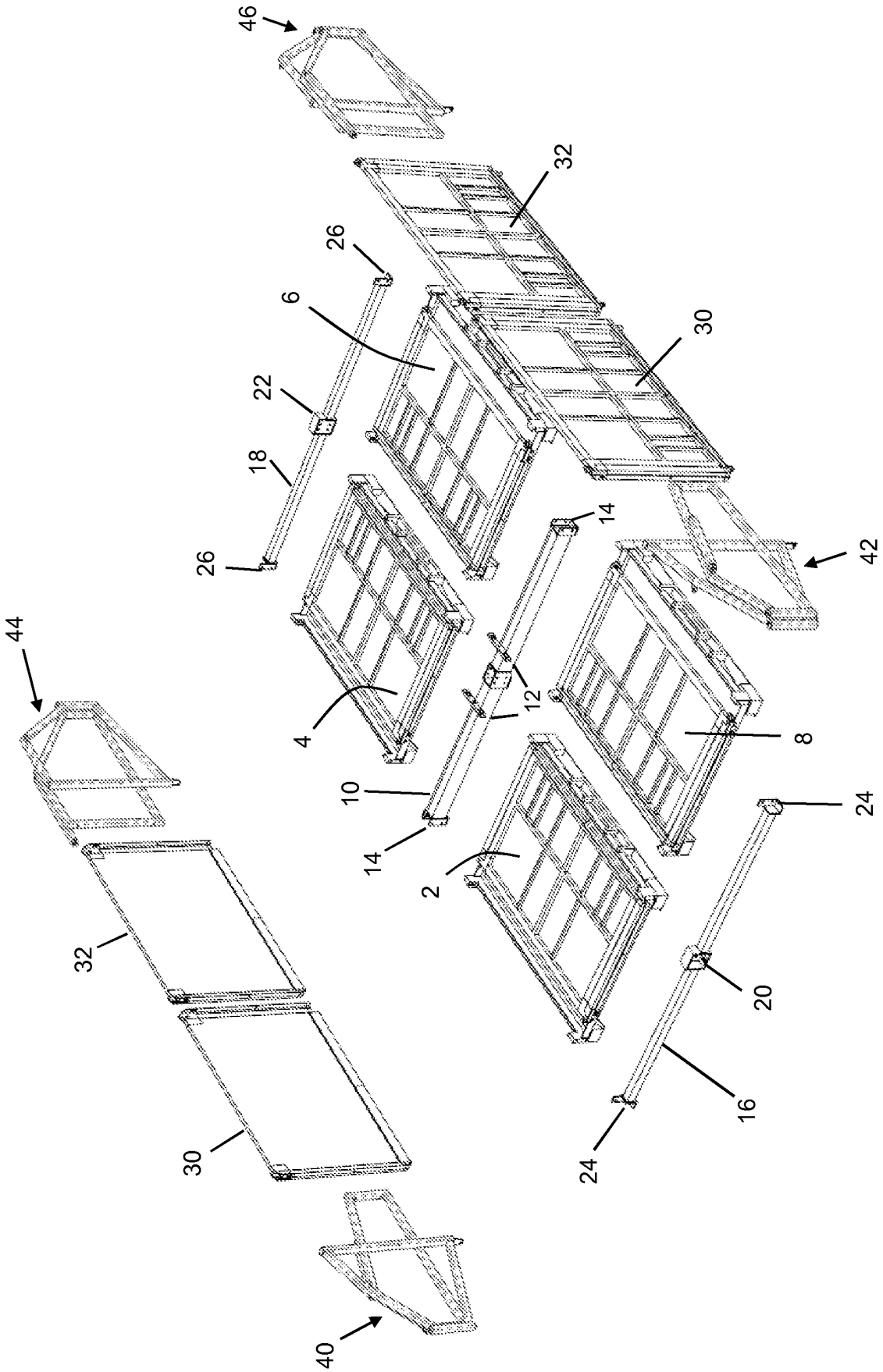

Figure 1

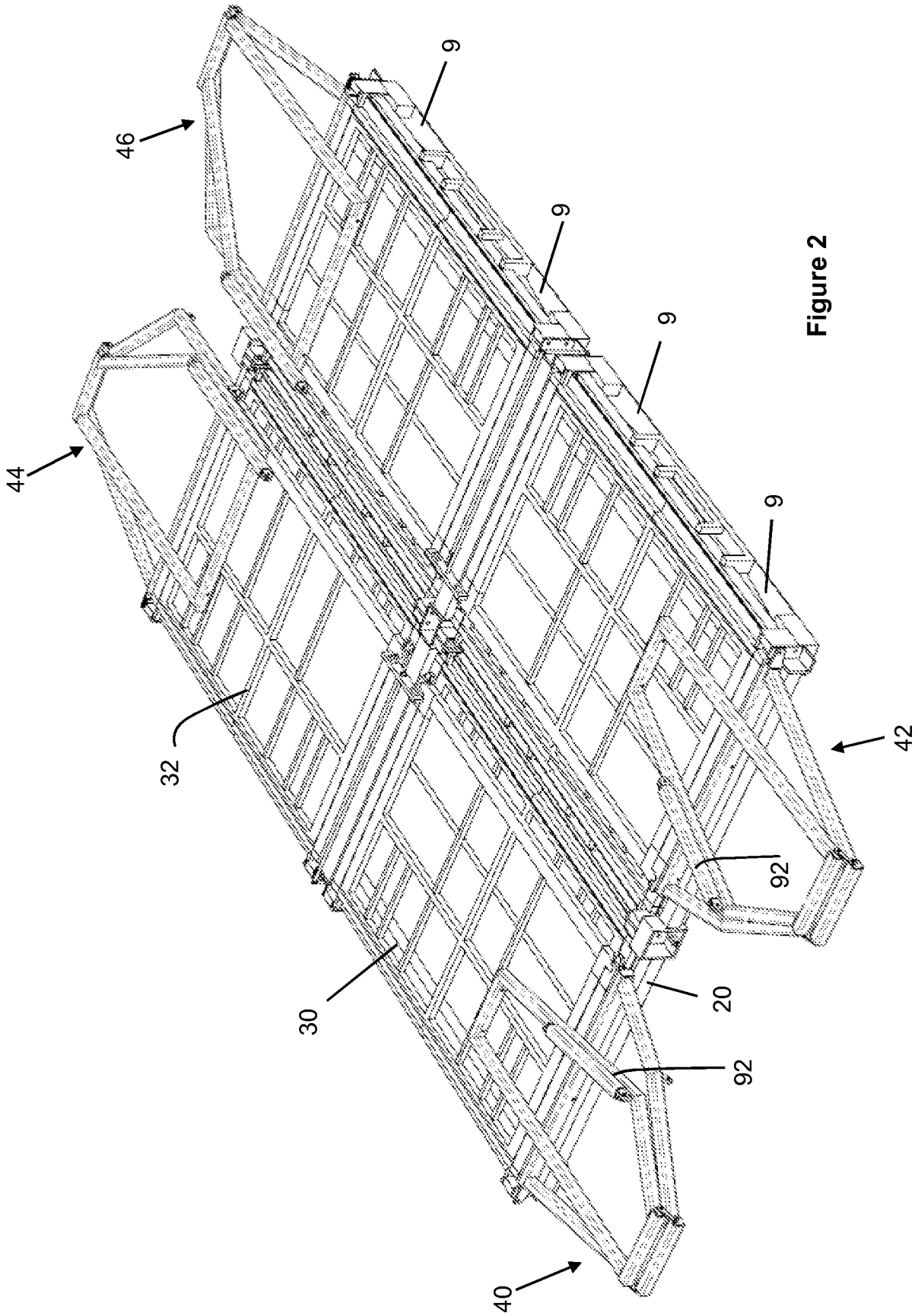

