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(54) **LARGE CONTAINER**

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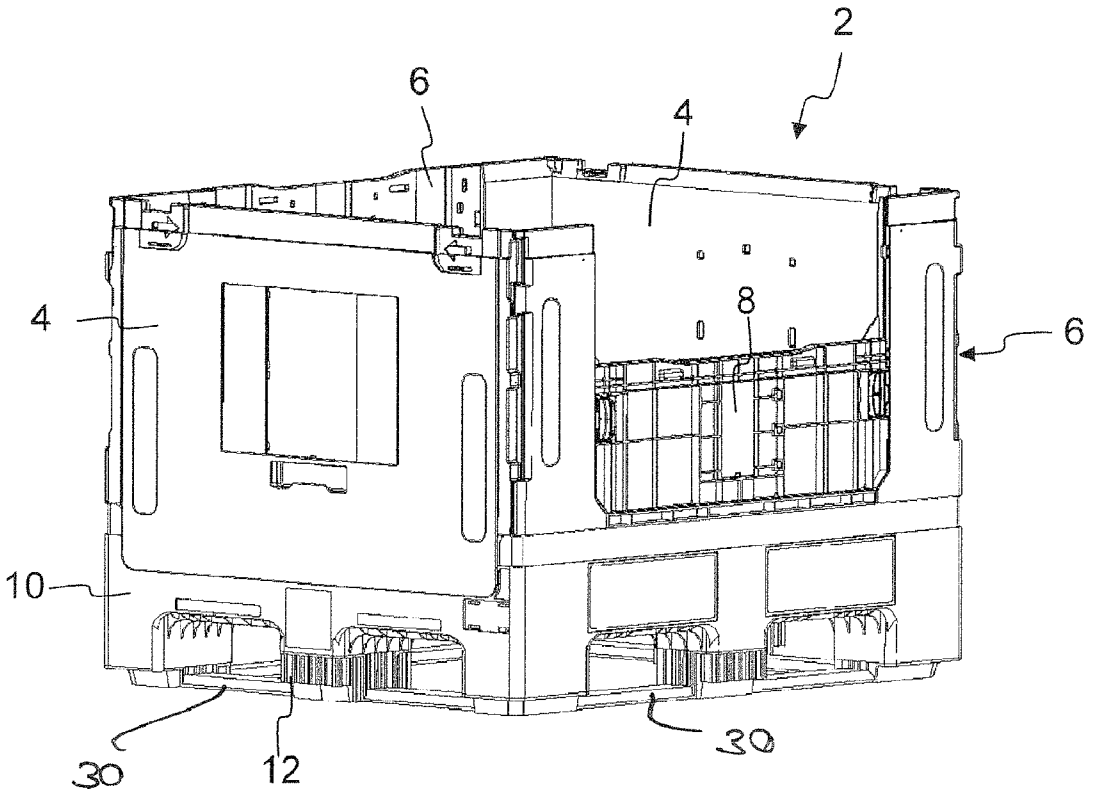
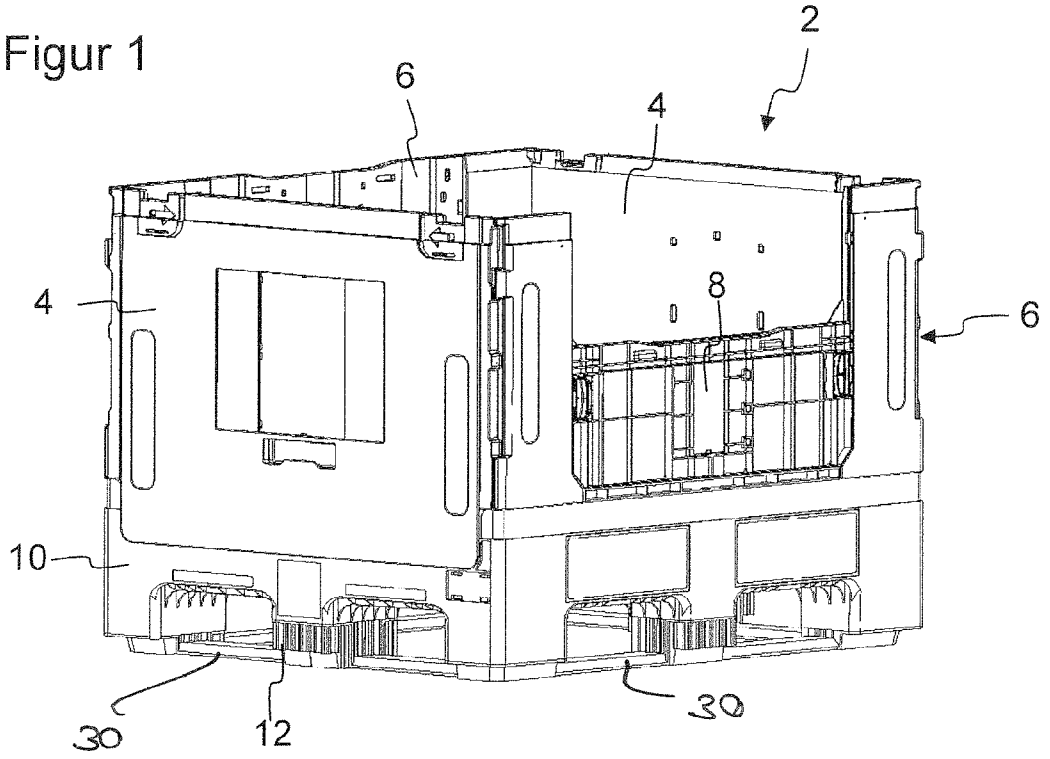
(57) **ABSTRACT**

