(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 June 2013 (06.06.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/079121 Al

(51) International Patent Classification:
B65D 19/00 (2006.01)

(21) International Application Number:
PCT/EP20 11/071677

(22) International Filing Date:
2 December 201 1 (02.12.201 1)

(25) Filing Language: English

(26) Publication Language: English

(72) Inventors; and
(71) Applicants : **WILLEMS, Luc Hugo Andrea** [BE/BE]; Molenstraat 114, B-9950 Waarschoot (BE). **POTARGENT, Johan Cornells** [BE/BE]; Kraailingenveld 14, B-3740 Bilzen (BE).

(74) Agents: **DUYVER, Jurgen** et al; Holidaystraat 5, B-183 1 Diegem (BE).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available):* AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available):* ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

WO 2013/079121 A1

(54) Title: PALLET, PALLET ASSEMBLY AND ASSEMBLING METHOD THEREFOR

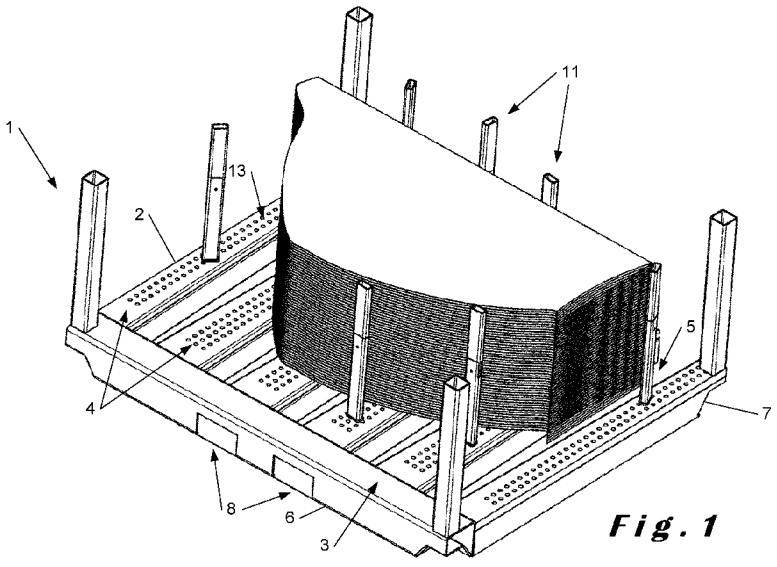


Fig. 1

(57) Abstract: A pallet comprising a substantially planar load bearing surface (2), wherein the load bearing surface (2) is formed by supporting elements (3, 4) comprising a first element (3) and second elements (4), the second elements (4) substantially forming the load bearing surface (2), the second elements (4) protruding from the first element (3) along an extending direction, the second elements (4) delimiting recesses (5) in between them, characterized in that the pallet is being provided to receive second elements (2) of a second such pallet in the recesses (5) such that the load bearing surfaces (2) of the first and second pallet lie in substantially the same plane.

Pallet, pallet assembly and assembling method therefor

This invention relates to a pallet comprising a planar load bearing surface and to an assembly of pallets.

The invention also relates to a method for assembling pallets.

Pallets for supporting and moving various types of articles are well known in the art. Pallets may be made from different materials, including wood, metal, fibreglass, composite materials or plastic, depending on the intended use and operating environment. Pallets are generally provided with a planar load bearing surface and are adapted for use with several types of loading equipment such as cranes, forklifts or other specialised equipment. When not loaded, pallets take up a lot of floor space and may be stored in a stacked configuration, as shown for example in US5606921 . These stacks are however often unstable and/or damage of the stacks during transportation may occur. Another way to reduce the dimensions of pallets during transportation when not loaded is to provide modular pallets which could be disassembled into separate and easily stackable pieces when not loaded, as shown for example in US201 1/0253016. The lifetime of such pallets is rather limited because the heavy loads usually transported on pallets after a while wear out the connections between the pieces. Assembling/disassembling often also requires special tools. Moreover, the assembling and disassembling of pallets takes time, and this is often a key limiting factor in logistics. WO92/01607 describes a pallet having a load bearing surface comprising two sections with interlocking protrusions which mate to receive a releasable locking member, wherein the protrusions are small with respect to the total load bearing surface in order to obtain a larger pallet when the two sections are assembled

to receive for example a bulky load.

The pallets according to the state of the art therefore have a configuration giving considerable storage and transportation problems when the pallet is not loaded.

There is thus a need for a pallet which takes up less floor space during storage and/or transportation when the pallet is not loaded and provides a large load bearing surface when the pallet is loaded.

Thereto, the pallet is being provided to receive second elements of a second such pallet in the recesses such that the load bearing surfaces of the first and second pallet lie in substantially the same plane.

The inventor has found that a pallet having such a configuration allows for a simple space-saving storage when the pallet is not loaded. To store such pallets when not loaded, the pallets are placed such that the second elements and the recesses of a first complementary pallet can engage with complementary recesses and second elements of a second complementary pallet, creating a pallet assembly taking up much less floor space than the pallets taken separately. The second elements are of a shape and size so that the second elements can be inserted in the recesses of a second pallet and will be for example secured by the frictional forces created from the contact of the outer surface of the second elements and the inner surface of the recesses. No substantial obstacles should be present when engaging the second elements and the recesses of a first complementary pallet with complementary recesses and second elements of a second complementary pallet, for example in the recesses, hindering second elements to be inserted in the recesses. For the same reasons, no cross members should for example be present in the recesses, hindering second elements to be inserted therein. An important advantage of the pallets of the present invention is that they do not have to contain moving parts and/or connection or fixation means which are subjected to wear and fatigue and decrease the lifetime of the pallet. An additional advantage is that a pallet wherein the load bearing surface is formed of second elements and recesses between them can be much lighter than a corresponding pallet without any recesses. The load bearing surface is substantially planar for providing a

platform upon which goods may be placed for storage and transportation.

According to preferred embodiments of the current invention the pallet is delimited by a first side and a second side.

According to preferred embodiments of the current invention the first side is a longitudinal side and the second side is a lateral side. Pallets having a longitudinal side and a lateral side are most commonly used in logistics, since the longitudinal side and the lateral side define a versatile planar load bearing surface which allows for a convenient placement and transport of goods. More preferably, the load bearing surface has a rectangular shape, since pallets having this shape are most commonly used in transportation and shipping worldwide and are therefore compatible with existing storage facilities, transportation equipment and the standards in use.

According to preferred embodiments of the current invention the first element extends in a direction along the first side.

According to preferred embodiments of the current invention at least one of the second elements extends in a direction along the second side.

According to preferred embodiments of the current invention the second elements are tapered. Such a pallet with tapered second elements has the advantage that it helps the engagement, alignment and insertion of the second elements into the recesses of a corresponding similar pallet with opposite orientations, making it easier and faster to form a space saving assembly of two or more pallets. The tapered second elements have preferably the shape of a right and or isosceles trapezoid. The second elements at the sides of the pallet are preferably right trapezoids and the remaining second elements are preferably isosceles trapezoids.

According to preferred embodiments of the current invention at least two forklift passages are present in the second elements for receiving the arms of a forklift.

