

TITLE OF THE INVENTION

Casted Corner And Casted Bottom Of Multi-purposes Carrier Or The Like For Offshore Containers

5 BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention relates to casted corner and bottom of multi-purpose carrier for used in offshore, and in particular, to multi-purpose carrier with such casted corner or casted bottom, allowing the multi-purpose carrier to be stacked and to be lifted with offshore cranes.

10 Corner and bottom casting plays an important role in lifting method by substitution of structural welding to padeye for all the square and rectangular lifting from all kinds of multi-purpose carriers, double decker, racks or containers.

2. State Of The Prior Art

15 The present invention is related to corner and bottom casting or casted corner or bottom for use in multi-purpose carrier or the like. These castings or casted corner and bottom play an important role as an evolution for the lifting method. No welding of padeye is needed for all square and rectangular lifting frame.

20 US Patent No. 8,590,704 relates to a container assembly, with at least one stackable container which has a first engaging structure on its top and a second engaging structure on its underside, wherein the two engaging structures are matched to one another in such a way that, when two containers are resting on top of one another, the first engaging structure of the lower container lying on top, and the second engaging structure of the upper container lying below, engage in one another in such a way that the two containers are on the one hand secured against shifting relative to one another at right-angles to the stacking direction and on the other hand, due to rear-engaging elements of the engaging structures
25 engaging from behind at right-angles to the stacking direction, there exists between the containers a locking which prevents lifting of the upper container from the lower container at least in certain areas.

30 US Patent Application Publication No. US 20140224809 discloses a structural component having an internal support structure extending between outer wall portions of the component

with one or more compartments included within the support structure. The support structure has support members including internal walls positioned between and/or defined by the compartments. At least one support member connects between the outer wall portions of the component to enhance the structural integrity of the component. The structural component, including the internal support, are cast from a molten material, and in some cases the support members of the internal support structure are formed with a rectilinear configuration.

All square and rectangular lifting frame or multi-purpose carrier which fabricated by square hollow section and being used at the onshore facility area has previously been done by hoisting at the four corner of the padeye, which welded at the top of each of the corner post. Due to the padeye is being welded on top of the corner post, and hence, the frame is mainly not designed for stacking. This is a drawback of existing containers. Accordingly it is an object of the present invention to mitigate the drawbacks.

SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide a casted corner and bottom of multi-purpose carrier or the like for offshore containers. The present invention is to facilitate the fabrication of any square and rectangular lifting frame, padeye will be no longer need to be welded on the top of the corner post, a corner casting which act as a padeye and a joint, where the top end rail, side rail and corner post will be inserted into the corner casting and welding to be done at the edge of the casing. Similarly, the bottom casting is the same as that of the casted corner, wherein the bottom end rail, the side rail and the corner post is to be inserted into the bottom casting for welding, and the bottom of the bottom casting are designed with a room which allows the padeye to be fitted in. As a result, with the corner casting and bottom casting, the lifting frame would be able to stack up with safely and more efficiently in order to minimize the occupied space.

It is an object of the present invention to provide a casted corner and bottom of multi-purpose carrier such that the multi-purpose carrier or the like with casted corner and bottom with sufficient rigidity and strength to permit vertical stacking, while also facilitating easy removal of the multi-purpose carrier from a vertical stack.

A main object of the present invention is to provide a casted corner and bottom for multi-purpose carrier having a plurality of top side rails and bottom side rails, and a plurality of vertical rails for use in offshore, comprising (a) a casted corner substantially a cuboid element with a top face, and having at least three hollow faces with opening for the mounting

