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J. M. PAUL

3,047,189

SIDE GUARDS FOR STACKABLE CARGO CONTAINERS

Filed April 11, 1961

FIG. 2

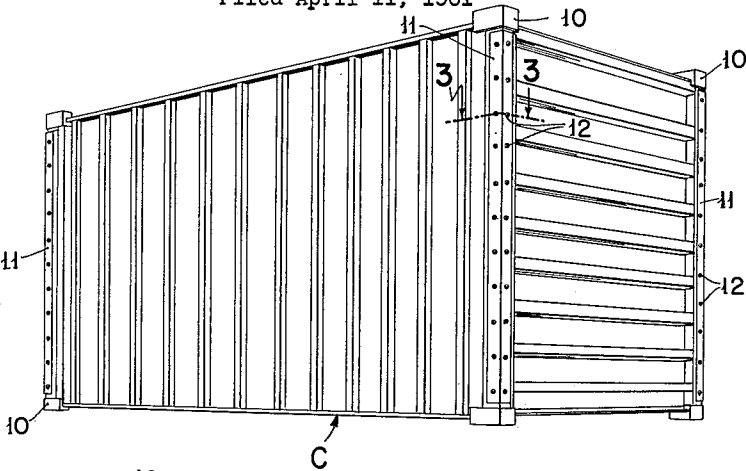
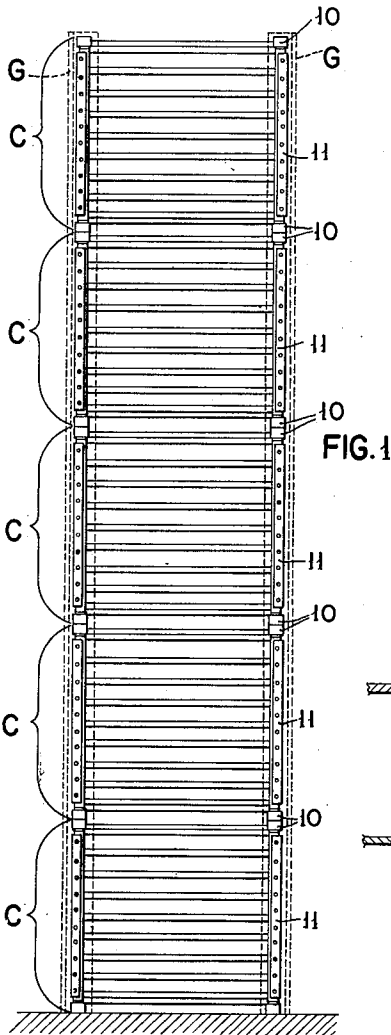


FIG. 4

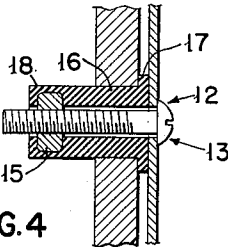


FIG. 5

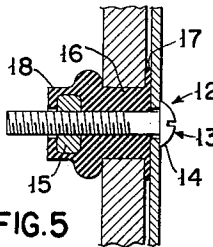
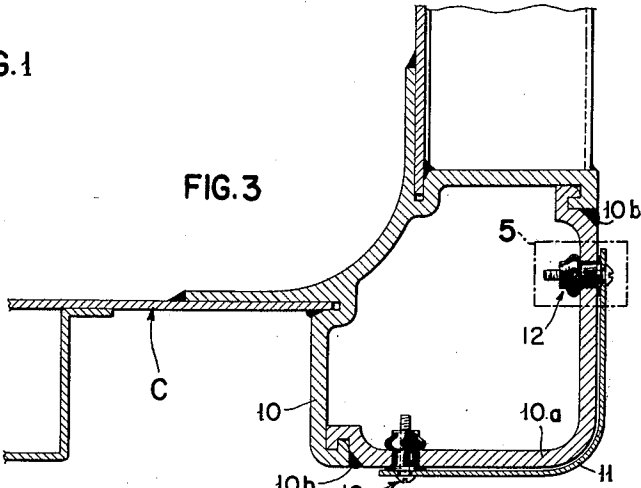


FIG. 3



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3,047,189 SIDE GUARDS FOR STACKABLE CARGO CONTAINERS

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This invention relates to side guards for stackable cargo containers and has for an object the provision of improvements in this art.

It is now a common practice to stack loaded cargo containers five or more high in ships or warehouses. Such containers need side guards or fenders to reduce damage in handling or use. On ships, particularly, where the containers are stacked in retaining cells, there may be considerable rubbing on the sides during travel.

The containers are usually made with heavy posts or columns which carry the vertical loads but these posts are not designed to take side wear or impacts. For example, the containers may be made of aluminum or an aluminum alloy which is relatively soft and easily injured.

