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(54) **Coupling device and method of coupling onto a corner fitting**

(57) Coupling device (1) for coupling hoisting means to a corner fitting of an intermodal freight container, the corner fitting comprising a surface in a plane perpendicular to a first fitting direction, the surface comprising a slot having an elongated shape.

The coupling device comprises a shaft (2) extending along a shaft axis (3) and a contact member (4) fixed to the shaft and projecting radially outward with respect to the shaft, wherein the shaft is arranged to bring the contact member inside the corner fitting through the slot in an orientation in which the shaft axis is parallel to the first fitting direction and in which the contact member is aligned with the slot, and wherein the shaft is arranged to rotate within the slot around the shaft axis to misalign the contact member with the slot such that it can support the corner fitting from within the corner fitting and cannot pass the slot.

The coupling device further comprises a locking member (5) arranged to slide along the shaft (2) and to slide into the slot with an end part, wherein the shaft and the locking member are arranged such that the orientation of the shaft relative to the locking member is secured and wherein the end part has a cross section arranged to preclude rotation of the locking member in the slot around the shaft axis.

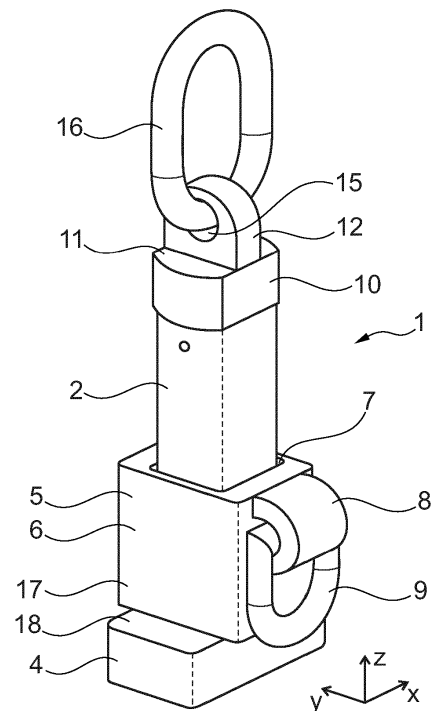


Fig. 1

Description

Technical field

[0001] The invention relates to a coupling device for coupling hoisting means to a corner fitting of an intermodal freight container, the corner fitting comprising a surface in a plane perpendicular to a first fitting direction, the surface comprising a slot having an elongated shape, the coupling device comprising a shaft extending along a shaft axis and a contact member fixed to the shaft and projecting radially outward with respect to the shaft, wherein the shaft is arranged to bring the contact member inside the corner fitting through the slot in an orientation in which the shaft axis is parallel to the first fitting direction and in which the contact member is aligned with the slot, and wherein the shaft is arranged to rotate within the slot around the shaft axis to misalign the contact member with the slot such that it can support the corner fitting from within the corner fitting and cannot pass the slot.

[0002] The invention also relates to a method of coupling onto a corner fitting of an object externally shaped as an intermodal freight container, the corner fitting comprising a surface in a plane perpendicular to a first fitting direction, the surface comprising a slot having an elongated shape, comprising:

- aligning a contact member of a coupling device with the slot and bringing the contact member inside the corner fitting, the contact member fixed to a shaft and projecting radially outward with respect to the shaft, the shaft extending along a shaft axis.

Background

[0003] DE2129178C3 describes a rotation head or coupling device for coupling to containers with SEALAND-type corner fittings or ISO-type corner fittings. ISO-type corner fittings have a slot with a shape that differs from the shape of the slot of the SEALAND-type corner fittings. The corner fittings are placed in pairs on the corners of a container. The pair of corner fittings share a middle line of the corresponding pair of slots.

[0004] The coupling devices are attached to a frame in corresponding pairs. The coupling devices comprise a rotatable bolt with 2 diametrically placed projections, projecting radially outward at an end of the bolt. The frame is used such that the bolts rotate around a rotation axis. For the bolt for one corner fitting of the pair, that axis is not on the middle line of the slot of the ISO-type corner fitting and not on the middle line of the slot of the SEALAND-type fitting. Here, the middle line is the middle line shared with the corresponding middle line of the other corner fitting of the pair. The rotation axis is however on the middle line of the ISO-type corner fitting that is not shared with the corresponding middle line of the slot of the other corner fitting of the pair of corner fittings. The projections have top surfaces perpendicular to the rota-

tion axis of the bolt. This arrangement ensures that a minimum amount of lifting area is used on a rotation head when the coupling device is rotated 90 degrees inside the corner fitting.