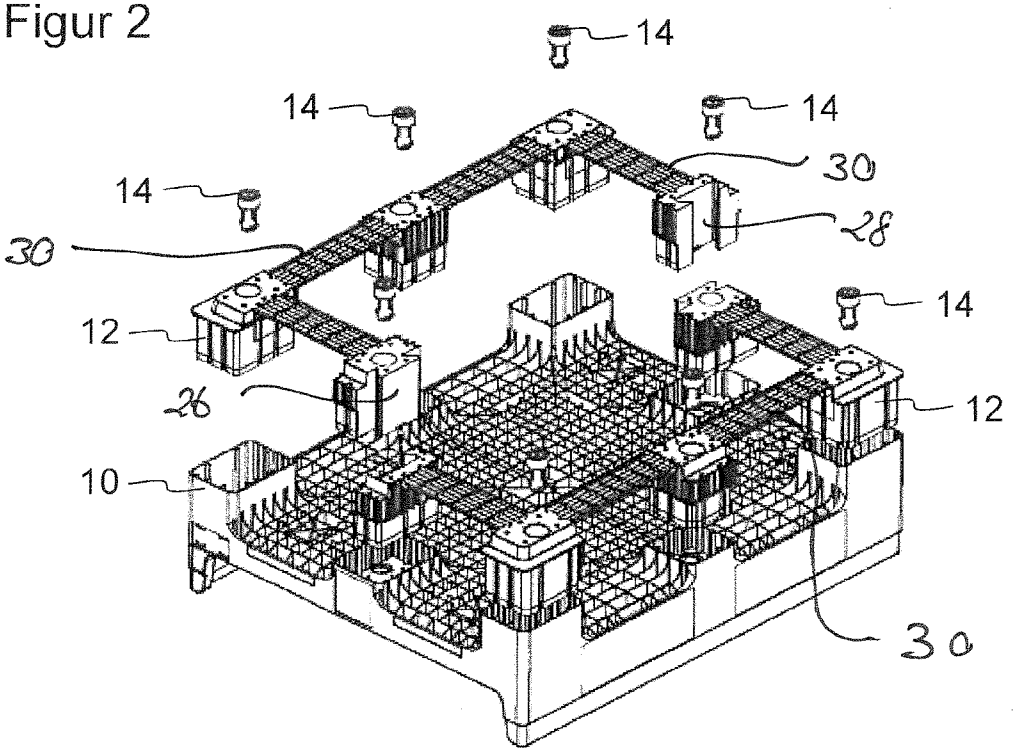
A large container (**2**) includes a base component (**3**) and at least one stand element which is disengageably connected at the base component (**3**) through at least one bayonet shaped attachment element.