According to more preferred embodiments of the current invention the forklift passages are present in a direction along the first side of the pallet. Pallets with at least two forklift passages, especially forklift

passages extending in the direction of the first side of the pallet, can easily receive the arms of a forklift, pallet jack or other similar means and may as a result be easily transported. Indeed, most forklifts or pallet jacks commonly used in the art use two arms to properly balance a loaded pallet. For providing even more convenient transportation possibilities, the forklift passages may extend all the way through the second side of the pallet, doubling the points of entry for the forklift arms. Optionally, the forklift passages are slightly tapered, allowing easier alignment and insertion of the arms of a forklift or a hand truck, because the forklift passages are wider at the point of insertion and gradually become narrower when moving towards the basis of the pallet. This greatly simplifies and speeds up the work of the fork lift drivers.

According to preferred embodiments of the current invention the second elements and the first element comprise an assembly of at least one support cavity and at least one support portion compatible in size and shape with the support cavity. The second elements may comprise at least one support cavity extending into the second element along the extending direction and the first element may comprise at least one support portion extending from the recess. It is equally advantageous to provide the second elements with at least one support portion extending from the second element along the extending direction and the recesses with at least one support cavity extending from the recesses into the first element and compatible in size and shape with the support portion. When such an unloaded pallet is stored, it is for example placed in opposite orientations with a second complementary pallet such that the second elements and the recesses of the first pallet can engage with complementary recesses and second elements of the second complementary pallet when moving closer towards each other, creating a pallet assembly as described above. The support portions extending from the second elements of the first pallet engages with the support cavity of the second complementary pallet and vice versa and in this manner form a secure connection between the pallets and strengthen the assembly thus created so that the assembly can be transported, for example by a forklift without falling apart into separate pallets.

According to preferred embodiments of the current

invention the pallet further comprises upwardly extending load storing means, mounted on the pallet.

Unless the load is adequately secured within the pallet, it is apt to move or shift, which generally results in damaged loads and also frequently damages the pallet. The upwardly extending load storing means, mounted on the pallet are provided for maintaining the integrity of the load both regarding its compactness and its location with respect to the pallet, especially when the loads are stacked in the height direction. Loads may be stored in the load storing means in various ways, including by means of cables, elastic bands, hooks etc. Depending on the intended use, several load storing means are possible. Suitable load storing means may be mounted wholly or partially on the first and/or the second elements, as long as the load storing means, when the pallet is not loaded and when engaging the second elements and the recesses of a first complementary pallet with complementary recesses and second elements of a second complementary pallet, block in any way the recesses of the pallets and prevent the space-saving storage of the pallets. Detachable, foldable or partially foldable load storing means are possible within the framework of the present invention. Preferably, care should be taken that the load stored in the upwardly extending load storing means does not jeopardize the stability of the pallet, especially when the load is stored at the position high up in the load storing means.

According to more preferred embodiments of the current invention the upwardly extending load storing means is a framework construction.

Such a pallet having a framework construction makes it easy to transport parts and sub-assemblies and offers bracing support for the objects carried on the pallet. For example, an upright frame may be mounted on the first and/or the second elements and cross-frame portions may extend from the frame. Optionally, vertically-spaced shelves may be detachably mounted on the cross-frame portions for supporting items such as parts and equipment. Another possibility is to mount vertically spaced horizontal rails to carry parts or for supporting containers, which in turn carry parts.

The invention also relates to an assembly comprising at least a first and a second pallet according to the invention, characterized in that the second elements of the first pallet mate with complementary recesses of the second pallet.

The pallet assembly allows for a space-saving storage and transportation of the pallets when not loaded. This is of prime importance when pallets are returning from their destination not carrying any new load to their point of origin. The floor space gained by assembling the pallets in such an assembly can be taken up by additional cargo and/or additional pallets, assemblies etc. Because no particular assembling/disassembling tools are required, such an assembly is readily implementable in the logistics chain.

According to preferred embodiments of the current invention the support cavity of the first pallet and the support portion of the second pallet form an interlocking pair for securing the connection of the pallets.

The support portions extending from the recesses of the first pallet engage with the support cavities of the second complementary pallet forming an interlocking pair and in this manner a secure connection between the pallets and strengthen the assembly is created so that the assembly can be transported, for example by a forklift without falling apart into separate pallets.

The invention also relates to a method for storing unloaded pallets by assembling at least two complementary pallets according to the invention, comprising the steps of mating the second elements and the recesses of the first pallet with the respective recesses and second elements of the second pallet such as to obtain the assembly according to the invention.

The inventor has found that the present method allows for a space-saving storage when the pallet is not loaded without involving complicated and time consuming operations. To store such pallets when not loaded, the pallets are placed such that the second elements and the recesses of a first complementary pallet can engage with complementary recesses and second elements of a second complementary pallet when

moving closer towards each other, creating a pallet assembly taking up much less floor space than the pallets taken separately. The second elements and recesses may for example engage slidingly or they may approach each other from above. The second elements and recesses are preferably of a complementary shape and size and no substantial obstacles should be present in the recesses hindering complementary second elements to be inserted therein. The method described above does not involve any complicated operations, it does not take up much time and is perfectly reversible; without substantially wearing out the constituent parts of the pallets. The assembly resulting from assembling the at least two pallets comprises preferably a load bearing surface, the surface area of which is smaller than the sum of the surface areas of the two pallets taken apart. The assembly thus obtained requires, in other terms, less floor space than the two separate pallets during transport and storage.

According to preferred embodiments of the current invention the method comprises the step of sliding the second elements of the first pallet into the recesses of the second pallet.

Two such pallets, when unloaded, can be placed, for example on a floor, such that the second elements and the recesses of the first pallet are facing complementary recesses and second elements of the second pallet, whereupon the two pallets are sliding together and form a pallet assembly.

The invention also relates to the use of a pallet according to the invention for the transportation of goods.

According to preferred embodiments of the current invention, the use of a pallet according to the invention relates to the transportation of automotive parts, such as car parts.

Such a pallet is of particular interest for use in the transportation of car parts. Pallets transporting cars parts often return unloaded to their point of origin, taking up a lot of floor space. Using pallets according to the present invention reduces considerably the floor space of empty pallets, assembled into assemblies and transporting such assemblies is both as convenient as transporting single pallets and much it is much quicker

to do so, since fewer journeys need to be made for transporting the same number of pallets.

Other details and advantages of the pallet according to the invention will become apparent from the enclosed figures and description of preferred embodiments of the invention.

Figure 1 shows a view in perspective of a loaded pallet according to the invention.

Figure 2 shows a view in perspective of an assembly of two pallets according to the invention.

Figure 3 shows a view in perspective of two pallets, illustrating the method according to the invention.

Figure 4 shows a sectional view of a preferred embodiment of a pallet according to the invention.

Figure 5 shows a view in perspective of a preferred embodiment of a pallet according to the invention.

Figure 6 shows a view in perspective of a preferred embodiment of a loaded pallet according to the invention.

Figure 7 shows a view in perspective of a preferred embodiment of a stack loaded pallets according to the invention.

Figure 8 shows a view in perspective of a preferred embodiment of a stack of assemblies of empty pallets according to the invention.

Referring to the drawings, wherein like reference numerals designate corresponding structure throughout the views, and referring to Figure 1, there is shown a first embodiment of a loaded pallet, generally designated 1.