with the top side rails and with the vertical rail of the multi-purpose carrier from three directions; (b) a padeye being formed by casting on the top face of the cuboid element which is arranged diagonally on the cuboid element, wherein the padeye is provided with a circular aperture or the like thereon, allowing the multi-purpose carrier or/ be craned or lifted therefrom; (c) a casted bottom substantially square tubular shape with at least three square openings for the mounting with the bottom side rails and the vertical rail of the multi-purpose carrier or the transport case, and the bottom face of the casted bottom being substantially hollow with a diagonally arranged slot; thereby the casted corner is mounted onto the top corner of the multi-purpose carrier and/or transport case, and the casted bottom is mounted onto the bottom corner of the multi-purpose carrier and/or transport case, the multi-purpose carrier or the transport case mounted with the casted corner is securedly lifted and is used in offshore, and the multi-purpose carrier and or transport case are stackable such that the padeyes of the corner is inserted into the slot on the casted bottom.

Yet another object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the hollow faces are inserted by two top side and a vertical post which made up a supporting frame of a multi-purpose carrier or a transport case.

Still another object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the top side rails and the vertical post are welded to the casted corner.

Yet a further object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the padeye on the corner is formed by casting and formed as a unit with the corner.

Still a further object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the padeye is a narrow erected element on the corner formed by casting.

Yet a further object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the hollow faces of the casted bottom are inserted by two bottom side rails and the vertical post which made up a supporting frame of a multi-purpose carrier or a transport case.

Another further object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the side rails and the vertical post are welded to the casted bottom.

5 Still a further object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the bottom of the casted bottom is provided with a slot.

Another object of the present invention is to provide a casted corner and bottom for multi-purpose carrier for use in offshore, wherein the slot is adaptable to the insertion of the padeye mounted on another multi-purpose carrier or transport case.

10 An object of the present invention is to provide a multi-purpose carrier and/or container mounted with a casted corner and bottom.

DESCRIPTION OF THE DRAWINGS

Other features and objects of the invention will become apparent in the following description, claims and drawings in which:

15 FIG. 1 is an isometric view of a casted corner and bottom mounted to a double decker in accordance with the present invention;

FIG. 1A shows a preferred embodiment of a casted corner and bottom of the present invention;

20 FIG. 2 is a bottom view of the double decker constructed according to the principles of this invention;

FIG. 3 is a side view of the casted corner in accordance with a preferred embodiment of the present invention;

FIG. 4 shows the relationship of the casted corner and the end rail, side rail, and the corner post in accordance with the present invention;

25 FIG. 5 shows the relationship within the casted bottom and the bottom end rail, side rail and the corner post in accordance with the present invention;

FIG. 6 shows the perspective view of double decker being stacked up in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

As indicated above and referring to FIGs. 1 and 3, the present invention relates to a casted corner 20 and casted bottom 60 for multi-purpose carrier 100 having a plurality of top side rails 12 and bottom side rails 19 and end rails 14, and a plurality of vertical corner posts 16 for use in off shore which comprises (a) a casted corner 20 substantially a cuboid element with a top face, and having at least three hollow faces with opening for the mounting with the top side rails 12, the end rails 14 and with the vertical corner posts 16 of the multi-purpose carrier 100 on transport case from three directions; (b) a padeye 42 being formed by casting which is arranged diagonally on the casted corner 20, wherein the padeye 42 is provided with a circular aperture 44 or the like thereon, allowing the multi-purpose carrier 100 be craned or lifted therefrom; (c) a casted bottom 60 substantially square tubular shape with at least three square openings for the mounting with the bottom side rails 19, the bottom end rails 18 and the vertical post 16 of the multi-purpose carrier 100, and the bottom face of the casted bottom 60 being substantially hollow with a diagonally arranged slot; thereby the casted corner 20 is mounted onto the top corner of the multi-purpose carrier 100, and the casted bottom 60 is mounted onto the bottom corner of the multi-purpose carrier 100, the multi-purpose carrier 100 mounted with the casted corner 20 is securedly lifted and is used in offshore, and the multi-purpose carrier 100 are stackable such that the padeyes 42 of the casted corner 20 is inserted into the slot on the casted bottom 60.