[0005] The rotational state of the coupling devices however may change accidentally which is dangerous. This is because when not rotated by 90 degrees the 2 diametrically placed projections can only partly support the corner fitting, i.e. the lifting area is smaller. When the lifting area is smaller for instance the projections may break or the surface of the corner fittings engaging with the projections may tear. When rotating enough, i.e. back to the orientation at which the projections entered the corner fitting, the coupling device may come out of the slot.

[0006] It is an object of the invention to at least partially reduce or obviate this problem.

[0007] In a first embodiment of the invention there is provided a coupling device for coupling hoisting means to a corner fitting of an intermodal freight container, the corner fitting comprising a surface in a plane perpendicular to a first fitting direction, the surface comprising a slot having an elongated shape, the coupling device comprising

a shaft extending along a shaft axis and a contact member fixed to the shaft and projecting radially outward with respect to the shaft, wherein the shaft is arranged to bring the contact member inside the corner fitting through the slot in an orientation in which the shaft axis is parallel to the first fitting direction and in which the contact member is aligned with the slot, and wherein the shaft is arranged to rotate within the slot around the shaft axis to misalign the contact member with the slot such that it can support the corner fitting from within the corner fitting and cannot pass the slot; characterized by

a locking member arranged to slide along the shaft and to slide into the slot with an end part, wherein the shaft and the locking member are arranged such that the orientation of the shaft relative to the locking member is secured and wherein the end part has a cross section arranged to preclude rotation of the locking member in the slot around the shaft axis.

[0008] When the rotation of the locking member in the slot is precluded by the presence of the end part in the slot, the orientation of the shaft relative to the slot is secured because the orientation of the shaft relative to the locking member is secured. As a consequence the orientation of the contact member is secured with respect to the slot. When the orientation of the contact member is secured in misalignment with the slot such that it cannot pass the slot but can support the corner fitting, the coupling device can be used safely for lifting of hoisting the intermodal freight container. When the end part is not in the slot, rotation of the locking member in the slot is not precluded. Therefore, the shaft can rotate the contact member from the aligned orientation to the misaligned orientation or from the misaligned orientation to the

aligned orientation. This is advantageous for inserting or removing the coupling device from the corner fitting.

[0009] In an advantageous embodiment, the contact member projects radially outward with respect to the shaft on two diametrically opposite locations.

[0010] In a second embodiment of the invention, the locking member is arranged to slide along the shaft under the influence of gravity until the end part is in the slot.

[0011] Because the locking member slides along the shaft under the influence of gravity until the end part is in the slot, the orientation of the shaft and therefore the contact member is secured automatically when the coupling device is used with the shaft axis aligned with the direction of gravity with the contact member on the lower side of the shaft axis. Therefore the coupling device may be operated safely as action is needed to lift the locking device relative to the shaft before the orientation of the contact member may be changed to undesired orientations for hoisting or lifting.

[0012] In a third embodiment of the invention, the locking member is arranged to slide along the shaft until the end part is in abutment with the contact member.

[0013] Because the locking member can slide until the end part is in abutment with the contact member, the contact member precludes the locking member from sliding off the shaft passed the contact member. A separate means to preclude this is therefore not necessary.

[0014] In a fourth embodiment of the invention, the coupling device of the third embodiment comprises a stopping member extending in a direction perpendicular to the shaft axis and having a projection along the shaft axis that overlaps the projection of the locking member along the shaft axis, wherein the locking member is arranged between the contact member and the stopping member.

[0015] Because the stopping member has a projection along the shaft axis that overlaps the projection of the locking member along the shaft axis, the stopping member limits the range in which the locking member can be slid along the shaft and the locking member cannot slide off the shaft passed the stopping member.

[0016] As the locking member is between the contact member and the stopping member, the coupling device can be handled and stored easily without the chance of losing the locking member.

[0017] Since the shaft and the locking member are arranged such that orientation of the shaft relative to the locking member is secured, this means also means that the stopping member does not have to overlap the projection of the locking member in all directions. Preferably however, the stopping member does overlap the projection of the locking member in all directions to provide the largest possible robustness.

[0018] In a fifth embodiment of the invention, the coupling device of the fourth embodiment comprises a nut to fasten the stopping member on a cylindrical end of the shaft.