The pallet 1 shown preferably is made from steel, such as stainless steel, but other materials such as aluminium, fibreglass, plastic, wood or composite materials could be utilized as well. The materials may be selected, depending on the operating environment, the weight of the loads to be stored and/or transported.

The pallet 1 comprises a substantially planar load bearing surface 2 which is formed by supporting elements 3,4 and serves as a

platform on which loads may be placed. The load bearing surface 2 of the embodiments shown in the figures are generally rectangular, however, in other possible embodiments, the load bearing surface may be provided in any shape which allows for the convenient storage and transport of loads such as for example trapezoid, square or oval.

The supporting elements 3,4 comprise a first element 3 and second elements 4. A number of second elements 4 are protruding from the first element 3 to substantially form the load bearing surface 2, configured for supporting goods. Preferably, the first element 3 extends along a first direction along the first side 6, here referred to as the basis direction and the second elements 4 extend along a second direction along the second side 7, here referred to as the extending direction. Preferably the first and second directions cross one another. More preferably, the first and second directions are substantially perpendicular. As shown in Figures 1-8, associated with each of the second elements 4 are recesses 5 formed in the load bearing surface 2. Although the second elements 4 and recesses are shown as being generally tapered, other shapes such as rectangles, trapezoids, such as right and/or isosceles or triangles may also be used.

Although six second elements 4 are shown in Figure 1, it can be appreciated that fewer or more elements may be utilized. Many different combinations and permutations of the number, shape and position of the second elements 4 are contemplated by the present invention.

As shown in Figures 1 and 2 perforations 13 are preferably present in the second elements 4. Such perforations 13 are an advantageous feature and render the pallet for example lighter without seriously compromising the strength of the pallet 1 and avoid the accumulation on the pallet 1 of for example liquids, which may leak from the load bearing surface 2 or even increase the load. The perforations 13 may also be used for anchoring the upwardly extending storing means 11 on the pallet 1. Perforations may for example also be present for anchoring purposes on side panels which may be mounted on the pallet 1.

In the embodiments shown in Figures 1-8, the pallets are delimited by a first side 6 and a second side 7, in particular a substantially

straight lateral and longitudinal side. Such delimited pallets, when placed side by side, allow for a space saving arrangement on the floor.

It is to be appreciated that in the illustrated embodiments, two forklift passages 8 are present in the first element 3 and extending along the second elements 4 (see Figures 1 and 2) and/or in the second elements 4 and extending along the first element 3 (see Figures 3-8). Such a configuration allows for the insertion of the arms of a forklift, pallet jack or other lifting device commonly used in the art. Most forklifts or pallet jacks commonly used in the art use two arms to properly balance a pallet. The pallets configured as shown comprise forklift passages 8 extending all the way through a side of the pallet, allowing for the forklift arms to be inserted from 2 opposite sides of the pallet, although such a feature is not a necessary element of the invention. Although rectangular forklift passages are illustrated in the included Figures, the cross-sections of forklift passages may be of any suitable shape, including square, rounded, hexagonal, so long as the passages allow the passage of the forklift arms which are to be inserted therein. The forklift passages may be for example straight or tapered, for allowing an easier access for the forklift arms.

In some embodiments, the second elements 4 comprise at least one support cavity 9 extending into the second element 4 along the extending direction and the first element 3 comprises at least one support portion 10 extending from the recess 5 and compatible in size and shape with the support cavity 9, as shown in Figure 4. It is also to be appreciated that in some embodiments, the support portions 10 could extend from the second elements 4 and the support cavities 9 extend into the recesses 5, without changing the functionality. The support cavity 9 may be of any suitable shape, so long as it corresponds to the shape of the corresponding support portion 10, which is to be inserted therein. In the assembly 12 obtained by assembling at least two pallets 1, the support portions 10 extending from the recesses 5 and the support cavities 9 extending into the second elements 4 form an interlocking pair, securing the connection between the pallets 1 and strengthening the assembly 12 thus created such that is does not easily fall apart into separate pallets 1.

Upwardly extending load storing means 11 are present on the pallets 1 in some embodiments, as illustrated in Figures 1-8. The upwardly extending load storing means 11 are provided to maintain the integrity and secure the position of the load, present on the pallet 1 and may be made from any material suitable for allowing this. Suitable materials may be for example metals, plastics or composite materials. The upwardly extending load storing means 11 may be distributed over the pallets 1 in any possible way and may be connected to the pallet with any suitable connection means. Suitable connection means include but is not limited to nuts and bolts, a click system, hooks, snap-fit connection etc. Because different loads are stored on the pallets during different shipments, it is advantageous to be able to shift the position of or detach or fold the upwardly extending load storing means 11. Different combinations of shapes, positions and sizes of the upwardly extending load storing means 11 are within the scope of the present invention. In preferred embodiments illustrated in Figures 3 and 5-8, certain upwardly extending load storing means 11 form a framework construction. This framework construction is of particular interest for the storing and keeping intact of valuable and/or vulnerable uniform pieces of equipment such as automotive parts, such as car parts in a space saving manner. Illustrated in the figures is a framework construction with in the four corners of the pallet vertical support members and in between horizontal connecting members. Additional accessories may be attached to the framework construction to contribute to this aim, as illustrated in Figures 5-8. These accessories may include for example cushioned mounting supports for supporting fragile pieces of equipment.

Care should be taken in the construction and set up that the upwardly extending load storing means do not hinder the assembly of the pallet when unloaded and when engaging the second elements and the recesses of a first complementary pallet with complementary recesses and second elements of a second complementary pallet. The configuration of the upwardly extending load storing means could for example be such that when sliding two pallets together, the upwardly extending load storing means are too bulky /andor get entangled and hinder second elements to be inserted into

the recesses. Possible solutions to this problem are for example folding away, dismounting or removing the upwardly extending load when the pallets are unloaded and ready for assembling.

It can be appreciated that according to certain embodiments of the present invention, the pallets 1 are stackable, as illustrated in Figures 7 and 8. The upper sections of the framework construction, in this particular example the upper section of the vertical support member engages with the underside of the pallet 1, for example with a recess, groove or receptacle present on the underside of the pallet for keeping the pallets securely stacked and preventing the sliding or any other undesired movement of the pallet. The stacking of the pallets sets more stringent requirements for the selection of the materials of the framework construction, depending on the weight of the loads and the number of pallets that is to be stacked. When stacked in such a manner, several pallets 1 may be securely stacked together, optionally using for example ties or ropes, so that the stack may be transported or moved without the individual pallets separating or falling apart and taking up less floor space.

Two or more unloaded pallets 1 can be assembled into a pallet assembly 12, wherein the second elements 4 of the first pallet 1 mate with complementary recesses 5 in the second pallet 1. Illustrative embodiments of such assemblies 12 are shown in Figures 2, 6 and 8. In the figures, the second elements 4 and recesses 5 are all of the same shape and size for each pallet assembly 12. However, not all second elements/recess 4,5 combinations need to be identical, and the shape and size may differ for one combination to another both in the same pallet 1 and in different embodiments of the pallets 1. The method for assembling an assembly 12 of pallets 1 is illustrated in Figure 3. To assemble such pallets 1 when unloaded the pallets may be placed such that the second elements 4 of the first pallet 1 engage with the recesses 5 of the second pallet. The two pallets can for instance slide together until the assembly is formed and this sliding together can be facilitated by the tapered shape of the second elements 4, since it offers a wider opening at the onset of the recess 5 to mate with a second element 4 which is smaller at the extremity. When the assembly 12 is no

longer required, for example when the pallets needed because they are to be loaded with goods, the pallets 1 may be separated by applying a separating force between them. The component pallets 1 are then pried, pulled or otherwise taken apart. This may be done by holding one portion in place while applying a force to the other portion. Simple tools such as a hammer, a crowbar or other similar devices may be used to assist in the separation of the pallets from each other.