Figure 2

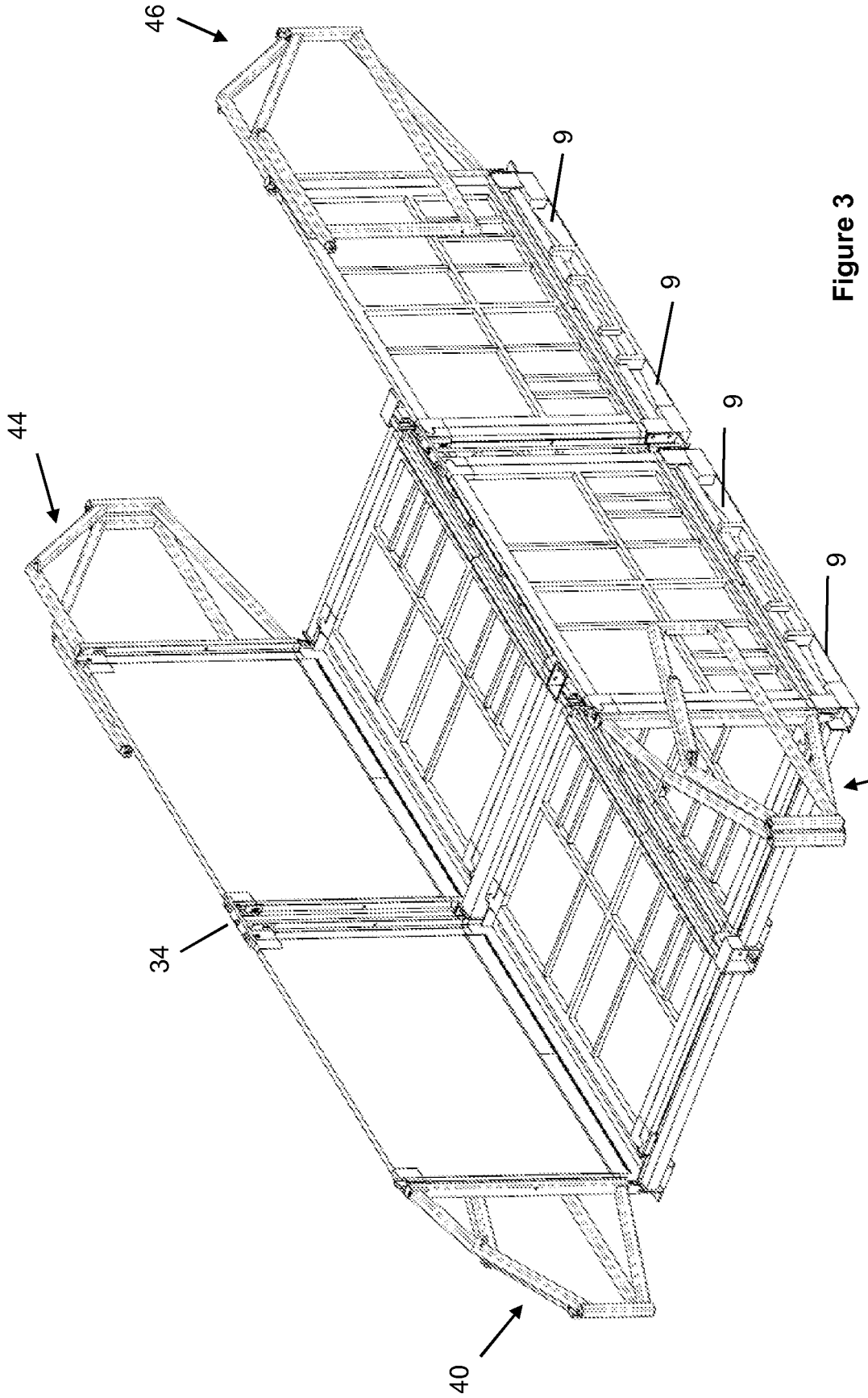

Figure 3

