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CONTAINER COUPLER

Filed Oct. 23, 1965

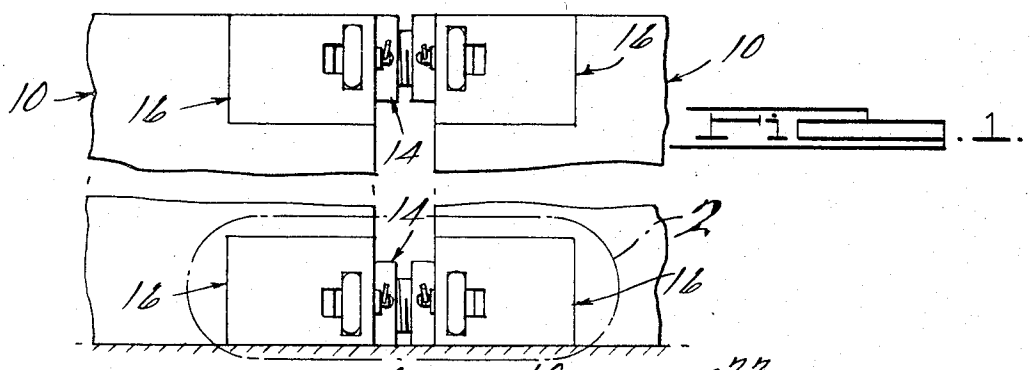

FIG. 1.

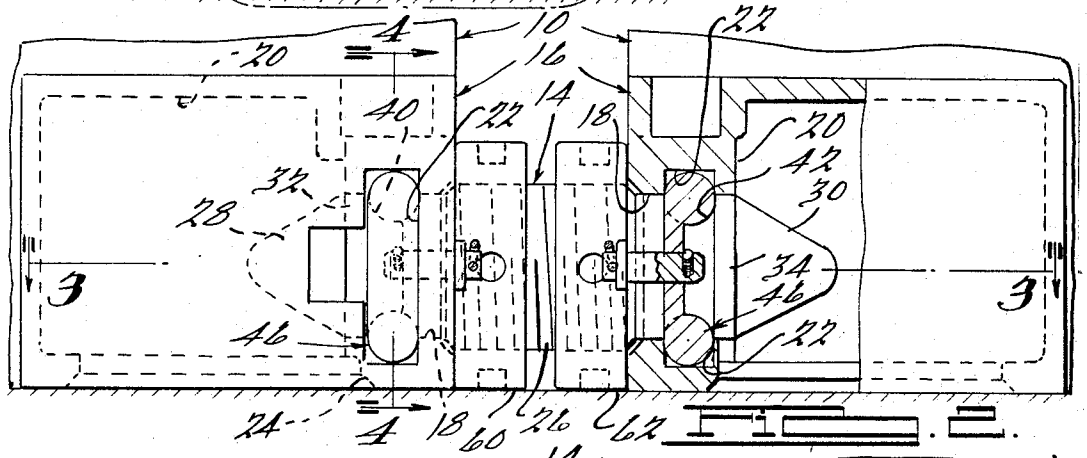

FIG. 2.