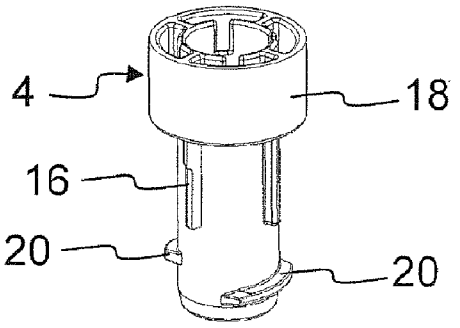
Figur 1



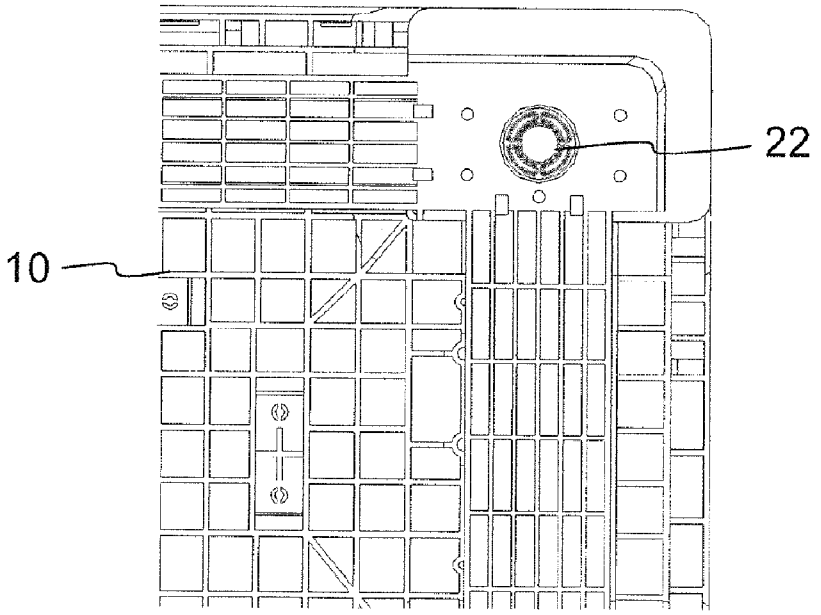
Figur 2



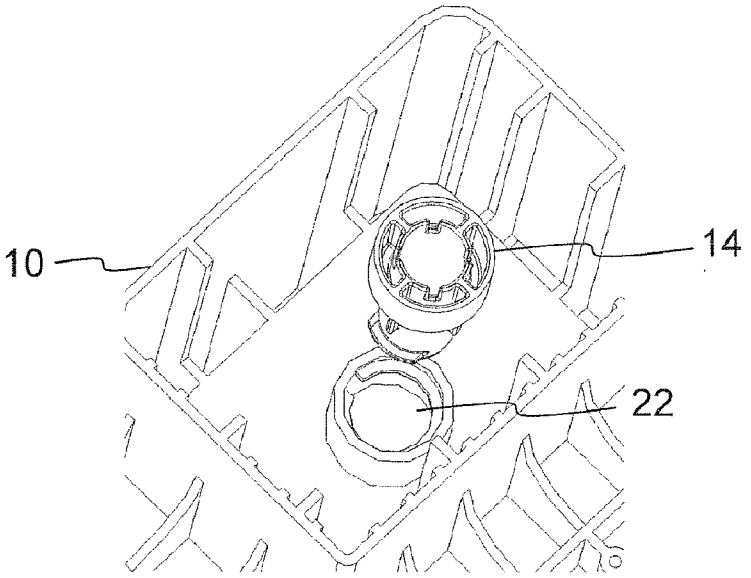
Figur 3



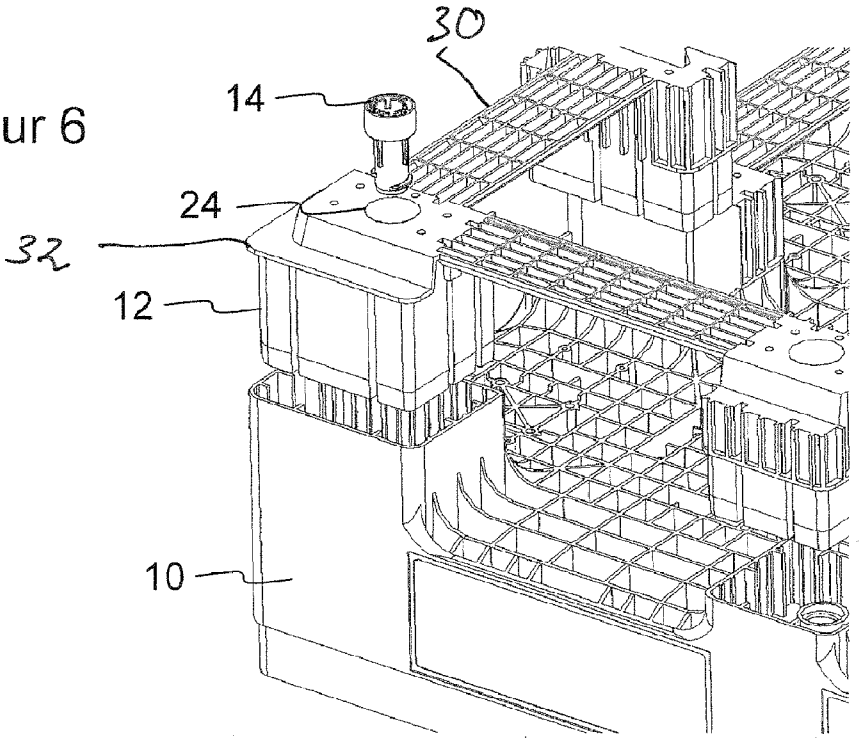
Figur 4



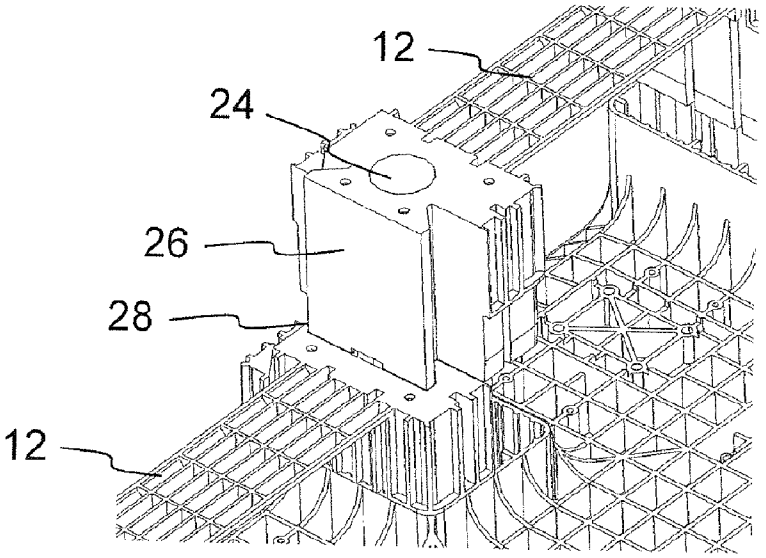
Figur 5



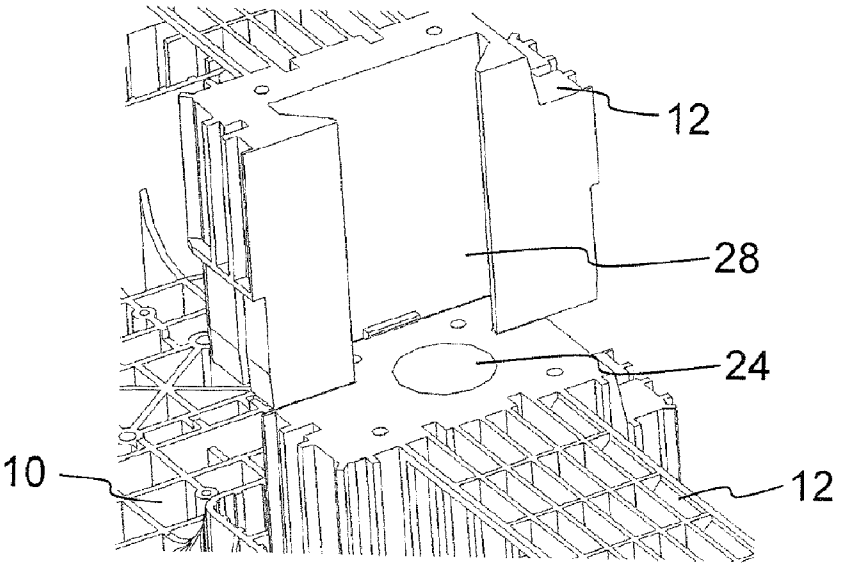
Figur 6



Figur 7



Figur 8



LARGE CONTAINER

[0001] The invention relates to a large container with a base component and at least one stand element.

[0002] Large containers of this type, which are also designated as large cargo carriers typically have dimensions of 800×600 mm, 1200×800 mm, 1200×1000mm, and 1200×1600 mm which are standard dimensions. The height of large cargo carriers of this type either depends on the desired receiving capacity. A typical height counting from the placement surface of the large cargo container of the floor up to the upper edge of the sidewalls is 1000 mm, which however are not parameters that limit the invention. Thus, a