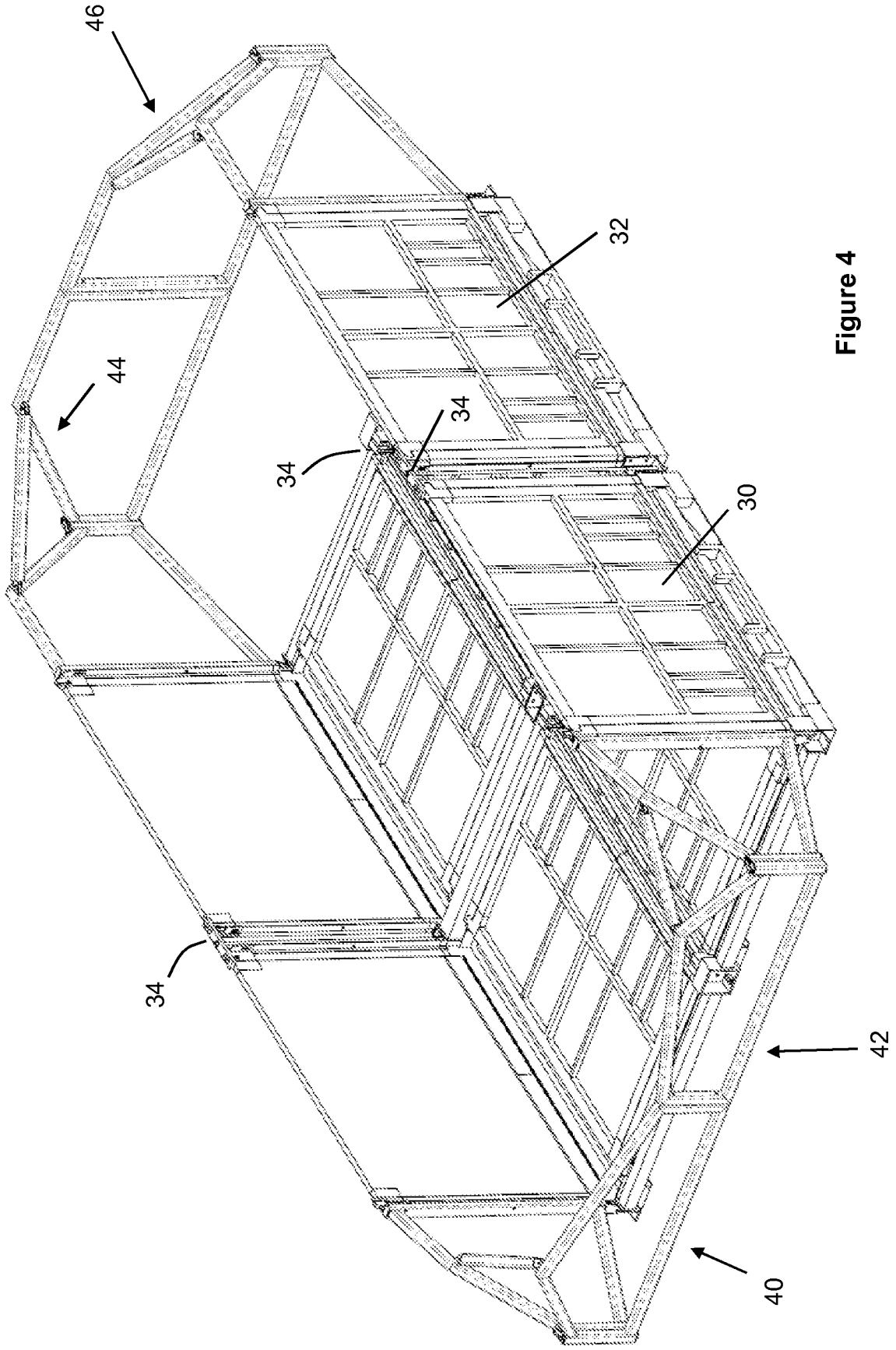

Figure 4

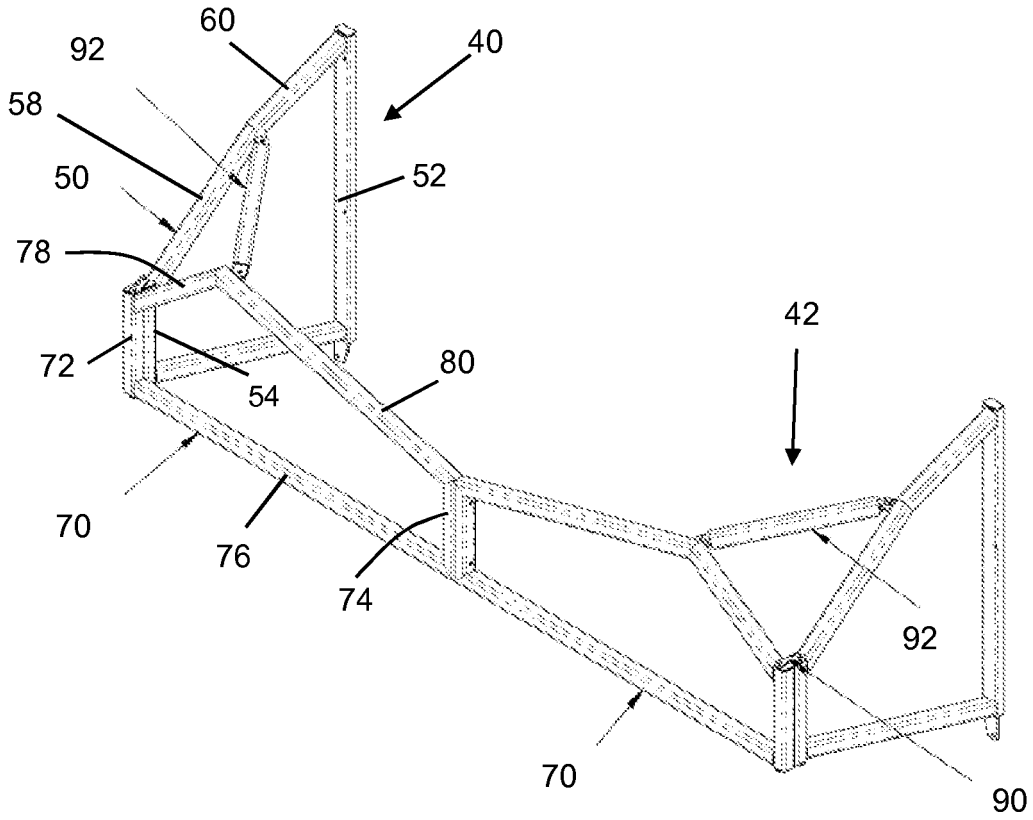