[0019] Because a simple nut is used to fasten the stopping member on the shaft, maintenance of the coupling

device is easy as the nut, the stopping device and the locking member can easily be removed from the shaft.

[0020] In a sixth embodiment of the invention, the coupling device comprises a locking eye arranged to transfer forces to the locking member to drive the locking member along the shaft and to rotate the locking member around the shaft axis.

[0021] The locking eye makes it easy to slide the locking member along the shaft and to rotate the locking member as it is not necessary to engage with the locking member itself, which may have an outer dimension or outer surface unsuitable for handling. By rotating the locking member, a twist-lock engagement with the corner fitting may be obtained or released.

[0022] In a seventh embodiment of the invention the contact member comprises a surface perpendicular to the shaft axis and facing in the direction of the locking member, the surface being arranged to support the corner fitting.

[0023] As the orientation of the contact member is secured by the locking member when the end part is in the slot, the contact member can be optimized for supporting the corner fitting. As optimisation here, a surface perpendicular to the shaft axis provides the largest possible surface for supporting the corner fitting when the shaft axis is parallel to the first fitting direction.

[0024] In a eighth embodiment of the invention there is provided a method of coupling onto a corner fitting of an object externally shaped as an intermodal freight container, the corner fitting comprising a surface in a plane perpendicular to a first fitting direction, the surface comprising a slot having an elongated shape, comprising:

- aligning a contact member of a coupling device with the slot and bringing the contact member inside the corner fitting, the contact member fixed to a shaft and projecting radially outward with respect to the shaft, the shaft extending along a shaft axis; characterized by
- arranging that a locking member is in a position along the shaft such that the locking member is outside the corner fitting;
- rotating the shaft around its axis to misalign the contact member with the slot such that it can support the corner fitting from within the corner fitting and cannot pass the slot;
- sliding the locking member along the shaft such that an end part of the locking member is in the slot, wherein the end part has a cross section arranged to preclude rotation of the locking member in the slot around the shaft axis wherein the locking member and the shaft being arranged such that the orientation of the shaft relative to the locking member is secured.

[0025] According to the method the contact member is arranged to support the corner fitting. Therefore it is brought into the corner fitting. This is done in a first ori-

entation of the contact member. The shaft is then rotated so that the contact member is rotated as well. As the end of the locking member precludes rotation of the locking member in the slot and the shaft cannot be rotated with respect to the locking member, first the locking member is arranged to be outside the corner fitting.

[0026] By sliding the end part of the locking member in the slot, the orientation of the locking member in the slot is secured. As the orientation of the shaft relative to the locking member is secured, the orientation of the shaft relative to the locking member is secured.

[0027] As the position wherein the contact member can support the corner fitting and cannot pass the slot is secured, this method for coupling onto the corner fitting can be used to safely lift or hoist the object.

[0028] In an ninth embodiment of the invention the method of the eighth embodiment comprises arranging the coupling member to have an orientation such that the force of gravity acts on the locking member in the direction of the slot.

[0029] Because the force of gravity is always present, the method provides a secure way to lock the orientation of the contact member in the corner fitting.

[0030] Preferably the shaft axis extends in substantially vertical direction with the contact member on the lower side.

[0031] Examples of embodiments the invention will now be described with reference to the accompanying schematic drawings. Corresponding reference symbols in the schematic drawings indicate corresponding parts. The schematic drawings are not necessarily to scale and certain features may be exaggerated to better illustrate and explain the present invention. Further, the examples are not intended to be exhaustive or otherwise limit or restrict the invention to the precise configurations shown in the drawings and disclosed in the following detailed description.

Figure 1 Coupling device according to the invention

Figure 2 Side view of the coupling device of figure 1 according to the invention

Figure 3 Side view of a coupling device according to the invention

Figure 4 Coupling device of figure 3 from a different angle

Detailed description

[0032] An intermodal freight container is a container used for shipment, storage and handling. They are used for intermodal shipments and are designed to be moved from one mode of transport to another without unloading and reloading. Intermodal freight containers are highly standardized and often referred to as ISO container or shipping containers or simply as container (especially in the context of international shipping trade). Because of the standardization and the versatility, other objects are available as well with the same outer dimensions an

(standardized) intermodal freight container, such as semi-permanent offices.

[0033] Intermodal freight containers come in different sizes and are normally referred to by at least their length. For instance there are 20 foot and 40 foot containers as well as 40 foot high-cube containers and 45 foot high-cube containers.