Referring to FIG. 1A, there is shown a preferred embodiment of a casted corner 20 and a casted bottom 60 used in a multi-purpose carrier or double decker 200, which comprises two levels of multi-purpose carrier 100, and four sides defining an interior, and an open top section, and a plurality of door openings for each level of the decker 200. In the present preferred embodiment, the double decker 200 is storage case for IBC waste or drum waste. Both the top and bottom multi-purpose carrier 100 have a frame or skeleton 222 including four bottom frame member 333, three top frame members 400, and at least four side corner post 16 connecting both level of the top frame 400 and the frame bottom 333 member. As shown, the frame members 222 are square hollow section. The frame or skeleton 222 creates an open square box like structure for both the top frame and bottom frame. Each of the multi-purpose carrier 100 has an interior floor portion 66, which can be a solid panel floor. As shown in FIG. 1A, the floor 66 is an insert of sheet steel that attaches to the floor frame members 222. The bottom multi-purpose carrier frame also includes of L plate floor joists 70 that surrounded the bottom of the double decker 200. The frame 400 also includes fork lift channels 80 positioned on the underside of four sides of the floor portion to provide a means to lift the frame 222 with fork lift (see FIG.1A). Both top and bottom multi-purpose

carrier is "closed" with steel plate 90 at the three sides, and the front side of the multi-purpose carrier 100 is designed with a door opening structure 10A with a steel cover plate of at each level of the multi-purpose carrier 100.

As shown in FIG. 1A, the four side of the corner post 16 terminate at the top the multi-purpose carrier 100 in corner casting point 111, 111A and 111B, the casted corner which act as a padeye, where it's allowed the entire double decker 200 to be lifted and moved as a unit. As shown, each padeye is an eyelet angled to face the center of the double decker to ensure proper distribution of loads during lifting operation.

As shown in FIG. 1, the casted corner 20 is designed with a padeye 42 having a centre aperture 44, and is provided at the top of the casted corner 20. The body of the casted corner 20 is with three ways of a square opening, where the casted corner 20 is allowed the side rails 12 to be insert from the side and the corner post 16 from the bottom (see FIG. 4) and welding to be done respectively at the opening of the casting surrounded the square hollow section.

FIG. 3 is a perspective view of the casted bottom 60 in accordance with the present invention. As shown in FIG. 5 the casted bottom 60 is designed with three ways of a square opening, which allows the floor frame member 30 to be inserted from the side and the corner post 16 from the top and welding to be done respectively at the opening of the casted bottom 60 surrounded the square hollow section. In accordance with the present invention, the preferred embodiment applies to the four bottom corners of a double decker 200 which creates a bottom square structure flooring. The bottom of the casted bottom 60 is designed with a pyramid shape of room which allows the padeye 42 to be fitted in, hence, the double decker 200 is able to stack up onto each others. As shown in FIG. 6, there is shown the casted bottom seated right on top of the corner casting 11 with a padeye 42 fitted into the slot inside the casted bottom.

In accordance with the present invention, the hollow openings of the casted corner 20 are inserted by two top side rails 12 and the vertical corner post 16 which made up a supporting frame of a multi-purpose carrier or a transport case, and the top side rails 12 and the post 16 are welded or by other means to the casted corner 20. As for the padeye 42, it is formed on the top face of the casted corner 20 and being formed as a unit. The padeye 42 is a narrow erected element on the corner formed by casting.

As indicated by the preferred embodiment, the hollow openings of the casted bottom 60 are similarly inserted by two bottom side rails 19 and the vertical corner post 16 which made up

a supporting frame of a multi-purpose carrier or a transport case. The side rails 19 and the vertical corner post 16 are welded to the casted bottom.

The underneath of the casted bottom 60 of the multi-purpose carrier is provided with a slot 80, wherein the slot 80 is adaptable to the insertion of the padeye 42. The casted corner
5 20 and bottom 60 can be mounted onto all the corners of a container, allowing it to be hoisted by crane or the like.