Figure 5

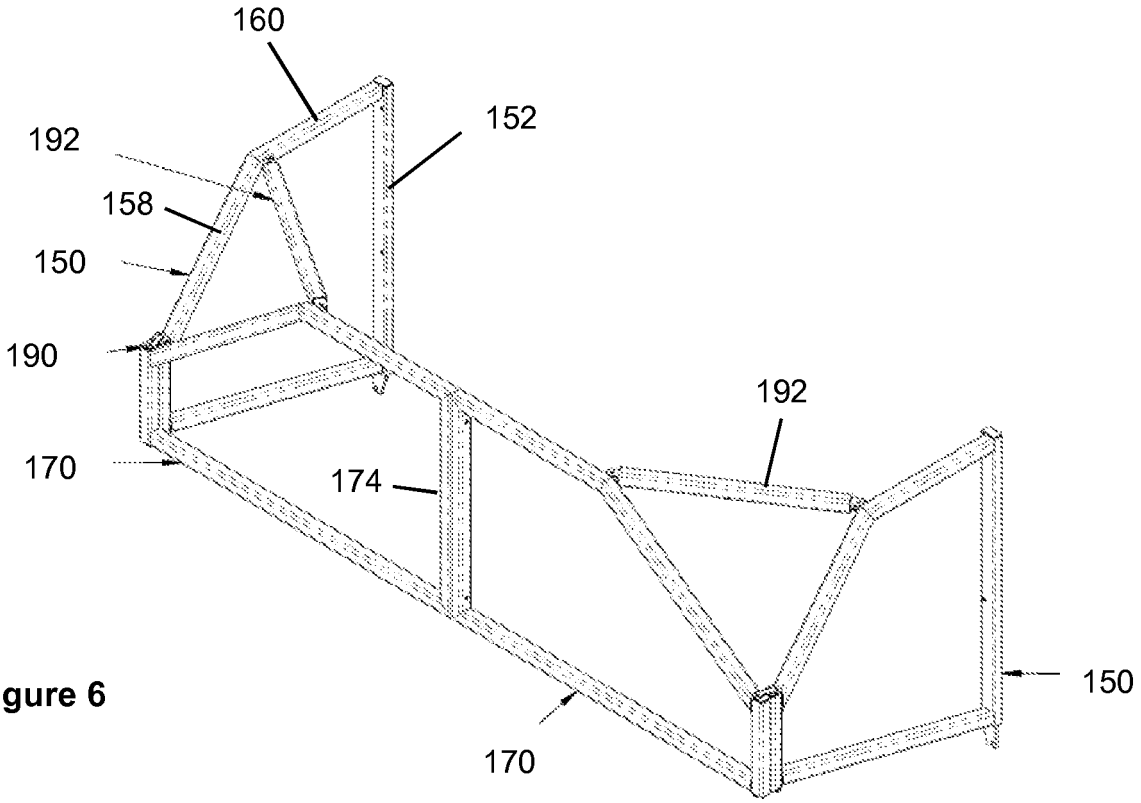

Figure 6