[0034] An intermodal freight container is block shaped and has a front side (where the doors are) and a top side, a left side, a right side and consequently also a backside and a bottom side.

[0035] Intermodal freight containers can be transported by for instance container ship, freight trains and semi-trailer trucks. All these means of transportation may be used in a single trip.

[0036] For securing the intermodal freight containers during transportation or even during storage or for securing objects with the outer dimensions of an intermodal freight container at their (semi-)permanent location, corner fittings are used. At each of the eight corners there is a corner fitting for securing, stacking and craning or hoisting.

[0037] A corner fitting, sometimes referred to a corner casting comprises three slots. One of those slots is in a surface parallel to the top side of the intermodal container or the bottom side of the intermodal container. For the purpose of explaining the invention the slot on the top of the intermodal freight container in the surface parallel to the top side will be referred to hereafter as the slot. The slot has an elongated shape. Therefore its dimension in a first slot direction has a larger value than the value of the dimension in a second slot direction perpendicular to the first slot direction.

[0038] The corner fitting comprises a hollow space to which the slot gives access.

[0039] In the example according to the invention a set of 4 coupling devices is used to hoist the intermodal freight container. One of the coupling devices will be described, the other 3 coupling devices are similar.

[0040] For the purpose of describing the example a right-handed, orthogonal axis system will be used with an x-axis, a y-axis and a z-axis (figure 1).

First example

[0041] The coupling device (1) comprises a shaft (2) from steel extending along a shaft axis (3) running parallel to the z-axis (figure 2). The cross section of the shaft perpendicular to the shaft axis is a square with rounded corners. The dimensions of the shaft in the cross section therefore are equal in the x-direction and the y-direction and (neglecting the rounded corners) have a first value. In this example the dimension of the shaft is 46 mm both in x-direction and in y-direction. The dimension of the shaft in the z-direction is 170 mm.

[0042] A contact member (4) is fixed to an end of the shaft at the smallest z-coordinate. The contact member (4) is formed by a rectangular steel sheet. The sheet is

arranged with its largest areas perpendicular to the shaft axis. The dimensions of the plate (contact member) (4) are such it projects radially outward of the shaft (2) in a length direction of the plate which is in the x-direction. For example the dimension of the plate in x-direction is 110 mm. In this example the y-direction has a dimension of 60 mm. The contact member has a dimension of 30 mm in z-direction.

[0043] The dimensions of the contact member (4) are such that it fits through the slot of the container when aligned with the slot such that the x-direction is parallel to the first slot direction and it does not fit through the slot when rotated such that the y-direction is parallel to the first slot direction.

[0044] A locking member (5) forms a sleeve around the shaft (2). The locking member (5) has an outer surface (6) and an inner surface (7) parallel to the outer surface. The inner surface (7) faces the shaft (2).

[0045] The locking member (5) has a cross section perpendicular to the shaft axis (3).

[0046] In the cross section the inner surface (7) forms a square with rounded corners. The dimension of the square formed by the inner surface (7) (neglecting the rounded corners) has a second value. The square formed by the inner surface (7) is larger than the square formed by the cross section of the shaft, i.e. the second value is larger than the first value. The second value is large enough that the locking member can freely slide along the shaft, for instance fall under the influence of gravity. The second value is small enough such that the shaft cannot rotate within the locking member, i.e. (neglecting the rounded corners) is smaller than half the square root of two times the first value. In this example the square formed by the inner surface has a dimension of 50 mm.

[0047] The outer surface (6) of the locking member (5) forms a rectangle with rounded corners in the cross section have two longer sides perpendicular to the x-direction and two shorter sides perpendicular to the y-direction. The dimension in the x-direction of the shorter sides (i.e. the width of the locking member (5)) is 60 mm. The dimension in the y-direction of the longer sides (i.e. the length of the locking member (5)) is 80 mm. This means that the locking member is sufficiently strong to remain intact during normal use (or test conditions) and prevent that the shaft rotates at undesired moments.

[0048] A U-shaped mounting part (8) is attached to the outer surface (6) at the ends of the legs of the U-shape. Thus a first through hole is formed between the mounting part and the outer surface (6) of the locking member (5). A locking eye (9) runs through the through hole.

