

Feb. 11, 1958

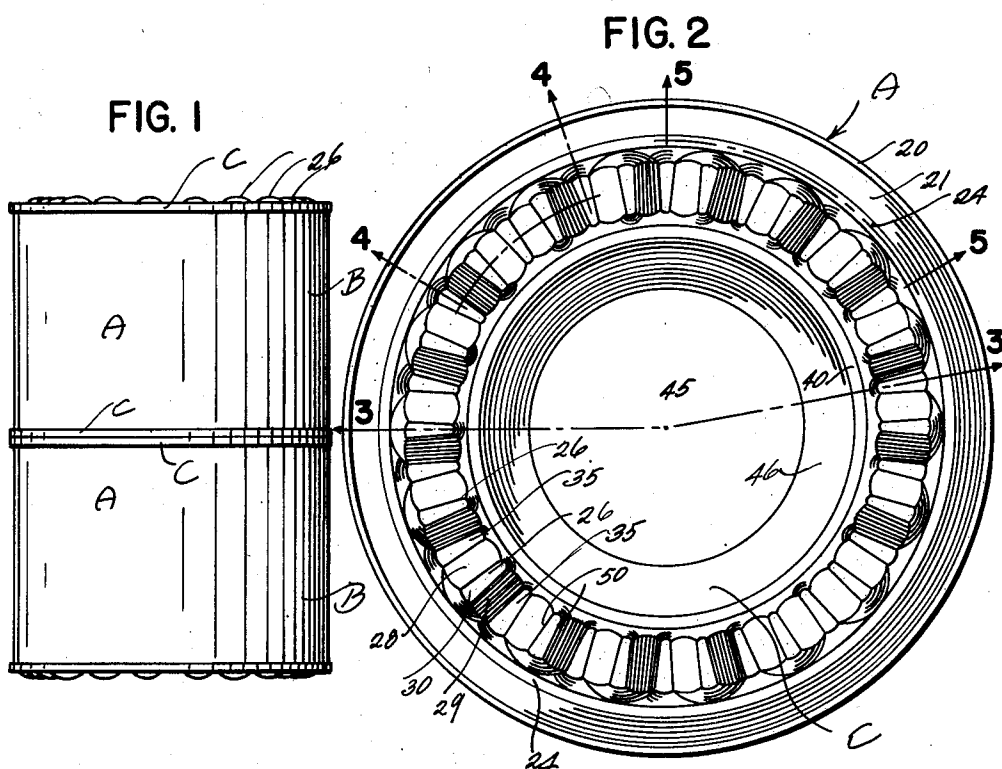
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2,822,952