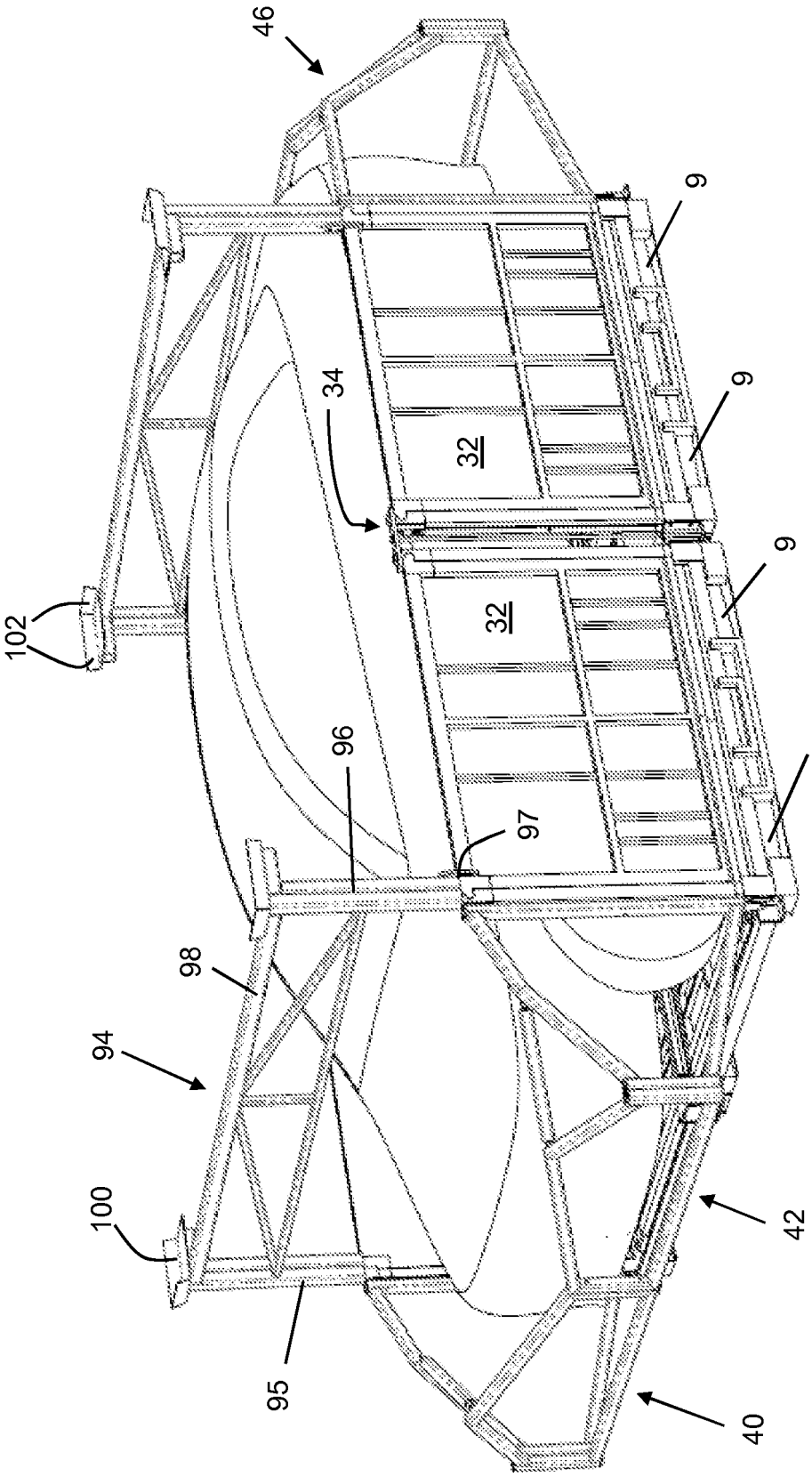

Figure 7

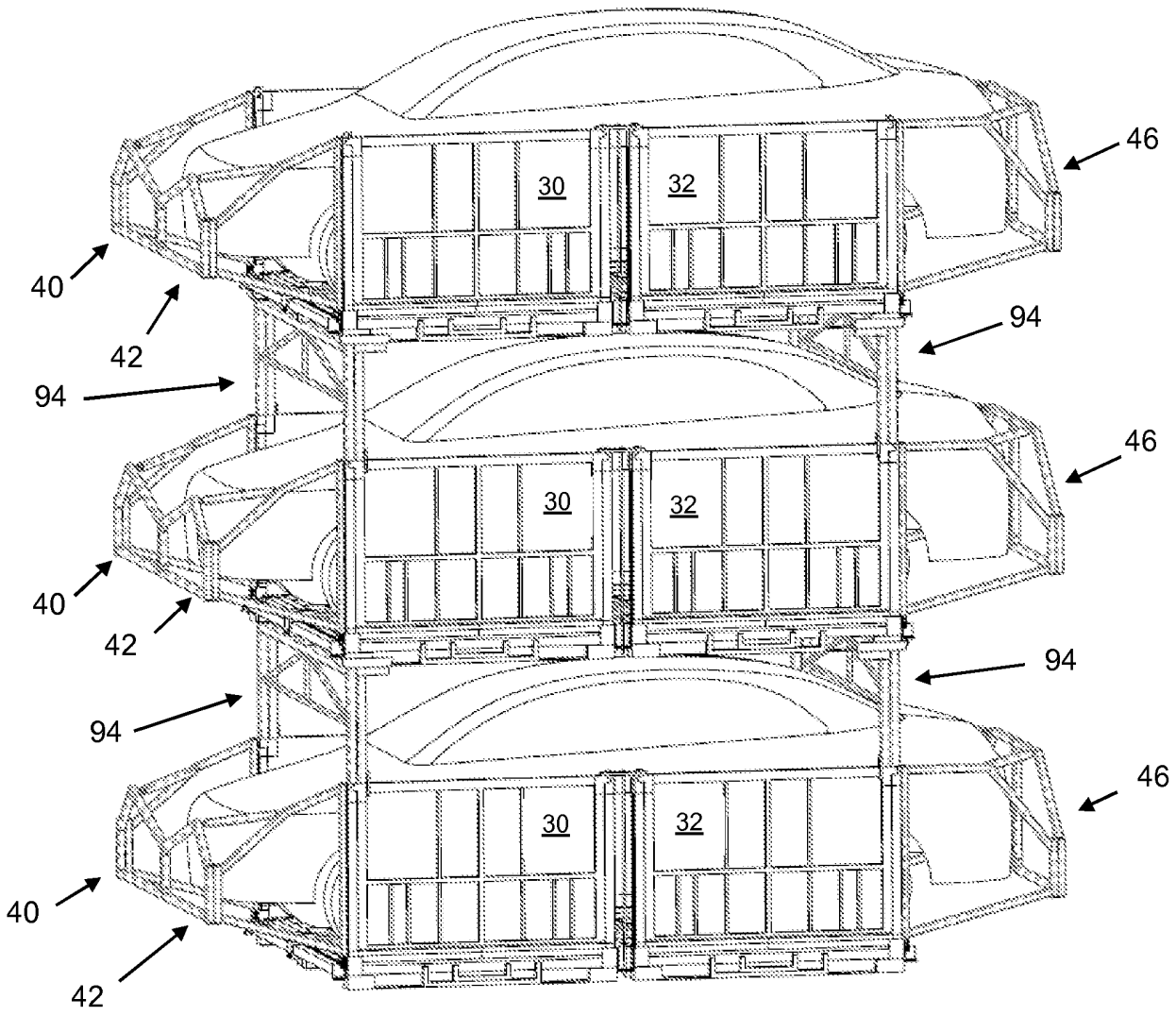

Figure 8

