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[54] **CONTAINER LIFTING TWIST-LOCK**

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[52] **U.S. Cl.**..... **294/82 R,** 294/67 R, 294/81 SF

[51] **Int. Cl.**..... **B66c 1/66**

[58] **Field of Search**..... 294/67 R, 67 DA, 294/81 SF, 82 R; 24/221 R; 248/119 R, 361 R; 287/2, 103; 296/35 A

[56] **References Cited**

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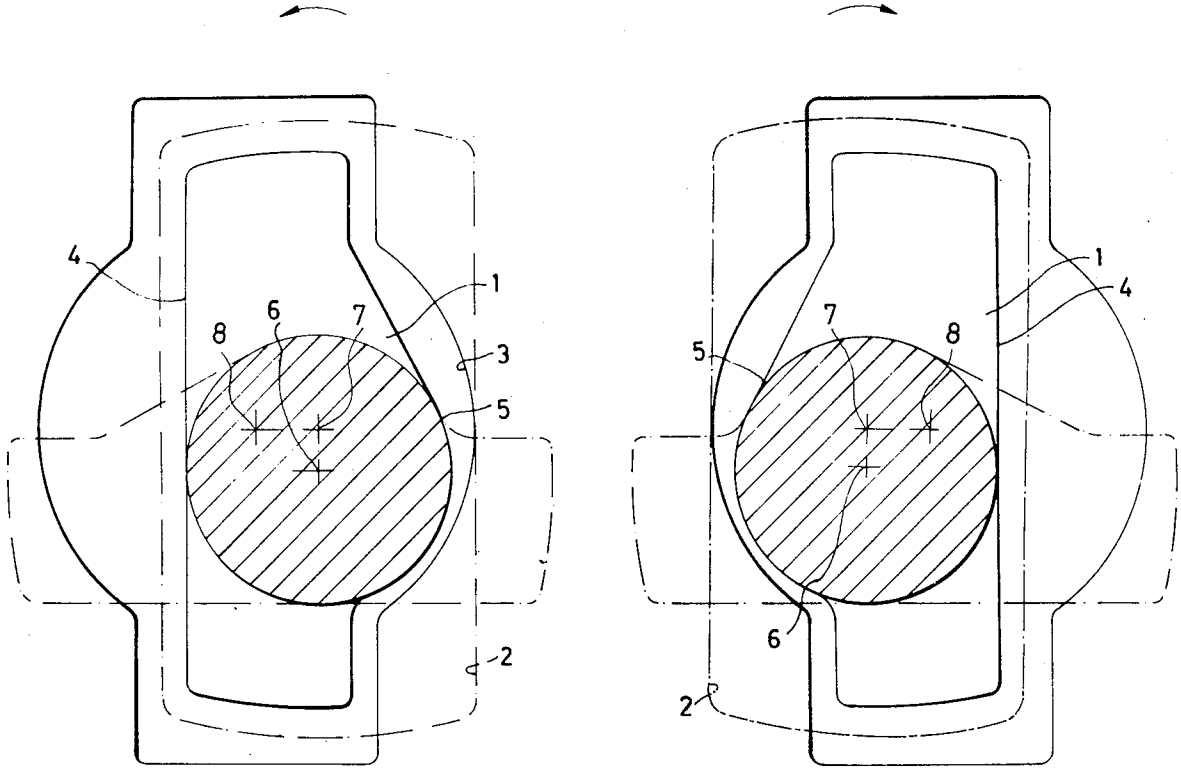
[57] **ABSTRACT**

A locking device for use with a container lifting yoke and adapted for insertion into the top hole of containers constructed in accordance with either ISO or Sealand specification. The locking device includes a locking member having a cross sectional shape enabling insertion into the top holes of both ISO and Sealand containers, and a support shaft for the locking member to turn the latter 90° to lock the locking member below the hole in the container. The locking member is mounted eccentrically on the shaft and rotation of the shaft itself is effected about an axis which is eccentric to the vertical centers of the holes in the ISO and Sealand containers.