[0049] As described earlier, at one end of the shaft a contact member (4) is fixed to the shaft (2). A stopping member (10) is attached to the other end of the shaft (2). The maximum dimension of the stopping member (10) in the x-direction has a larger value than the value of the dimension of the inner surface of the locking member (5) in x-direction (50 mm). In this example that maximum dimension of the stopping member in the x-direction is

60 mm. As the maximum dimension of the stopping member (10) in x-direction has a larger value than the value of the dimension of the inner surface the projections of the stopping member (10) and the locking member (5) overlap, all be it partially. Therefore, the locking member (5) can only slide to the stopping member (10), but not pass it.

[0050] The stopping member (10) has two parallel sidewalls perpendicular to the y-direction. The dimension of the stopping member in the y-direction, i.e. the distance between the two sidewalls, is equal to the dimension of the shaft in the y-direction, i.e. 46 mm. The stopping member (10) is attached to the shaft (2) such that the sidewalls are aligned with the shaft.

[0051] The stopping member (10) comprises a top surface (11) perpendicular to the z-direction facing in positive z-direction. The top surface (11) of the stopping member (10) comprises a through hole.

[0052] A bolt (12) is attached to the shaft (2) using internal screw thread of the shaft. The bolt (12) extends in the z-direction and protrudes out through the through hole of the stopping member (10) with a protruding end (13).

[0053] The bolt (12) is secured to the shaft (2) by a locking pin arranged through two openings (14) in the shaft in x-direction.

[0054] The protruding end (13) comprises a second through hole (15), which extends in the x-direction. A lifting eye (16) runs through the through hole (15) of the bolt. In use for instance a cable (not shown) of a crane engages with the lifting eye (16) to hoist the coupling device (1).

Second example

[0055] In a second example of a coupling device according to the invention, the coupling device (1) comprises a shaft (2) from steel extending along a shaft axis (3) running parallel to the z-axis (figure 2). The cross section of the shaft perpendicular to the shaft axis is a square with rounded corners. The dimensions of the shaft in the cross section therefore are equal in the x-direction and the y-direction and (neglecting the rounded corners) have a first value. In this example the dimension of the shaft is 46 mm both in x-direction and in y-direction. The dimension of the shaft in the z-direction is 170 mm.

[0056] A contact member (4) is fixed to an end of the shaft at the smallest z-coordinate. The contact member (4) is formed by a rectangular steel sheet. The sheet is arranged with its largest areas perpendicular to the shaft axis. The dimensions of the plate (contact member) (4) are such it projects radially outward of the shaft (2) in a length direction of the plate which is in the x-direction. For example the dimension of the plate in x-direction is 110 mm. In this example the y-direction has a dimension of 60 mm. The contact member has a dimension of 30 mm in z-direction.

[0057] The dimensions of the contact member (4) are

such that it fits through the slot of the container when aligned with the slot such that the x-direction is parallel to the first slot direction and it does not fit through the slot when rotated such that the y-direction is parallel to the first slot direction.

[0058] A locking member (5) forms a sleeve around the shaft (2). The locking member (5) has an outer surface (6) and an inner surface (7) parallel to the outer surface. The inner surface (7) faces the shaft (2).

[0059] The locking member (5) has a cross section perpendicular to the shaft axis (3).

[0060] In the cross section the inner surface (7) forms a square. The dimension of the square formed by the inner surface (7) has a second value. The square formed by the inner surface (7) is larger than the square formed by the cross section of the shaft, i.e. the second value is larger than the first value. The second value is large enough that the locking member can freely slide along the shaft, for instance fall under the influence of gravity. The second value is small enough such that the shaft cannot rotate within the locking member, i.e. (neglecting the rounded corners) is smaller than half the square root of two times the first value. In this example the square formed by the inner surface has a dimension of 48 mm.

[0061] The outer surface (6) of the locking member (5) forms a rectangle in the cross section have two longer sides perpendicular to the x-direction and two shorter sides perpendicular to the y-direction. The dimension in the x-direction of the shorter sides (i.e. the width of the locking member (5)) is 64 mm. The dimension in the y-direction of the longer sides (i.e. the length of the locking member (5)) is 80 mm. This means that the locking member is sufficiently strong to remain intact during normal use (or test conditions) and prevent that the shaft rotates at undesired moments.

[0062] A U-shaped mounting part (8) is attached to the outer surface (6) at the ends of the legs of the U-shape. Thus a first through hole is formed between the mounting part and the outer surface (6) of the locking member (5). A locking eye (9) runs through the through hole.