In operation, the multi-purpose carrier 100 or the container mounted with the casted corner 20 or bottom 60 is lifted by crane used in offshores. The multi-purpose carrier can be stacked onto each other and thus space is saved for containers or the like with the casted
10 corner or bottom.

By the present invention, as described above, the multi-purpose carrier or the transport cases are stackable onto each other and can prevent tipping or lateral movement when vertically stacked. The padeye 42 at the four corner of the multi-purpose carrier or transport cases being inserted into the slots 80 of another multi-purpose carrier or transport cases
15 could allow the stacking thereof being stable, and will not have side way movements.

In the foregoing, the invention has been described in reference to specific exemplary embodiments. It will be evident, however, that variations and modifications, as well as the substitution of equivalent constructions and arrangements for those shown, may be made without departing from the broader scope and spirit of the invention as set forth in the
20 appended claims. The specifications and drawings are accordingly to be regarded in an illustrative rather than restrictive sense.

What is claimed is:

1. A casted corner and bottom for multi-purpose carrier having a plurality of top side rails and bottom side rails, and a plurality of vertical rails for use in off shore which comprises (a) a casted corner substantially a cuboid element with a top face, and having at least three hollow faces with opening for the mounting with the top side rails and with the vertical rail of the multi-purpose carrier from three directions; (b) a padeye being formed by casting on the top face of the cuboid element which is arranged diagonally on the cuboid element, wherein the padeye is provided with a circular aperture or the like thereon, allowing the multi-purpose carrier or/ be craned or lifted therefrom; (c) a casted bottom substantially square tubular shape with at least three square openings for the mounting with the bottom side rails and the vertical rail of the multi-purpose carrier or the transport case, and the bottom face of the casted bottom being substantially hollow with a diagonally arranged slot; thereby the casted corner is mounted onto the top corner of the multi-purpose carrier and/or transport case, and the casted bottom is mounted onto the bottom corner of the multi-purpose carrier and/or transport case, the multi-purpose carrier or the transport case mounted with the casted corner is securedly lifted and is used in offshore, and the multi-purpose carrier and or transport case are stackable such that the padeyes of the corner is inserted into the slot on the casted bottom.
2. The casted corner and bottom for multi-purpose carrier for use in off shore as set forth in Claim 1, wherein the hollow faces are inserted by two top side rails and a vertical post which made up a supporting frame of a multi-purpose carrier or a transport case.
3. The casted corner and bottom for multi-purpose carrier for use in offshore as set forth in Claim 2, wherein the top side rails and the vertical post are welded to the casted corner.
4. The casted corner and bottom for multi-purpose carrier for use in offshore as set forth in Claim 1, wherein the padeye on the corner is formed by casting and formed as a unit with the corner.
5. The casted corner and bottom for multi-purpose carrier for use in offshore as set forth in Claim 1, wherein the padeye is a narrow erected element on the corner formed by casting.

6. The casted corner and bottom for multi-purpose carrier for use in offshore as set forth in Claim 1, wherein the hollow faces of the casted bottom are inserted by two bottom side rails and the vertical post which made up a supporting frame of a multi-purpose carrier or a transport case.
- 5 7. The casted corner and bottom for multi-purpose carrier for use in off shore as set forth in Claim 6, wherein the side rails and the vertical post are welded to the casted bottom.
8. The casted corner and bottom for multi-purpose carrier for use in offshore as set forth in Claim 6, wherein the bottom of the casted bottom is provided with a slot.
- 10 9. The casted corner and bottom for multi-purpose carrier for use in offshore as set forth in Claim 7 or Claim 8, wherein the slot is adaptable to the insertion of the padeye mounted on another multi-purpose carrier or transport case.
10. A multi-purpose carrier and/or container mounted with a casted corner and bottom set forth in Claim 1.