4 Claims, 3 Drawing Figures



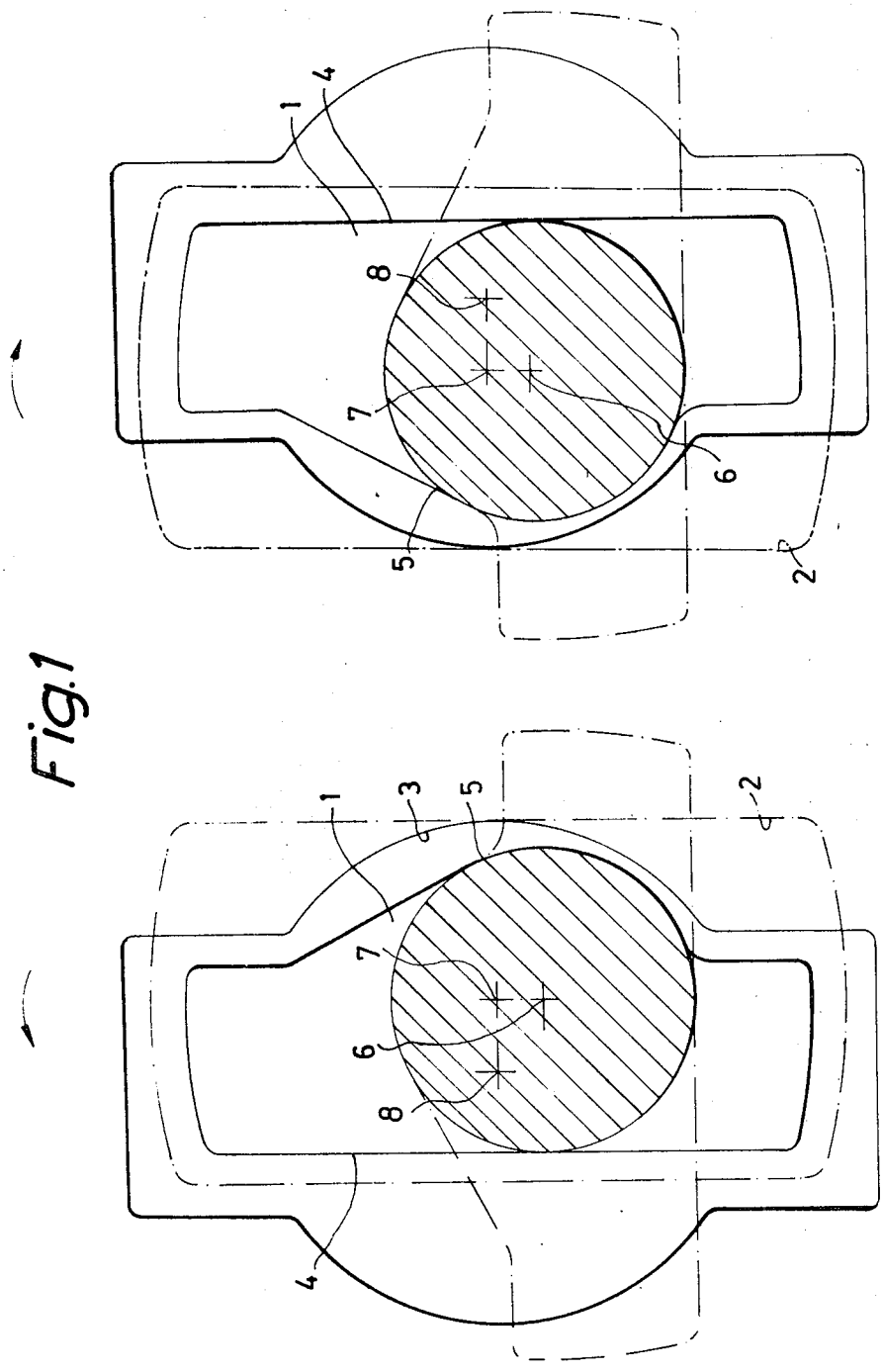


Fig.1

Fig. 2

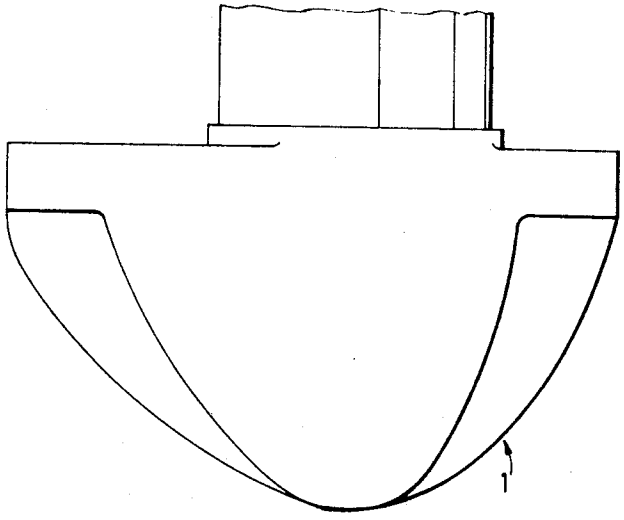
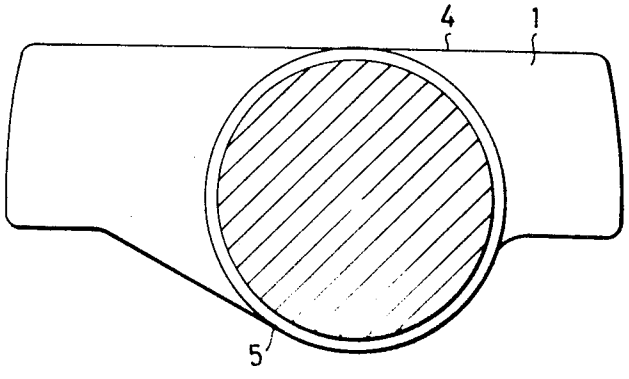


Fig. 3



CONTAINER LIFTING TWIST-LOCK

The present invention relates to lifting devices and particularly to a twist-lock shaped so as to fit into container corner casting apertures of different types and standards.