[0063] As described earlier, at one end of the shaft a contact member (4) is fixed to the shaft (2). The other end is cylindrical shaped extending in the z-direction (i.e. the axis of the cylinder is parallel to the z-direction). This end is referred to herein as boltlike end (20). The boltlike end has an external screw-thread.

[0064] The boltlike end (20) protrudes into and out of a cylindrical through hole of a hollow cylindrical stopping member (10). The cross section of the stopping member (10) perpendicular to the z-direction is ring shaped and has an outer diameter larger than the smallest inner dimension of the locking member (5), i.e. the dimension is larger than 48 mm.

[0065] As the outer diameter of the stopping member (10) is larger value than the value of the dimension of the inner surface (7) of the locking member (5), the projections of the stopping member (10) and the locking member (5) overlap partially. Therefore, the locking member

(5) can only slide to the stopping member (10), but not pass it.

[0066] The inner diameter of the stopping member (10) is larger than that of the boltlike end (20) such that the stopping member (10) can freely rotate around the boltlike end (20). Alternatively it comprises an inner screw-thread corresponding to the outer screw-thread of the boltlike end (20).

[0067] Between the stopping member (10) and the shaft there is a ring shaped spacer (19). The ring shaped spacer (19) is attached to the boltlike end (20) by inner screw thread of the ring shaped spaced (19) engaging with the external screw-thread of the boltlike end (20). The outer diameter of the ring shaped spacer (19) is smaller than the outer diameter of the stopping member (10). In an alternative example, the diameter of the ring shaped member may be larger than the inner dimension of the stopping member (10).

[0068] A lifting eye (16) is welded to the stopping member (10). It may partially be welded into recesses of the stopping member (10).

[0069] The stopping member (10) has a ring shaped top surface (11) facing in positive z-direction i.e. away from the shaft (2).

[0070] A flanged nut (21) with inner screw-thread it mounted on the boltlike end (20). The flange (22) is facing the ring shaped top surface (11) of the stopping member (10).

[0071] The distance between the ring shaped spacer (19) and the flange (22) is slightly larger than the height of the stopping member (10).

Use

[0072] In an example of the use of the coupling device (1) according to the first or the second example, an intermodal freight container is placed on a level floor. A hoisting cable loops through the lifting eye (16). The hoisting cable is connected to a crane. The coupling device (1) is suspended and hangs on the hoisting cable above a corner fitting of the intermodal container.

[0073] The contact member (4) is aligned with the slot of the corner fitting. As the coupling device (1) is suspended, the shaft axis (3) is parallel to the force of gravity.

[0074] The coupling device (1) is lowered such that the contact member passes through the slot and is inside the corner fitting. The coupling device (1) may rest on the bottom of the corner fitting or still be suspended. The shaft (2) protrudes out of the slot.

[0075] An end part (17) of the locking member (5) also is within the corner fitting. Obviously this end part (17) is a part of the locking member (5) on the side where the contact member (4) is. The end part (17) rests on a contact surface (18) of the contact member (4).

[0076] The locking eye (9) is used to lift the end part (17) of the locking member (5) out of the corner fitting and out of the slot. Then the locking eye (9) is used to rotate the locking member (5) by 90 degrees around the

shaft axis (3). As the locking member is rotated by 90 degrees, the shaft (2) is rotated by around 90 degrees as well.

[0077] The locking eye (9) is then released and the locking member (5) falls down such that the end part (17) is in the slot again and rests on the contact surface (18).

[0078] A pulling force is now applied to the hoisting cable and the contact surface (18) of the contact member (4) engages with an inner surface of the corner fitting forming a ceiling of the inner space of the corner fitting.

[0079] This method is applied to all four corners of the intermodal freight container. By pulling harder, the intermodal freight container is lifted, its corner fittings supported by the contact surface (18) of contact member (4) at each corner fitting.

[0080] For removing the coupling device (1), the same steps are performed in reverse order.