definition of the large container over other smaller containers is provided like, e.g., fruit and vegetable containers or bottle cases and similar which are stackable on pallets in plural layers on top of one another or besides one another. The large containers or the large cargo carriers are used for receiving in particular piece goods and are thus often also used for transporting large volume food products and are also useable in the non-food field, industrial applications, and in particular in the automotive industry. Large containers of this type are voluminous and configured thicker than the typical fruit and vegetable containers and they are also heavier overall so that the transport of the filled large containers can typically only be performed mechanically, in particular through forklifts and similar.

[0003] In order to simplify the emptying of containers of this type, but also to reduce the transport volume of large containers of this type that are typically reusable containers for the back transportation, the sidewalls are either foldable in their entirety or only partially foldable or foldable one by one which means that the sidewalls have to be lockable with one another in transport position. Locking devices for containers of this type are known in the art. They are engagement lugs which are configured at a sidewall and which engage a recess of the adjacent sidewall or engage behind an engagement bar of the adjacent sidewall in the locking position so that the locking is provided.

[0004] Large containers of this type typically include a base component on which circumferential sidewalls are arranged. When the sidewalls are configured foldable for transporting the empty containers back in a space saving manner, hinge elements are formed at the base component and also at the bottom side of the sidewalls, wherein the hinge elements can be assembled to form a folding hinge.