It is understood that variations and modifications of the present invention may be made without departing from the scope thereof. It is also understood that the present invention is not limited by the specific embodiments disclosed herein, but only in accordance with the appended claims when read in the light of the description.

CLAIMS

1. A pallet (1) comprising a substantially planar load bearing surface (2), wherein the load bearing surface (2) is formed by supporting elements (3,4) comprising a first element (3) and second elements (4), the second elements (4) substantially forming the load bearing surface (2), the second elements (4) protruding from the first element (3) along an extending direction, the second elements (4) delimiting recesses (5) in between them, characterized in that the pallet (1) is being provided to receive second elements (2) of a second such pallet in the recesses (5) such that the load bearing surfaces (2) of the first and second pallet (1) lie in substantially the same plane.

2. The pallet (1) according to claim 1, characterized in that the pallet (1) is delimited by a first side (6) and a second side (7).

3. The pallet (1) according to claim 2, characterized in that the first side is (6) a lateral side and the second side (7) is a longitudinal side.

4. The pallet (1) according to any one of the claims 2-3, characterized in that the first element (3) extends along the first side (6).

5. The pallet (1) according to any one of the claims 2-4, characterized in that at least one of the second elements (4) extends along the second side (7).

6. The pallet (1) according to any one of the claims 1-5, characterized in that the second elements (4) are tapered.

7. The pallet (1) according to any one of the claims 1-6, characterized in that at least two forklift passages (8) are present in the second elements (4) for receiving arms of a forklift.

8. The pallet (1) according to claim 7, characterized in that the forklift passages (8) are present in a direction along the first side (6) of the pallet.

9. The pallet (1) according to any one of the claims 1-8, characterized in that the second elements (4) and the first element (3) comprise an assembly of at least one support cavity (9) and at least one support portion (10) compatible in size and shape with the support cavity (9).

10. The pallet (1) according to claims 1-9, further comprising upwardly extending load storing means (11), mounted on the pallet (1).

11. The pallet (1) according to claim 10, characterized in that the upwardly extending load storing means (11) is a framework construction.

12. Assembly (12) comprising at least a first (1) and a second pallet (1) according to any one of the claims 1-11, characterized in that the second elements (4) of the first pallet (1) mate with complementary recesses (5) of the second pallet (1).

13. Assembly (12) according to claim 12 at least in combination with claim 8, characterized in that the support cavity (9) of the first pallet (1) and the support portion (10) of the second pallet (1) form an interlocking pair for securing the connection of the pallets (1).

14. A method for storing unloaded pallets (1) by assembling at least two complementary pallets (1) according to any one of the claims 1-11, comprising the steps of mating the second elements (4) and the recesses (5) of the first pallet (1) with respective recesses (5) and second elements (4) of the second pallet (1) such as to obtain the assembly (12) according to any one of the claims 12-13.

15. The method according to claim 14, comprising the step of sliding the second elements (4) of the first pallet (1) into the recesses (5) of the second

pallet (1).