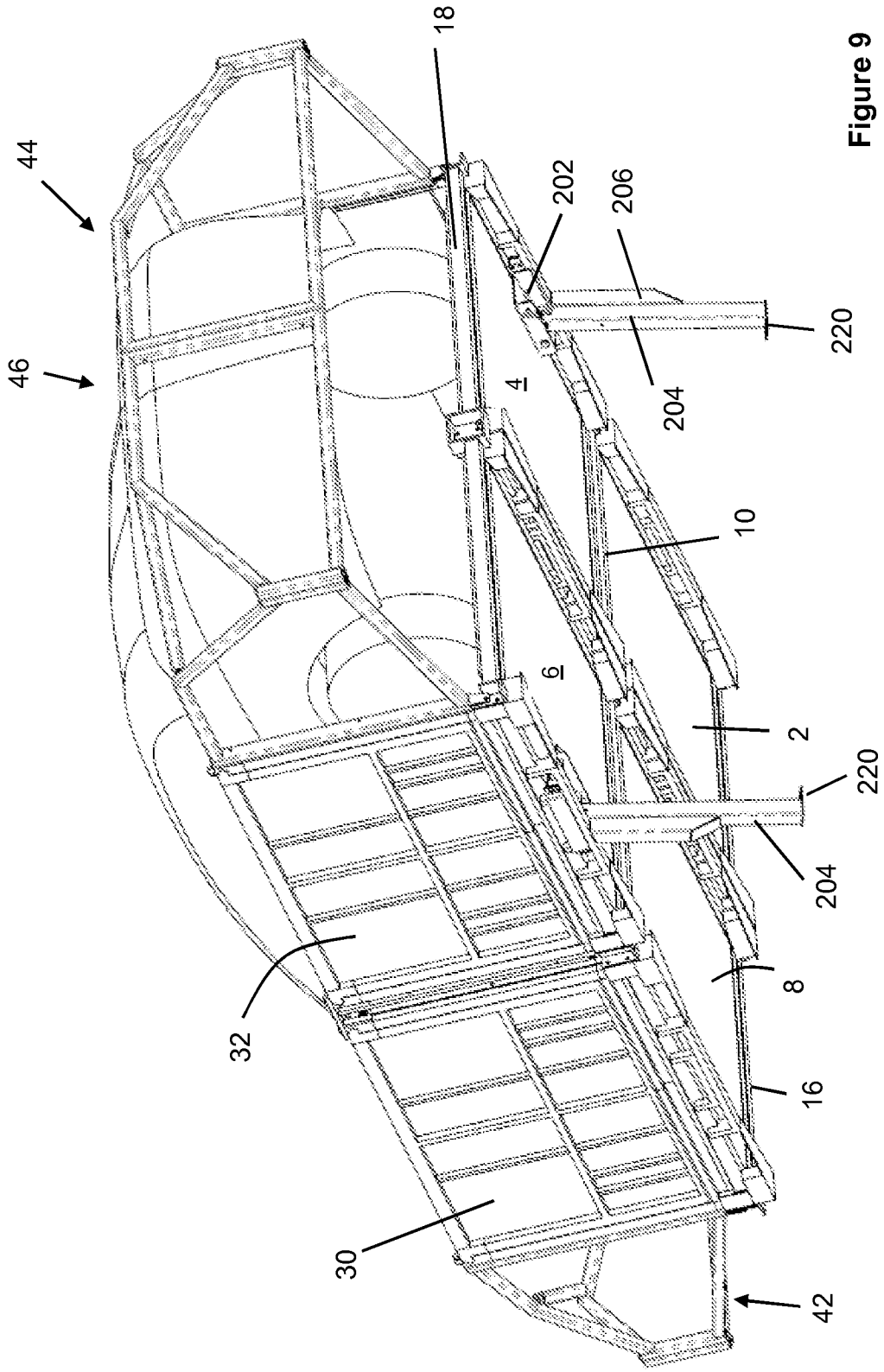

Figure 9

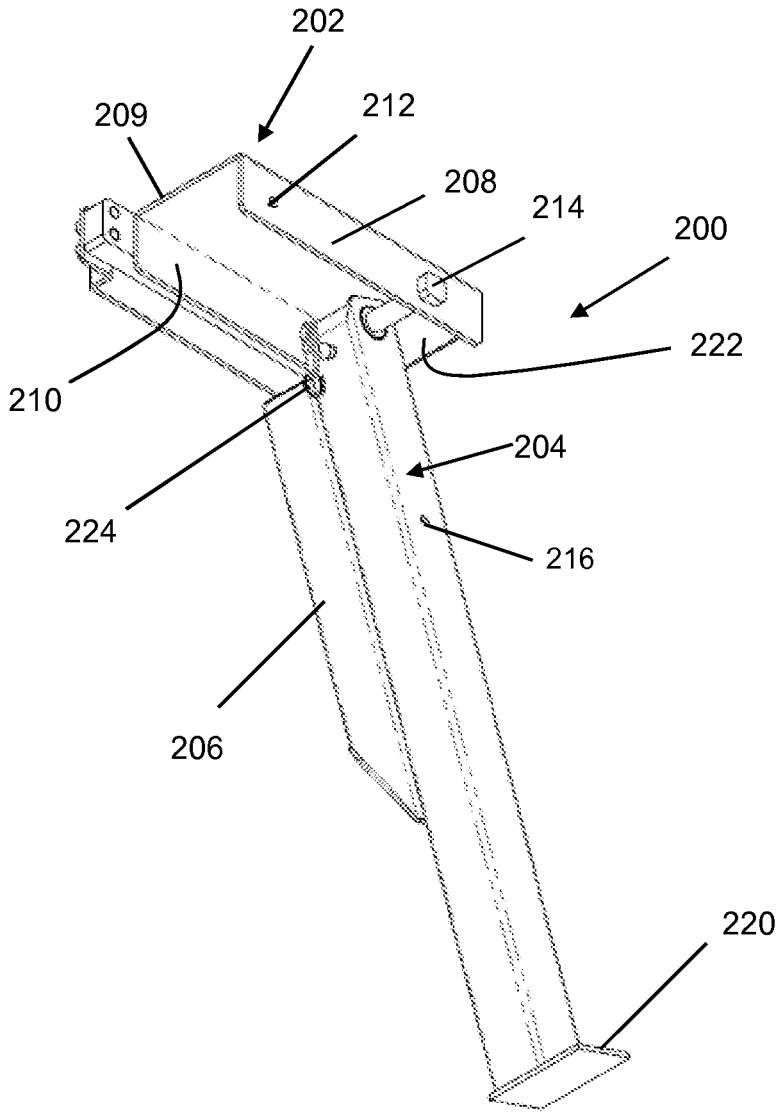