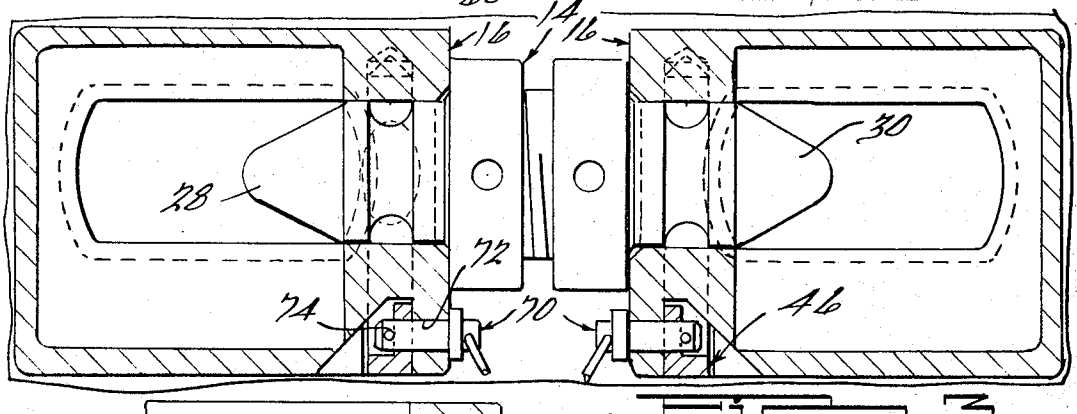

FIG. 3.

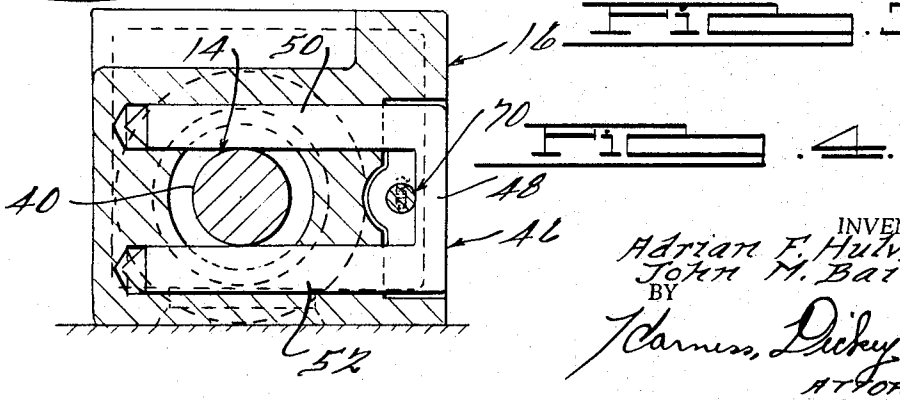

FIG. 4.

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CONTAINER COUPLER

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ABSTRACT OF THE DISCLOSURE

The invention relates to a container coupler of cylindrical configuration having an annular groove on the outer periphery thereof for the acceptance of a complementary U-shaped locking member. The locking member is receivable in a complementary recess in the container so as to locate the coupler relative to the container. The coupler is positioned so as to transfer both axial and lateral loads relative to the container.

This invention relates generally to shipping containers and more particularly to an improved coupler for securing a pair of modular shipping containers to one another for handling as a unit.

The significant success of containerized shipping has led to the development of containers of modular size compatible with one another and with existing transportation facilities, for example, heavy duty over-the-road semi-trailers, ships, railcars, aircraft, etc. Because such containers are of modular configuration, it is often desired to secure several relatively small containers together to form a larger unit capable of being handled at one time by a spreader bar, hoist, or the like. Thus, there has developed a need for an improved container coupler capable of withstanding the relatively heavy loads encountered in securing a pair of loaded shipping containers to one another.

Accordingly, one object of the instant invention is an improved container coupler.

Another object is a container coupler that is easily and rapidly connected to a shipping container.

Another object is a container coupler having provision for take-up of any slack in the coupling mechanism.

Another object is a container coupler that is compatible with existing standardized container constructions.

Other objects and advantages of the instant invention will be apparent in the following specification, claim and drawings, wherein:

FIGURE 1 is a fragmentary side view of a pair of shipping containers coupled to one another for shipment as a unit;

FIG. 2 is a view taken within the circle 2 of FIGURE 1;

FIG. 3 is a cross sectional view taken substantially along the line 3—3 of FIGURE 2; and

FIG. 4 is a cross sectional view taken substantially along line 4—4 of FIGURE 2.

An improved container coupler, in accordance with the instant invention, comprises a cylindrical member having conical nose portions insertable into complementary apertures in the corner castings of aligned shipping containers. The container coupler is secured within the corner castings by U-shaped locks which in turn are secured by a conventional safety pin.