By providing side guards of a stronger tougher metal the damage to the containers is greatly reduced.

It was found, however, that when the side guards of a different metal, having a different coefficient of expansion under loading or temperature, were secured directly on the container posts and made of the same vertical length, there was much breakage at the connecting joints. When the guards were made shorter than the posts there was still breakage due to the transmission of vertical loads from the posts to the guards through the plural connecting joints between them.

According to the present invention the joint breakage has been completely eliminated by spacing the guards slightly away from the posts on resilient elastic spacers and surrounding the shanks of the headed joint-forming connectors (bolts or screws) by resilient elastic sleeves.

It is therefore one of the particular objects of the invention to provide an improved side guard construction for cargo containers and improved fastening joints securing the guard to the container.

The invention will be described in connection with an exemplary embodiment, reference being made to the accompanying drawings wherein:

FIG. 1 is a side elevation of a stack of containers;

FIG. 2 is a side elevation of the corner of a container;

FIG. 3 is a horizontal section taken on the line 3-3 of FIG. 2; and

FIGS. 4 and 5 are sections in the broken rectangle zone of FIG. 3 showing a connection in two stages of securement.

As shown in FIG. 1, a number of containers C are stacked in vertical guides G as on shipboard.

Each container is provided with a number of rigid posts or columns 10 on the corners, and in long containers between columns, for taking the load of containers thereabove. It will be seen that when the containers are loaded with material the weight on the posts of the lower containers will be very great.

When the containers and their posts are made of a metal such as aluminum or aluminum alloy, as is common and contemplated herein, having a relatively high coefficient of load expansion the change in length of the posts of lower containers will be considerable.

Side guards 11 are provided on the container posts to take wear and side impact loads. It may not be neces-

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sary to provide guards on all load-bearing posts but they are provided at least on all corner posts. The guards are made of a harder more resistant material such as carbon steel, preferably hardened and springy. When the posts are made of aluminum the protective value of the side guards will be very great.

The side guards are made shorter than the posts so as to avoid direct loading on the guards. The corner guards are made of angle members and are secured to the corner posts by a plurality of joint connectors 12 such as screws or bolts. The corner posts are made with a snap-in corner piece 10a which after assembly is welded to the main post portions as by seam welds 10b thus allowing the guards to be mounted on the piece 10a before it is secured in the container assembly if desired.

The joint connections 12 include shanked headed connectors proper, such as screws 13 with heads 14 and nuts 15. The holes for the shanks are made oversize; and sleeves 16 of resilient material, such as rubber or "neoprene" are interposed between. Washer or grommet-like elements 17 are disposed between the guard and the post providing a slight spacing therebetween. These washer or grommet elements are also resilient, as of rubber or "neoprene" and may be integral with the sleeves and with an inner portion 18 carrying the nut 15, which inner portion in final secured position is expanded outward to provide a resilient anchorage for the nut. The sleeve and nut assembly per se is a market item known as a "wellnut" and can be inserted in a hole and secured from the front as a blind anchor fastener without access to the rear if desired.

With this arrangement when the posts are loaded endwise the guards are not directly loaded but are loaded endwise through their connections with the posts. These connections, however, are resilient and the guard is spaced by resilient washers from the post so that there is freedom for relative movement, hence the loading on the guard is minimized and the joint connections do not fail. It has been found in practice that the present connection completely eliminates failure of these connections due to unequal elongation characteristics and conditions.

It is thus seen that the invention provides an improved side guard and connections for vertically loaded container posts.

While one embodiment of the invention has been described for purposes of illustration it is to be understood that there may be various embodiments and modifications within the general scope of the invention.

What is claimed is:

1. A side guard assembly for a stackable container having vertical load bearing posts, comprising an elongated guard member secured to a post at a number of connection joints along its length, each joint including a thin resilient spacer between the guard member and the post, a shanked and headed retaining member and a resilient sleeve for the shank of the retaining member providing relative longitudinal movement between the guard member and the post.

2. A side guard assembly for a stackable container having vertical load bearing posts, comprising an elongated guard member shorter than the post to allow all direct loading to fall on the post, and a plurality of connecting joints between the guard member and post along their length, each joint including a headed shanked member and a resilient member having a sleeve and washer portion, said washer portion being connected between the guard member and the post and said sleeve portion being connected between the post and the shanked mem-

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ber, the resilient sleeve portion being carried by an oversized hole in the post.

3. A side guard assembly as set forth in claim 2, in which the post is of aluminum material, the guard member of steel material, and the sleeve and washer of a resilient elastic rubber-like material. 5

4. A side guard assembly as set forth in claim 2, in which the guard member is angular in section to fit a corner post shape but spaced away from it and has a row of connecting joints near each vertical edge. 10

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