16. Use of a pallet (1) according to any one of the claims 1-11 for the transportation of goods.

17. Use of a pallet (1) according to claim 16 for the transportation of automotive parts.

18. Use of a pallet (1) according to claim 17 for the transportation of car parts.

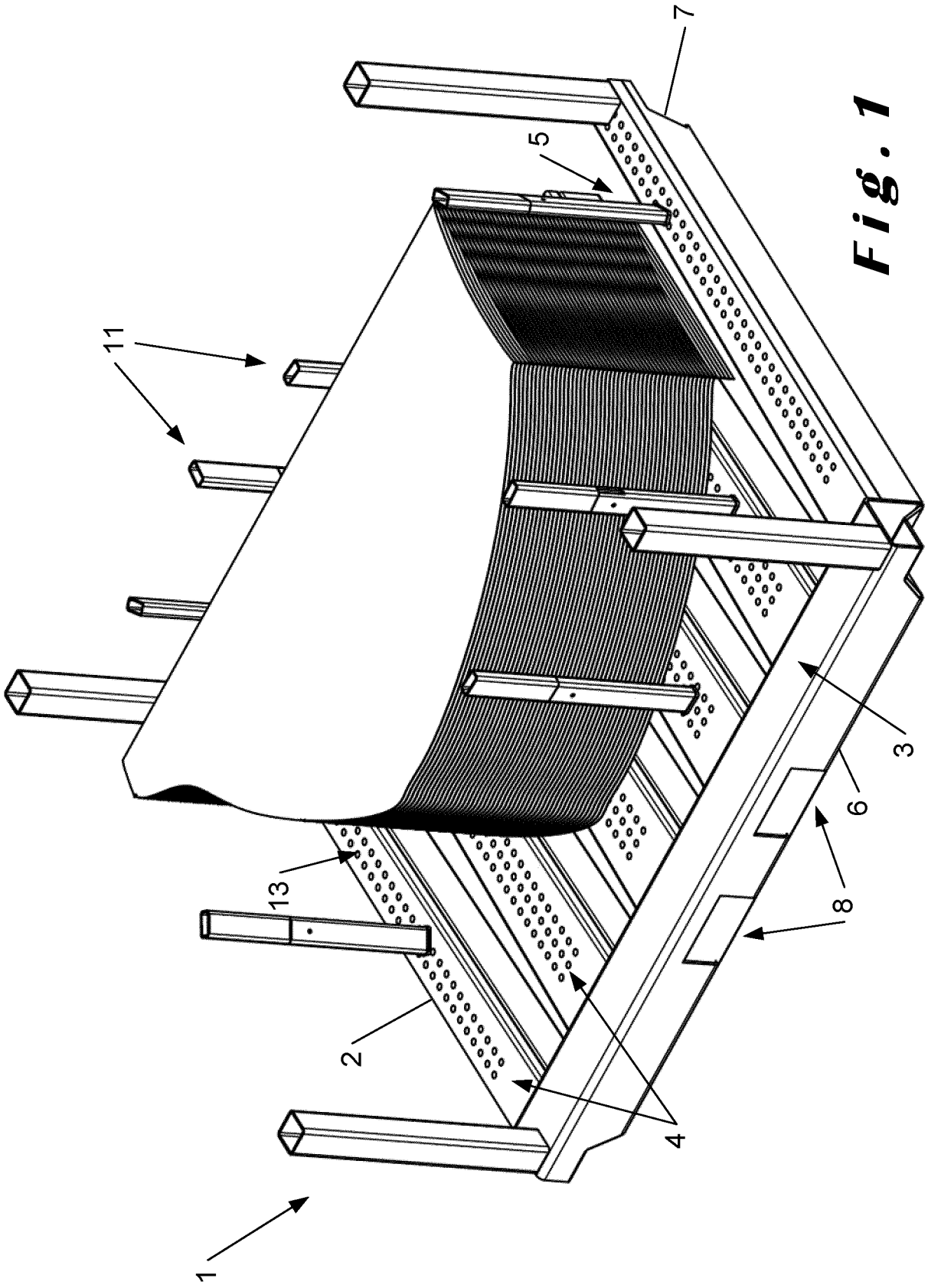


Fig. 1

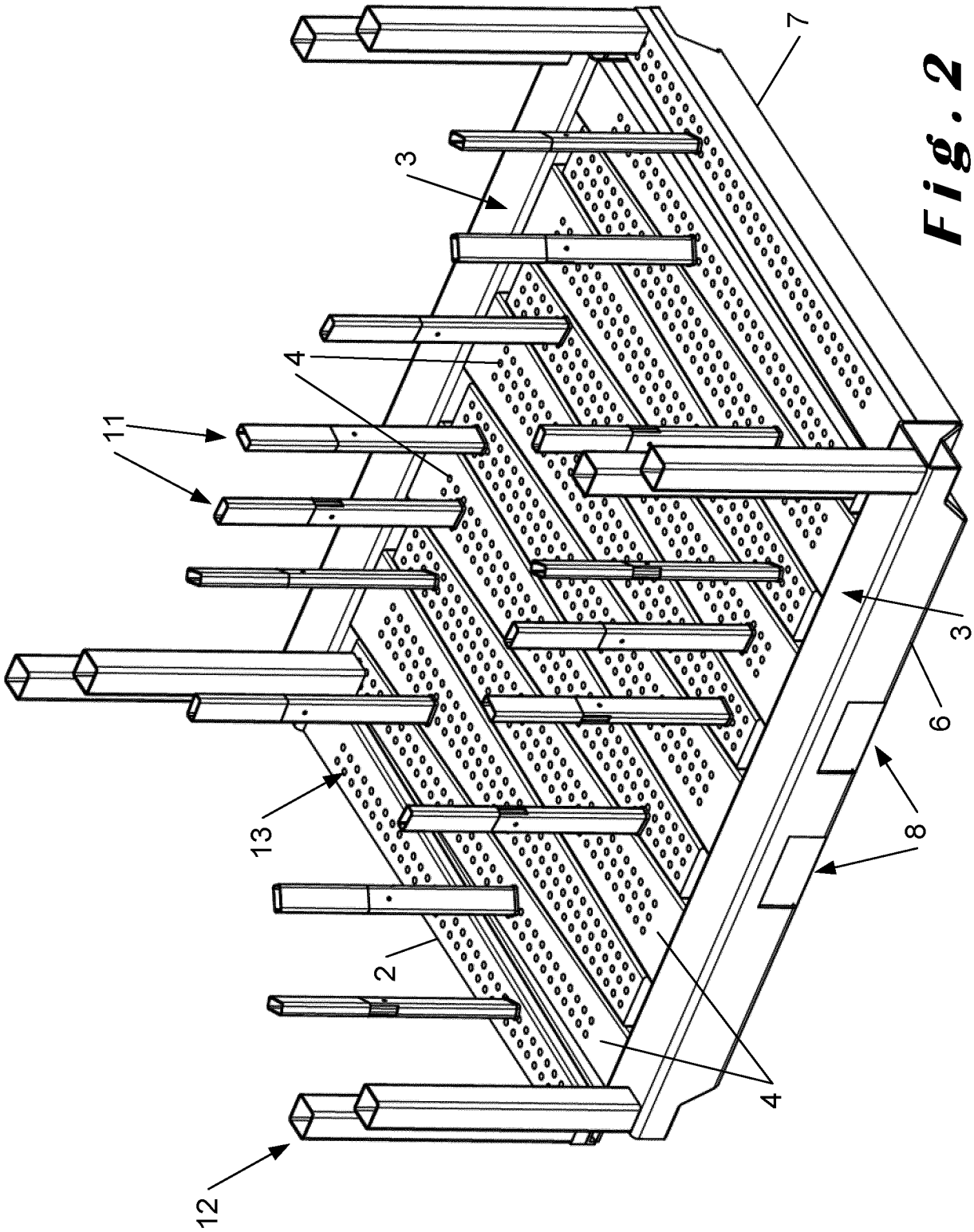
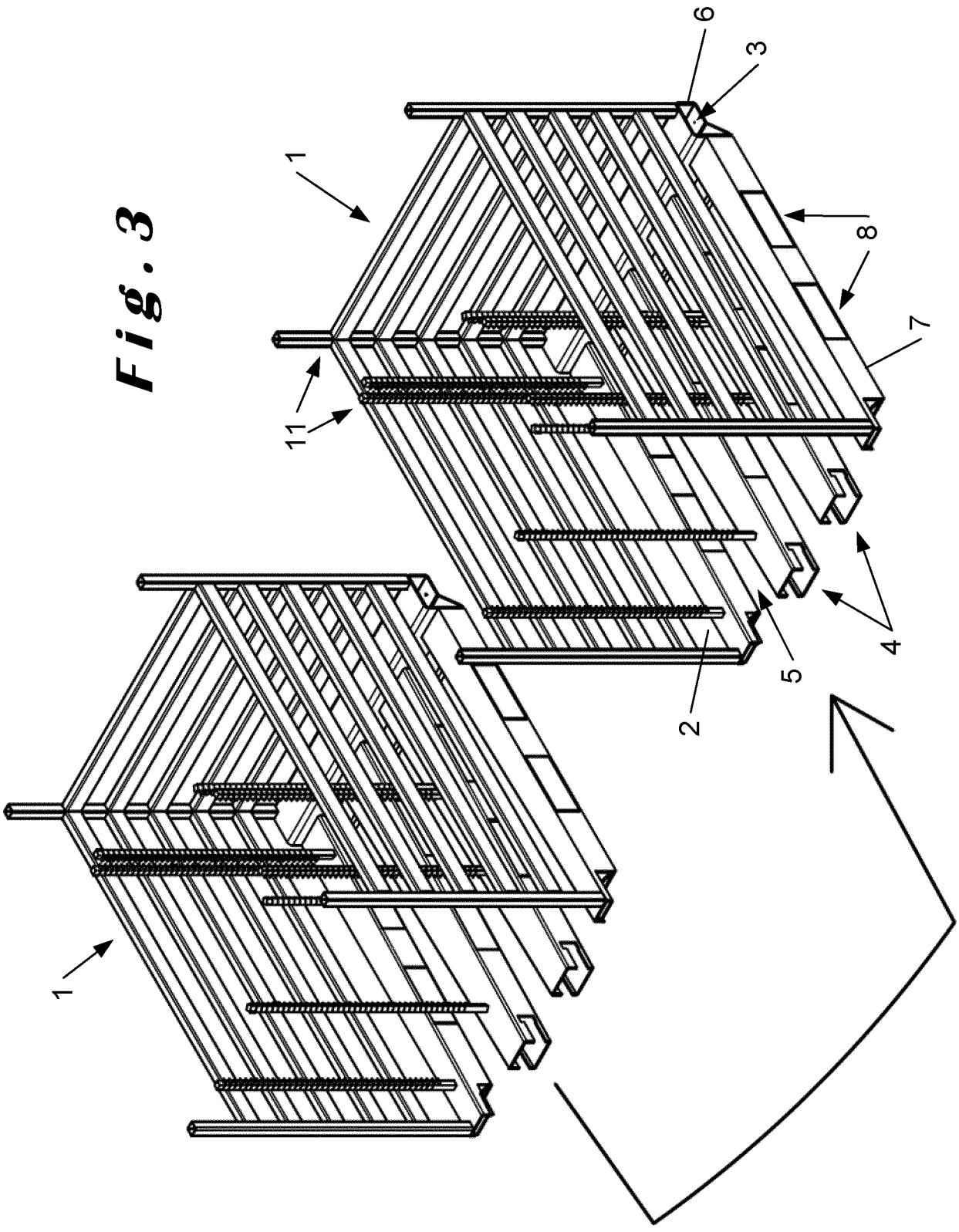