As seen in FIGURE 1 of the drawings, a pair of shipping containers **10** and **12** are secured to one another by a pair of container couplers **14**. The couplers **14** extend into complementary corner castings **16** on the containers **10**.

The corner castings **16** are of conventional construction and of a configuration that has been standardized by the transportation industry. As best seen in FIGURE 2 of the drawings, each corner casting **16** has an aperture **18** in an end wall thereof communicating with a central cavity **20**. Each container corner casting **16** has a laterally extending slot **22** for the acceptance of a generally U-shaped locking member, as will be described. Each corner casting **16** also has an aperture **24** therein opening downwardly, as seen in FIGURE 2 of the drawings to facilitate attachment of the shipping container **10** to a load carrying support, for example, an over-the-road highway trailer or railcar.

In accordance with the instant invention, each container coupler **14** comprises a threaded shank portion **26** having oppositely directed generally conical nose portions **28** and **30**. A pair of bearing portions **32** and **34** are disposed between the shank portion **26** and the nose portions **28** and **30**, respectively, complementary to the apertures **18** in the corner castings **16** for the transfer of shear loads.

The bearing portions **32** and **34** adjacent the nose portions **28** and **30**, respectively, have annular groove portions **40** and **42** for the acceptance of a pair of generally U-shaped locking members **46**.

As best seen in FIGURE 4 of the drawings, each of the locking members **46** comprises a bight portion **48** and leg portions **50** and **52**. The leg portions **50** and **52** are insertable through the slots **22** in the corner castings **16** into engagement with the complementary annular grooves **40** and **42**.

As best seen in FIGURES 2 and 3 of the drawings, the shank portion **26** of the container coupler **14** is threaded for the reception of a pair of collars **60** and **62**. The collars **60** and **62** are rotatable and axially advanceable relative to the shank portion **26** so as to take up slack between locking members **46** and the corner castings **16**. The collars **60** and **62** are rotatable as by a conventional spanner wrench that is engageable with complementary notches in the collars.

As best seen in FIGURE 3, the locking members **46** are secured within the corner castings **16** by complementary safety pins **70**, which extend through complementary bores **72** in the castings **16**. A conventional ball detent **74** is provided to preclude accidental retraction of the safety pin **70**.

From the foregoing description it should be apparent that the container coupler of the instant invention is relatively simple in construction, is quickly engageable with a shipping container, provides for slack take-up and is capable of handling the relatively heavy loads encountered in coupling shipping containers.

It is to be understood that the specific construction of the improved container coupler herein disclosed and described is presented for the purpose of explanation and illustration and is not intended to indicate limits of the invention, the scope of which is defined by the following claim.

What is claimed is:

A coupler for shipping containers having circular coupler receiving apertures in the walls thereof said coupler comprising

a threaded cylindrical shank portion having generally conical nose portions at opposite ends thereof,

a pair of cylindrical bearing portions between the threaded portion of said coupler and said nose portions, respectively, the diameter of said bearing portions being complementary to the apertures in the walls of said container so as to be acceptable therein in load transfer relationship,

a pair of annular grooves in said bearing portions, respectively,

a pair of generally U-shaped locking members having bight portions and spaced leg portions, respectively, the spacing of the leg portions of said locking mem-

bers being complementary to the diameter of the annular grooves in the bearing portions of said coupler so as to be receivable therein in axial load transfer relationship in opposite directions relative to the central axis of said coupler,

said locking members being receivable in locking member apertures in said containers, respectively, said locking member apertures extending normally to the coupler accepting apertures for the reception of said locking members in axial load transfer relationship relative to the central axis of said coupler,

a pair of collars threadably received on the shank portion of said coupler and advanceable against said

containers, respectively, for taking up slack between the containers, couplers and locking members, and means for securing said locking members in the locking member apertures in said containers.

References Cited

UNITED STATES PATENTS

2,390,479 12/1945 Watson et al. ------ 108—44 X

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