In recent years the transport of goods in containers has resulted in a standardization on a world-wide scale as far as size, shape and appearance of the containers are concerned. In order to facilitate efficient handling of containers which may weigh up to 30 tons, international standardization also has been extended to the size and shape of the corner castings of the containers with the provision of an aperture in each corner casting adapted to receive a device permitting the container to be lifted. The size and shape of these apertures also have been standardized to a certain extent and the mutual spacing between the centers of these apertures has been established within certain limits. The most frequently used container conforms to this international standard (ISO-standard) permitting easy handling with lifting means constructed for this standard.

The majority of containers are now of the ISO-standard but there still are in excess of 30,000 containers of another well-known type, known as "Sealand," this container being provided with corner castings whose apertures are markedly different both as to appearance and shape from the ISO-standard apertures. Further, the spacing between the centers of the corner casting apertures of Sealand-containers is 25 mm larger for comparison with the centres of corner casting apertures of ISO-containers.

For this reason it is necessary in each hoisting device to use at least two different lifting yokes, one for containers of ISO-standard and the other one for containers of Sealand-type.

It is an object of the present invention to eliminate this problem by providing a twist-lock lifting device to enable a single yoke to lift containers belonging to either of these two main types of containers.

The invention essentially comprises a twist-lock device, the cross section of which is characterized by one substantially straight longitudinal side and an opposite longitudinal side provided with a curved protrusion, the center of rotation of the twist-lock being deliberately eccentric in relation to the centers of the corner casting apertures of both said types.

The invention will hereafter be described in detail with reference to the attached drawings, wherein

FIG. **1** is a plan view of two corner casting apertures as they would be provided on the same container, the two most frequently encountered types of apertures being indicated by respectively full (Sealand-type) and broken (ISO-type) lines, the twist-lock being shown in both the locked and unlocked positions.

FIG. **2** is a side elevation view of the twist-lock of the invention; and

FIG. **3** is a horizontal cross sectional view of the twist-lock of the invention.

FIG. **1** shows the corner casting apertures of the two main types of containers and the extent of the difference therebetween. The corner casting aperture of the ISO-container is designated as **2** and that of the Sealand-container as **3**. Thus, the ISO-standard aperture **2** is rectangular whereas the Sealand aperture **3** is substantially rectangular but has a circular central portion of greater diameter than the transverse dimension of

two narrower, diametrically opposed portions of the aperture.

It also appears from FIG. **1** that the center of rotation **6** of the twist-lock according to the present invention is eccentric in relation to the center points **7** and **8** of the corner casting apertures both of the ISO- and of the Sealand-containers, and further that the spacing on center of the ISO-corner castings is less than that of the Sealand-type.

The twist-lock **1** as shown has a straight longitudinal side **4** and an opposite longitudinal side **5** provided with a curved protrusion. As mentioned, the turning center of the twist-lock is eccentric in relation to the center points **7** and **8** of the corner casting apertures **2** and **3**. One of the requirements of the ISO-recommendations regarding twist-lock-type lifting devices is that the lifting bearing area of the twist-lock within the corner casting shell be not less than 8 cm^2. The construction and mode of operation of the twist-lock according to the present invention ensures that the minimum bearing lifting areas in both types of container corner castings are achieved. If the center **6** of the twist-lock were to coincide with either the center of the Sealand aperture **8** or the centre of the ISO aperture **7**, the twist-lock could not securely be locked by a 90° rotation.

A lifting yoke provided with the twist-locks according to the present invention can thus be used for containers of both the ISO-standard and the Sealand-type so that only one lifting yoke need be provided for lifting the two types of containers.

I claim:

1. A locking device for use with a container lifting yoke and adapted for vertical insertion into the top holes of first and second different containers, the hole of the first container being substantially rectangular and the hole of the second container being substantially rectangular with a central circular portion, the holes of the different containers having dissimilar respective centers, the locking device including a locking member, and a support shaft for said locking member which is rotatable about a fixed central axis, said locking member having a cross sectional shape, which in relation to said fixed axis, enables vertical insertion into the top holes of either of said first and second containers, the support shaft for the locking member being rotatable about said fixed axis to turn the locking member below the hole in the container, said locking member being mounted eccentrically on the lower end of said shaft and being constructed and arranged relative to the holes of the first and second containers so that the coaxial rotation of the support shaft takes place about an axis which is eccentric to the vertical centers of the holes in the first and second containers and enables the locking members to engage the containers below the holes to operatively support the same, said locking member having opposite longitudinal surfaces one of which is substantially flat, the other of which includes a protrusion as seen in horizontal section to provide a locking area of the locking member when in the locked position within the hole of the first container of at least 8 cm^2.

2. A locking device as claimed in claim **1** wherein said protrusion is in part of circular shape as seen in horizontal section.

3. A locking device as claimed in claim **5** wherein the circular part of the protrusion is coaxial with and sub-

stantially of the same radius as said support shaft at the upper edge of the locking member.

4. A locking device as claimed in claim 1 wherein the longitudinal side surfaces are substantially parallel and

said protrusion as seen in horizontal section is constituted by a part circular portion and a straight tangential portion.

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