Fig. 2

Fig. 3



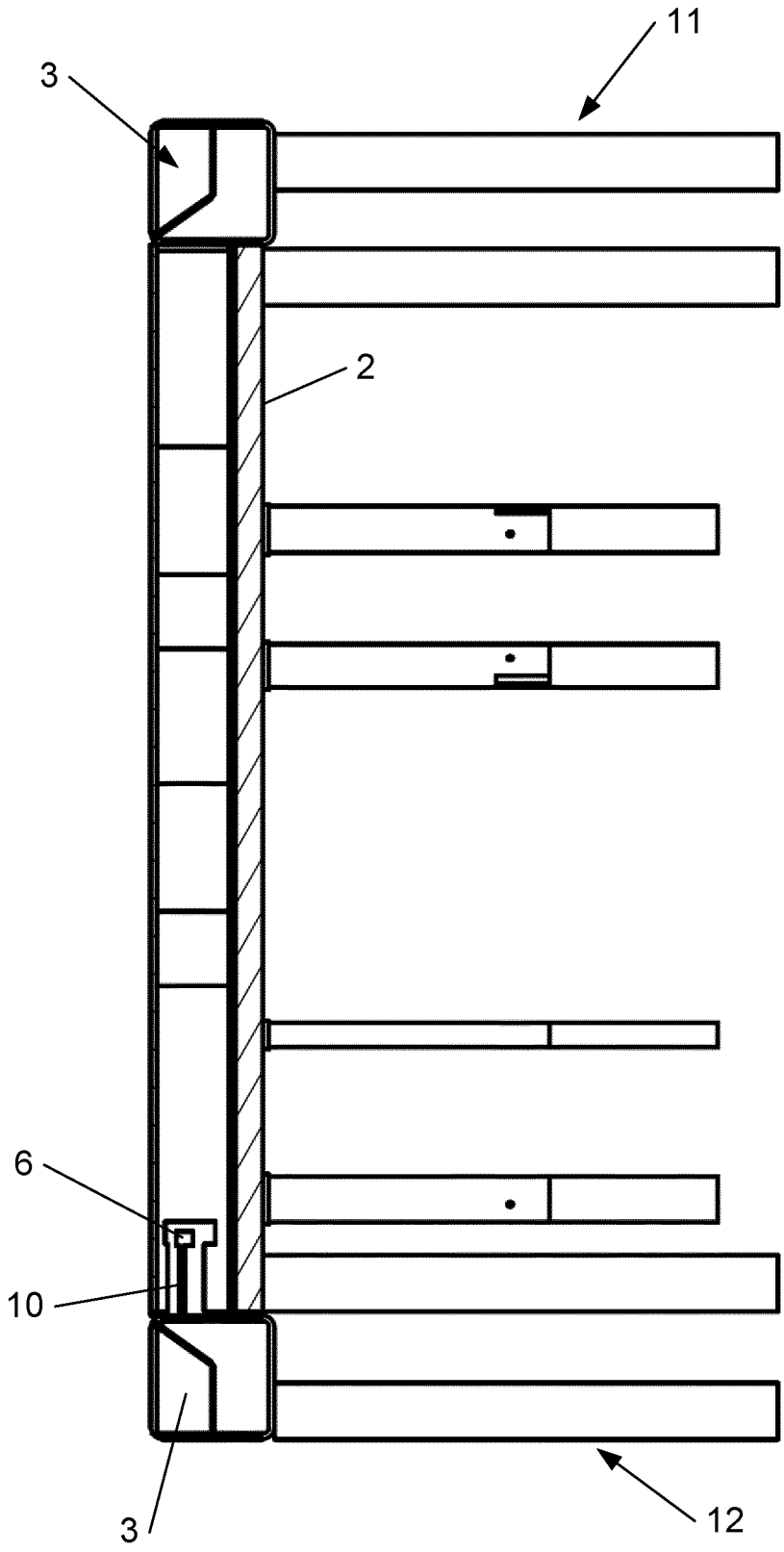


Fig. 4

Fig. 5

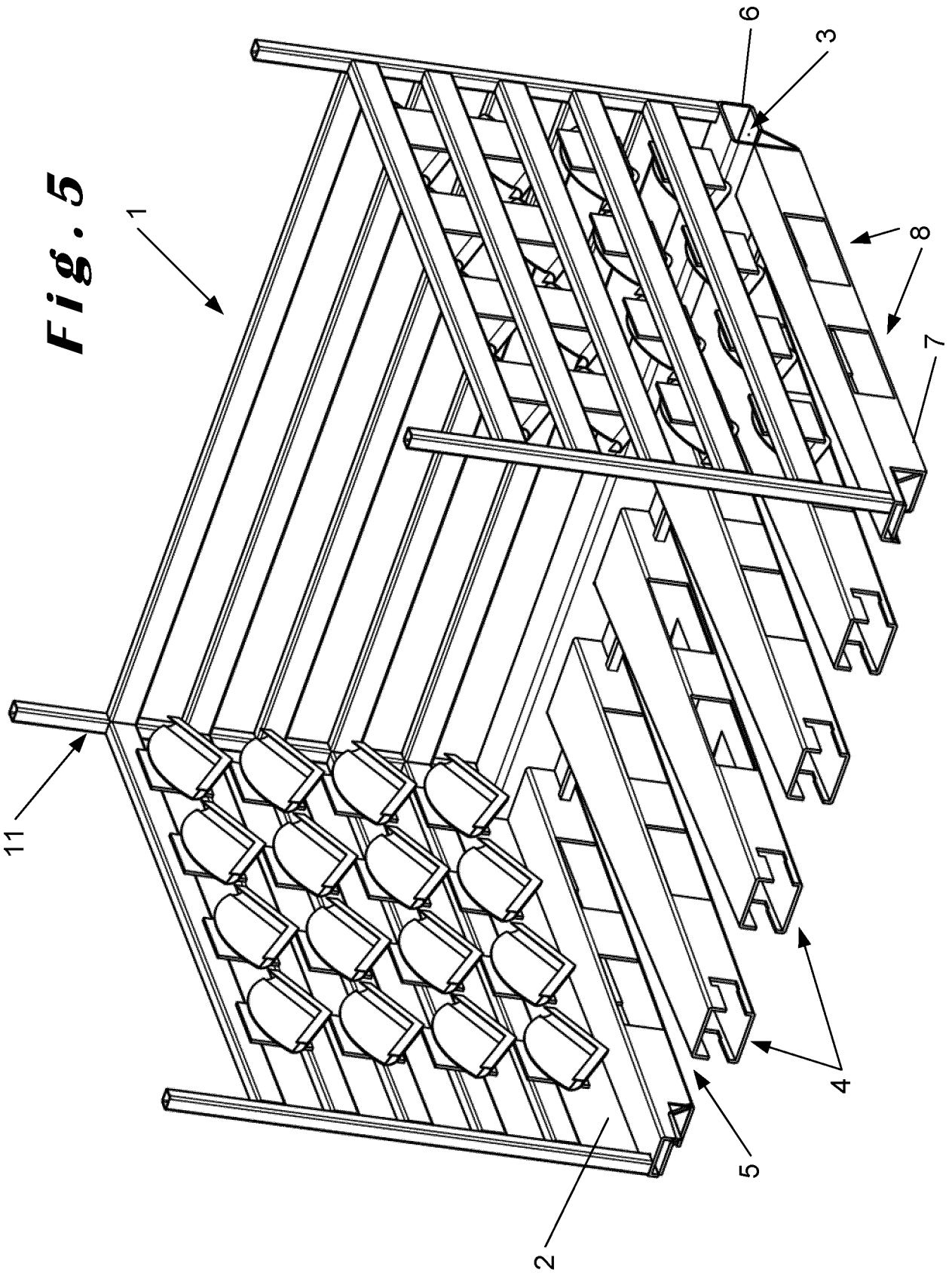
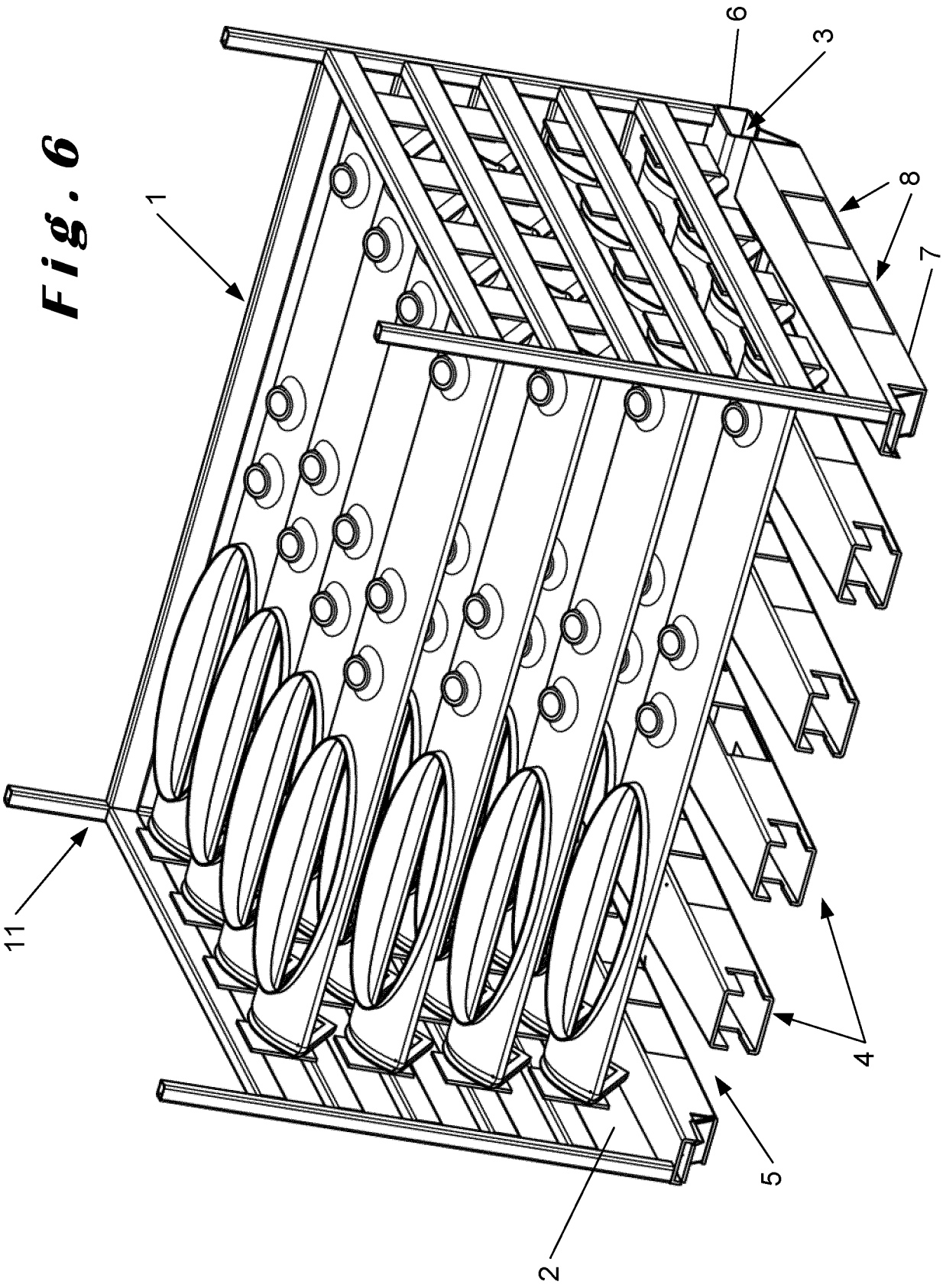