[0005] Thus, the sidewalls can be folded inward. Large containers of this type represent typical return shipment components, this means large containers of this type are being used for deliveries in large numbers and are shipped back as empty components, are cleaned and reused so that they circulate as containers for many years. Thus, the base represents the component of large containers of this type that incurs the highest wear, so that the bases are typically provided with disengageable stand assemblies with different configurations which can then be replaced when wear has occurred. Thus, the top portion of the container is protected against wear and can be used for many years. On the other hand, depending on the customer, particular stand assemblies are used with large container of this type which is often a function of the use of the container and application of the container and its application and a function of the location of where the container is used. Thus, typical support stand assemblies are particular support stands, elongated support skids, or support stand frames in which particular support stands are connected with one another with cross-beams. Support frames of this type can be configured integral in one piece or also in plural components.

[0006] Thus it is the object of the invention to optimize a large container for an application with different support stand assemblies to facilitate a quick exchange and a stable interconnection between the support stand assembly and the container.

[0007] This object is achieved according to the invention through the features included in the characterizing portion of claim **1**, wherein advantageous embodiments are characterized by the features included in the dependent claims.

[0008] According to the invention support stand assemblies are removably attached at the base component of a large container like e.g. skids in longitudinal and transversal direction, particular stand elements or similar, thus attached through bayonet shaped insertion bolts which engage complementary bayonet openings at the base component. This provides a quick connection since the bayonet bolts or bayonet pins are inserted into the bayonet opening in a linear manner and then rotated by a respective angle so that the locking is then facilitated.

[0009] Advantageously two or more ribs configured as a thread sections are arranged at the bayonet bolt, wherein the thread sections have a pitch. A complementary undercut for the rib or thread section to optionally interact with is also provided with the portion of the bayonet opening. The ribs or thread sections or undercuts configured along the circumference and configured as edges, recesses and similar on the side of the openings are arranged offset from one another, wherein the distance is selected so that e.g. the ribs of the bayonet bolt can be inserted in a linear manner through the intermediary space between the offset undercuts or edges on the side of the opening. Subsequently a rotation is performed so that the rib reaches e.g. behind the edge in the opening so that the inner locking is facilitated. The support stand assemblies and the bayonet bolts are advantageously made from plastic material, in particular impact or shock resistant material. When the ribs or thread sections and the undercuts and edges at the bolt or at the opening are also provided with a pitch, then the interlocking additionally yields a clamping between the support stand assembly and the base component which also particularly facilitates spring loading for plastic material so that a strong and stable closure or a locking is facilitated which is highly vibration- and shock proof so that it is not disengageable even under harsh long term transport conditions.

[0010] Advantageously the bayonet bolts are inserted from the bottom side of the support stand assembly and are preferably arranged recessed in the respective cut out or opening of the support stand assembly so that they are protected against wear. Simple attachment and simple disengagement of the bolt can be facilitated by semi skilled personnel. Thus, a quick replacement of the wear components is facilitated. The advantage of using plastic material is that also the closures are recyclable now. Another advantage is that particular driver bits for tightening or disengaging the bayonet closure are not required, thus a replacement on site can be performed anytime.

[0011] It is particularly advantageous when the support stand assemblies are provide with form locking elements which interact with the complementary form locking elements at the base component. Form locking elements of this

type are e.g. tongue and groove connections or dove tail connections which facilitate that the support stand assembly or portions of the support stand assembly are applied to the base component and thus supported in a form locking manner. In combination with the bayonet type closures this leads to safe and reliable interlocking which also facilitates a simple repair and replacement of the support stand assemblies.

[0012] Preferred embodiments of the invention are subsequently described in more detail with reference to drawing figures wherein:

[0013] FIG. **1** illustrates a large container;

[0014] FIG. **2** illustrates a base component of the large container with stand elements;

[0015] FIG. **3** illustrates an attachment element;

[0016] FIG. **4** illustrates a detail view of the base component of the large container;

[0017] FIG. **5** illustrates another detail view of the base component with the attachment element;

[0018] FIG. **6** illustrates a detail view of another explosion drawing of the base element and of one of the stand elements;

[0019] FIG. **7** illustrates a first view of form locking connection elements of the stand element; and

[0020] FIG. **8** illustrates a second view of the form locking connection elements.