Claims

1. Coupling device (1) for coupling hoisting means to a corner fitting of an intermodal freight container, the corner fitting comprising a surface in a plane perpendicular to a first fitting direction, the surface comprising a slot having an elongated shape, the coupling device comprising
a shaft (2) extending along a shaft axis (3) and a contact member (4) fixed to the shaft and projecting radially outward with respect to the shaft, wherein the shaft is arranged to bring the contact member inside the corner fitting through the slot in an orientation in which the shaft axis is parallel to the first fitting direction and in which the contact member is aligned with the slot, and wherein the shaft is arranged to rotate within the slot around the shaft axis to misalign the contact member with the slot such that it can support the corner fitting from within the corner fitting and cannot pass the slot;
characterized by
a locking member (5) arranged to slide along the shaft (2) and to slide into the slot with an end part (17), wherein the shaft and the locking member are arranged such that the orientation of the shaft relative to the locking member is secured and wherein the end part has a cross section arranged to preclude rotation of the locking member in the slot around the shaft axis.
2. Coupling device (1) according to claim 1, wherein the locking member (5) is arranged to slide along the shaft (2) under the influence of gravity until the end part (17) is in the slot.
3. Coupling device (1) according to claim 1 or 2, wherein the locking member (5) is arranged to slide along the shaft (2) until the end part (17) is in abutment with the contact member (4).

4. Coupling device (1) according to claim 3, comprising a stopping member (10) extending in a direction perpendicular to the shaft axis (3) and having a projection along the shaft axis (3) that overlaps the projection of the locking member (5) along the shaft axis (3), wherein the locking member (5) is arranged between the contact member (4) and the stopping member (10).
5. Coupling device (1) according to claim 4, comprising a nut (21) to fasten the stopping member (10) on a cylindrical end (20) of the shaft.
6. Coupling device (1) according to any of the claims 1 to 5, comprising a locking eye (9) arranged to transfer forces to the locking member (5) to drive the locking member along the shaft (2) and to rotate the locking member around the shaft axis (3).
7. Coupling device (1) according to any of the claims 1 to 6, wherein the contact member (4) comprises a contact surface (18) perpendicular to the shaft axis (3) and facing in the direction of the locking member (5), the contact surface being arranged to support the corner fitting.
8. Method of coupling onto a corner fitting of an object externally shaped as an intermodal freight container, the corner fitting comprising a surface in a plane perpendicular to a first fitting direction, the surface comprising a slot having an elongated shape, comprising:
 - aligning a contact member (4) of a coupling device (1) with the slot and bringing the contact member inside the corner fitting, the contact member fixed to a shaft (2) and projecting radially outward with respect to the shaft, the shaft extending along a shaft axis (3);
 - characterized by**
 - arranging that a locking member (5) is in a position along the shaft (3) such that the locking member (5) is outside the corner fitting;
 - rotating the shaft (3) around its axis (3) to misalign the contact member (4) with the slot such that it can support the corner fitting from within the corner fitting and cannot pass the slot;
 - sliding the locking member (5) along the shaft (2) such that an end part of the locking member is in the slot, wherein the end part has a cross section arranged to preclude rotation of the locking member in the slot around the shaft axis (3) wherein the locking member and the shaft are arranged such that the orientation of the shaft relative to the locking member is secured.
9. Method according to claim 8, comprising arranging the coupling member to have an orientation such

that the force of gravity acts on the locking member
(5) in the direction of the slot.

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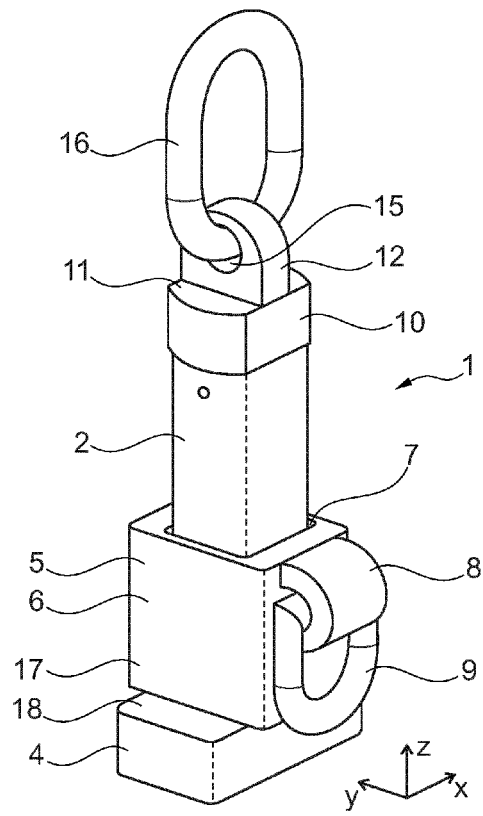