Figure 10

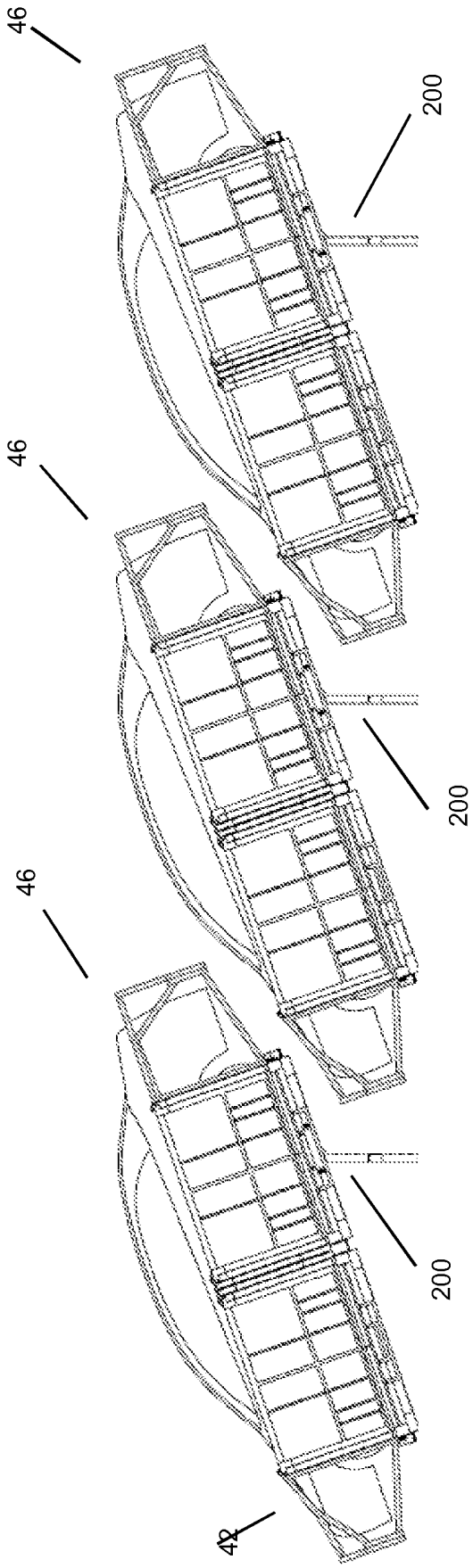

Figure 11

REFERENCES CITED IN THE DESCRIPTION

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