[0021] FIG. **1** illustrates a large container **2** with four side walls **4**, **6**. The four side walls **4**, **6** are preferably connected through hinges to a base component **10** of the large container **2**. The base component has different heights in the portion of the attachment of the side walls **4**, **6** so that the side walls **4**, **6** can be completely folded on top of one another in a space saving manner. Preferably, however, also one or plural of the side walls **4**, **6** can be opened completely or partially e.g. through a moveable side component **8**.

[0022] Stand elements are arranged at the base component **10**. The stand elements are configured and arranged so that the base component **10** of the large container **2** is offset from a base. On the one hand side this prevents contamination of the large container **2** when it stands on contaminated ground and/or on the other hand side prevents moisture absorption through the large container **2** when it stands on humid ground. Furthermore the stand elements facilitate lifting the large container **2** with a fork in a simple manner, e.g. the fork of a floor transport vehicle and in particular a fork lift when the large container is placed on flat ground, e.g. on a floor or on another large container **2**. Furthermore the stand elements form typical wear elements which can be replaced as required and thus protect the base of the large container against wear. In the simplest form the base elements are formed through particular support stands. Alternatively the stand elements can be formed by one or plural support skids **12**. The support skids **12** are characterized by at least two support stands which are connected with one another through bridge elements. Thus one or two bridge elements can be formed between two respective support stands, in particular at both ends of the respective support stands. Certainly other stand configurations are also included which can be attached at the container base in a manner described infra.

[0023] FIG. **2** illustrates the base component **10** from below in an exploded view so that the base component of the container is illustrated rotated by 180°. Thus, two support skids **12** are configured so that they are insertable into recesses of the base component **10** and attachable at thereon through disengageable attachment elements, thus bayonet bolts **14**.

[0024] FIG. **3** illustrates the bayonet bolt **14** with radially protruding ribs **16** extending along the bolt axis, wherein the ribs are used for longitudinal support and centering, and the bolt includes a bolt head **18** and a bayonet thread **20**. The bayonet bolt thus forms a bayonet lock with an opening that is configured complementary in the base component with an undercut for the thread **20**, wherein the bayonet lock forms a quick connect.

[0025] FIG. **4** illustrates a detail view of the base component **10** from below, including an opening **22** of the base component **10**, wherein the opening forms the quick connect together with the bayonet bolt.

[0026] FIG. **5** illustrates an inner thread in the opening **22**, wherein the inner thread is configured complementary to the bayonet bolt **14**, in particular to the bayonet thread **20**. It is clearly apparent from FIG. **5** that the bolt **14** includes two offset thread sections like the opening **22**, wherein the clear intermediary space is sized so that the bolt **14** can be inserted in the opening so that both thread sections move behind the thread sections in the opening or recess **22**. A rotation then provides the locking with axial preloading of both components based on the thread pitch. Due to the plastic material, this can provide a hemming spring preload, so that a vibration proof closure is provided.

[0027] It is evident from the exploded detail illustration according to FIG. **6**, how the bayonet bolt **14** is insertable through a recess **24** in one of the support skids **12**, so that the bayonet bolt can engage the recess **22** of the base component **10**. Thus, the recess **24** of the support skid **12** initially includes a radius which is greater than the radius of the bolt head **18** and then includes a radius which is smaller than the bolt head **18**, so that the bayonet bolt **14** can be recessed into the support skid **12** completely. Preferably, plural bayonet bolts **14** are configured for each support skid **12** and corresponding recesses **22** are configured in the base component **10** and the recesses **24** in the support skids **12**. This facilitates a good stable and permanent interconnection of the support skids **12** with the container base.