Fig. 6



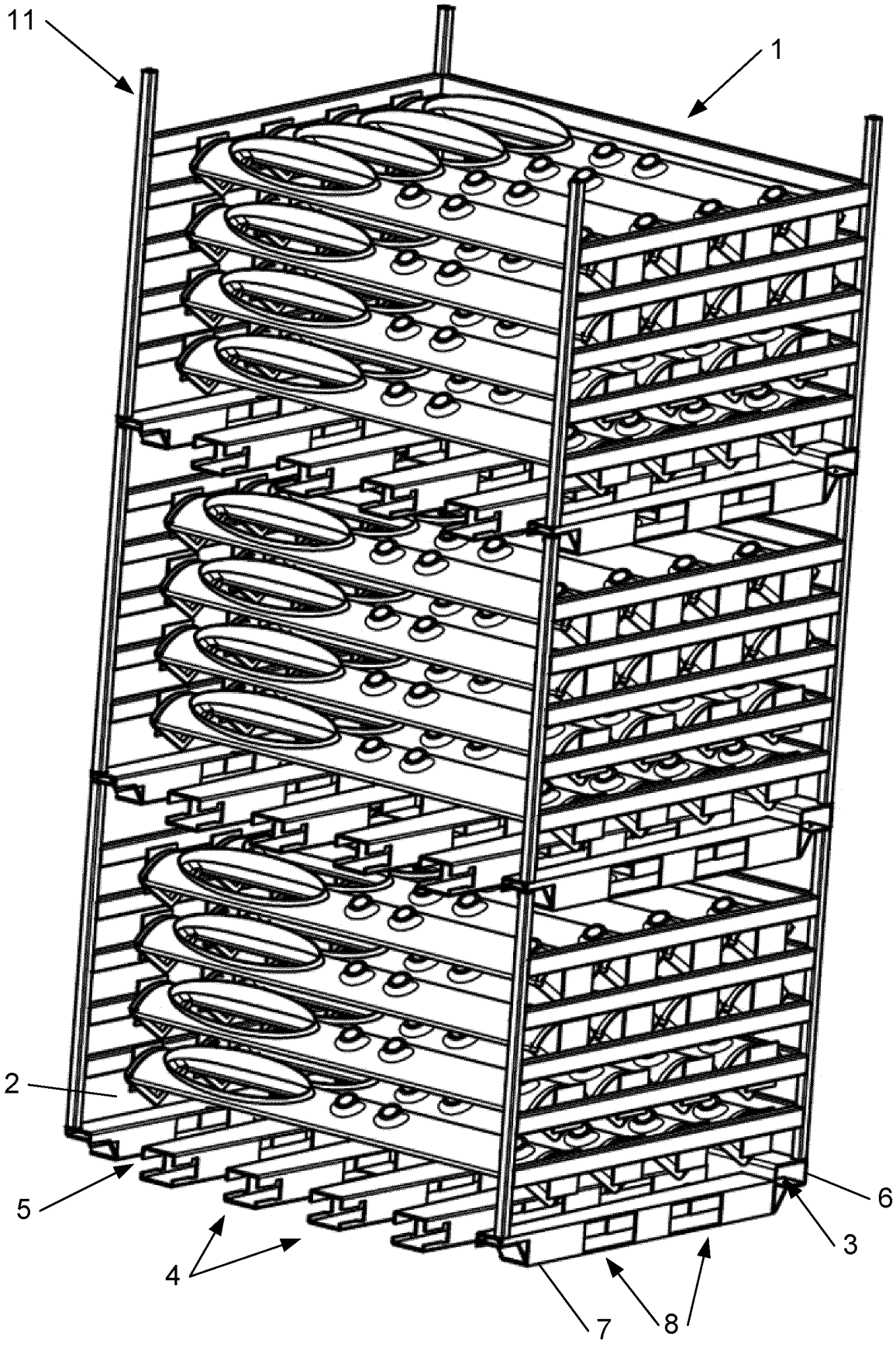


Fig. 7

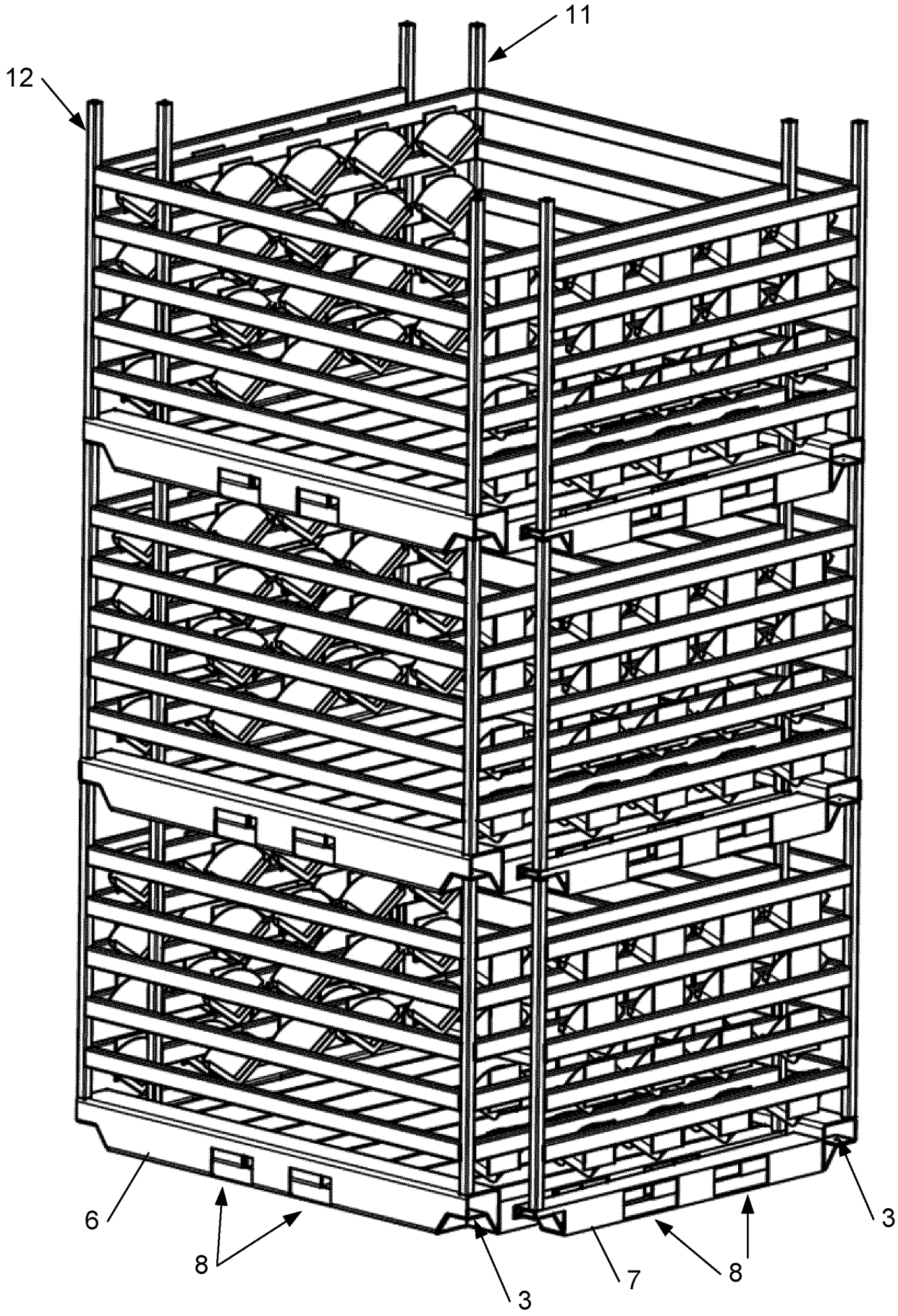


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/071677

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D19/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	FR 2 674 504 A1 (STAMP [FR]) 2 October 1992 (1992-10-02) page 2, line 3 - page 4, line 4; figures 1-4	1-6, 12, 14-18 9-11

Y	FR 2 128 693 A1 (SCHAEFER GMBH FRITZ DT [DE]) 20 October 1972 (1972-10-20) page 4, line 37 - page 5, line 37; figures 1-3	9

Y	DE 10 2009 039803 A1 (HERGETH WILLIBALD [DE]) 9 December 2010 (2010-12-09) paragraph [0033] - paragraph [0039] ; figures 1-4	10, 11

X	EP 1 145 976 A2 (DEERE & CO [US]) 17 October 2001 (2001-10-17) column 4, lines 7-47 ; figures 1-3	1-5 ,7,8, 12 , 14-18

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" documentwhich may throw doubts on priority claim(s) orwhich is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 August 2012	27/08/2012

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Grondin, David

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2011/071677

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2674504 A1	02-10-1992	NONE	
FR 2128693 A1	20-10-1972	CH 536759 A	15-05-1973
		DE 2111135 A1	14-09-1972
		FR 2128693 A1	20-10-1972
DE 102009039803 A1	09-12-2010	NONE	
EP 1145976 A2	17-10-2001	CA 2343860 A1	12-10-2001
		DE 10018113 A1	25-10-2001
		EP 1145976 A2	17-10-2001
		US 2001033789 A1	25-10-2001