Fig. 1

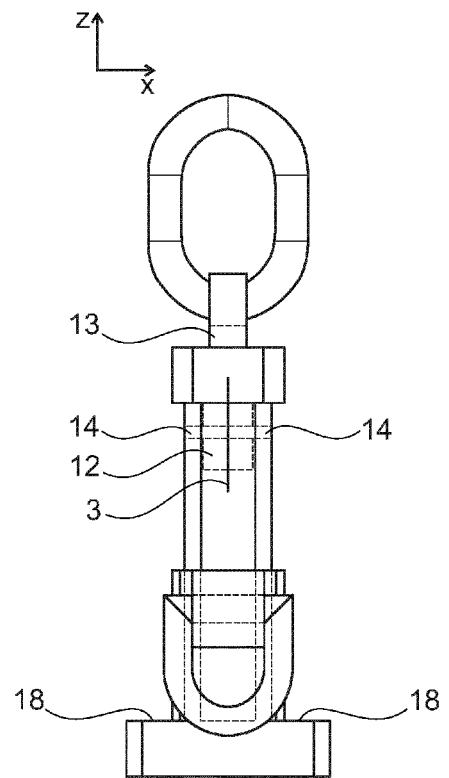


Fig. 2

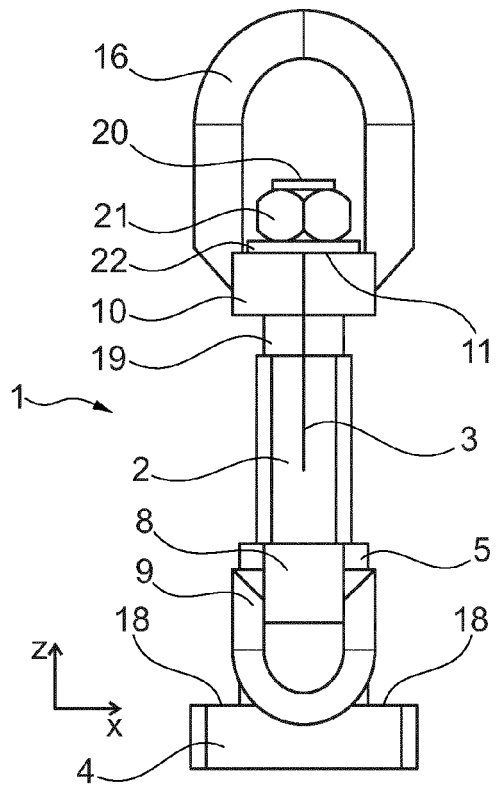


Fig. 3

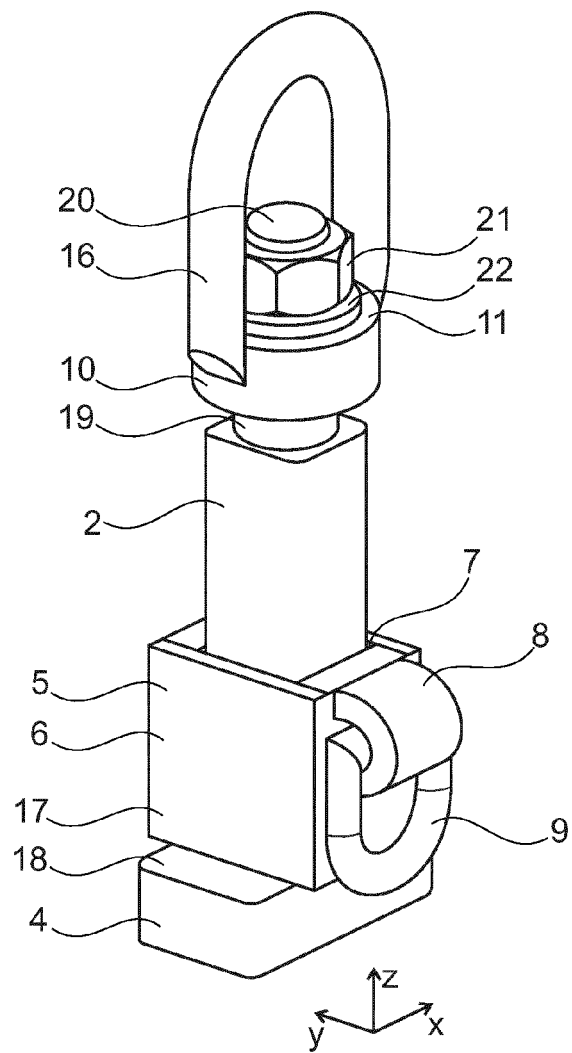


Fig. 4



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