[0028] When plural support skids **12** are provided, they preferably include form locking connection elements as illustrated in FIG. **7** and FIG. **8**, wherein the form locking connection elements are configured to fixate the different support skids **12** at one another in addition to being fixated at the base component **10**. In particular preferably a first of the support skids **12** includes a dovetail connection element **26** and a second support skid **12** includes a respective receiver **28** for the dovetail connection element **26** of the other support skid **12**. The dovetail connection element **26** can then be inserted into the respective receiver **28**. This has the advantage that the stand elements are not only stabilized in vertical direction but also in horizontal direction. Thus, as illustrated in particular in FIG. **1**, the plural support skids **12** are combined into a circumferential support skid assembly, whose outer surface is herein flush with the outer surface of the sidewalls. Particular support skids can be replaced in a simple manner when they are worn or otherwise damaged. The form locking lateral interconnection of the circumferentially disposed support skids **12** increases the overall stability and load bearing capability of the large container **2**. The form locking connection of the support skids is also quite evident from FIG. **2**, in which two support skids are joined to form a circumferentially arranged support skid assembly. Thus, the support skids can be configured continuous, however, as illustrated in FIG. **2**, they are particularly configured with bridge shaped members,

thus bridge elements **30**, which are configured as bars and which connect particular support stands of the support skids with one another at the base side. In the illustrated embodiment according to FIG. **2**, each support skid has five support stands overall, wherein three support stands are completely configured at one side of the container, and the other two support stands are approximately configured half for form locking with the other support skid and are provided on one side with a dovetail **26** and on the other side with a respective receiver **28**, so that the two support skids can be joined, and thus also a very stable connection is provided in horizontal direction and not only in vertical direction, thus orthogonal to the base of the container. It is evident that the support stands **12** are inserted into opposite hollow support elements **10** at the container base, wherein the opening **10** and the support stand **12** to be inserted are respectively configured in a complementary manner, so that a well-fitting plug-in connection is provided. The bridge elements **30** between the support bases **12** define on each side in the illustrated embodiment two adjacent recesses for forklift engagement. Inserting the support stands **12** into the hollow stand elements **10** is evident from FIG. **6**. The stand elements **10** are configured with respect to their opening so that they are complementary to the insertable support stands **12**, wherein a flange shaped expansion is provided at the lower end of the support stands **12**, wherein the inserted support stand **12** contacts the lower edge of the stand element **10**. The bridge elements **30** are clearly apparent as well.

[0029] The invention is not limited to the recited embodiments. For example, the support skids **12** can include more or less support stands. The support stands themselves can e.g. also be attached at the base component **10** through more than one attachment element.

1. A large container comprising a base component, sidewalls and at least one stand element arranged at the base component, wherein the stand element is removably attached at the base element through at least one attachment element which is configured as a bayonet lock, including an insertable bolt and a complementary opening.

2. The large container according to claim **1**, wherein the bayonet bolt is inserted from the lower contact surface of the stand element into the opening of the base component.

3. The large container according to claim **1**, wherein the base element includes a support stand.

4. The large container according to claim **3**, wherein a respective recess of the base component is provided for each support stand.

5. The large container according to claim **1**, wherein the base element is formed by a support skid.

6. The large container according to claim **5**, wherein two or more recesses for receiving the bolt are provided for each support skid.

7. The large container according to claim **1**, wherein the stand element or the support skid include form locking elements configured as groove and key connections and complementary to the base component, so that the stand element or the support skid are connectable with the base component through a form locking plug-in connection.

8. The large container according to claim **1**, wherein the support skids are connectable with one another through form locking plug-in connections for a lateral interconnection, preferably through a dovetail connection element which interacts with a complementary dovetail receiver of another support skid.

9. The large container according claim **1**, wherein the bolt includes at least one rib shaped thread section extending over a partial circumference of the bolt with a pitch, wherein the thread section interacts with a complementary undercut configured as a recess or a protruding rib shaped thread section in the opening for forming the locking arrangement.

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