CONSTRUCTION OF CONTAINERS AND SYSTEM OF STACKING THE SAME

Filed Nov. 15, 1954

2 Sheets-Sheet 1



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FIG. 4

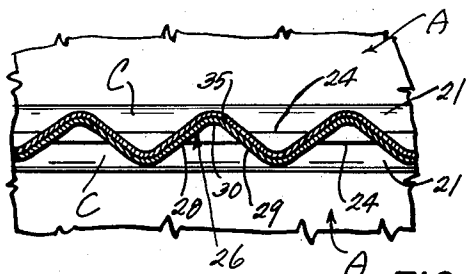


FIG. 5

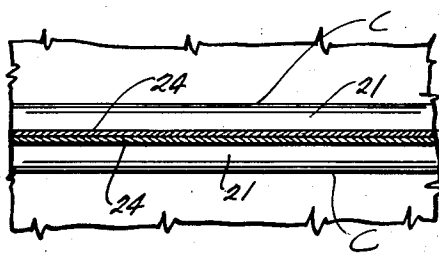


FIG. 6

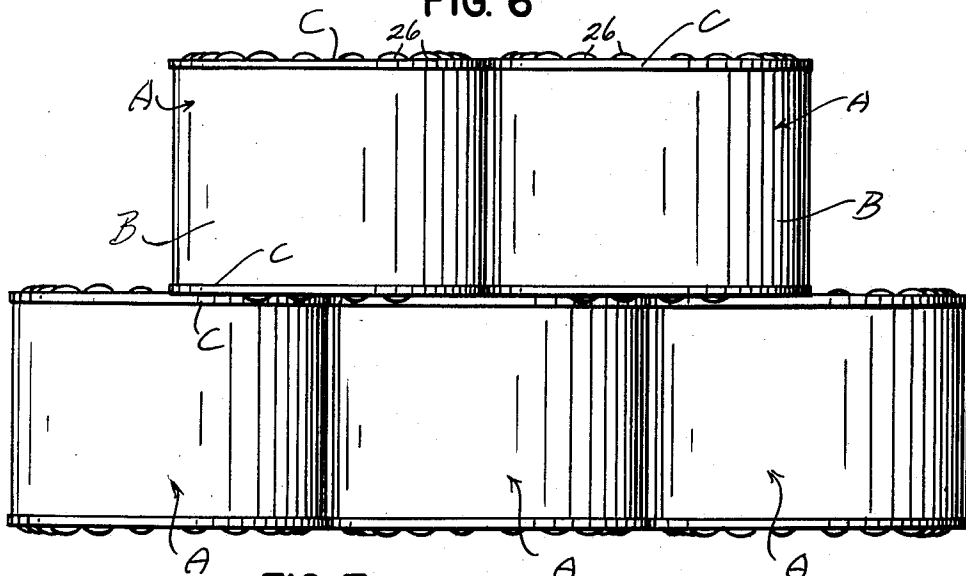
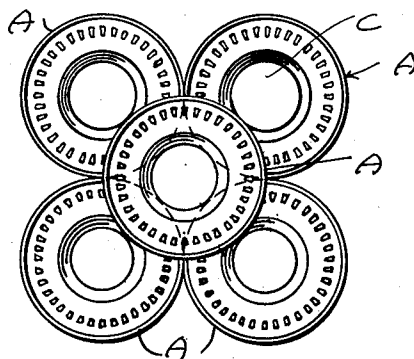


FIG. 7



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2,822,952

CONSTRUCTION OF CONTAINERS AND SYSTEM OF STACKING THE SAME

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Application November 15, 1954, Serial No. 468,820

10 Claims. (Cl. 220—97)

This invention relates to improvements in container or can constructions of the type ordinarily used for receiving food products and other materials, such as paint, etc.; the invention residing in the construction of the end walls of the container whereby to facilitate stacking in column or pyramidal arrangements, and under such conditions that the containers will not easily become laterally or circumferentially displaced from their initial stacked positioning.

Present day merchandising, particularly in supermarkets and other stores, etc. requires mass displays of cans or containers, sometimes under space restrictions. The arrangement and maintenance of such mass display is expensive from the standpoint of labor. It is therefore a purpose of the present invention to provide the end walls of cans or containers, such as are ordinarily used for food products, etc. with an interlocking arrangement that will enable instant stacking, either column or pyramid, against lateral or circumferential shifting; the wall structure being such that there will be proper load distribution, and the end result presenting to an observer a display which has the external appearance of conventionally stacked cans and containers.

I am aware that it has heretofore been proposed to provide containers, such as beer barrels, kegs, milk bottles and other containers with interfitting expedients to prevent relative shifting. Such expedients are not adaptable for use upon conventional food cans because of the problems involved. Thus, it is old in the art to provide lugs and sockets on the chimes or beer barrels or kegs, but in such case the lugs and sockets are visible to the observer and they do not offer much assurance against lateral shifting. In the present invention the end walls of the cans must be identical and so arranged that there will be rim contact to support the weight of superposed cans.

A further object of this invention is the provision of end wall structures for cans of the type conventionally used for receiving food products, etc. having a conventional rim at the outer margin thereof and inwardly from the rim having an improved arrangement of protrusions and depressions; the external surfacing of which is such as to permit the protrusions of the end wall of one can to snugly nestle and interfit with the depressions of the adjacent end wall of any other can; the arrangement of the protrusions and depressions in adjacent surfacing of the end walls being such as to provide for proper load distribution of the weight of superposed cans or containers; the cans when stacked presenting usual rim contact surfacing to an observer, without visual display of the interfitting peaks of column stacked containers.

Other objects and advantages of this invention will be apparent during the course of the following detailed description.

In the accompanying drawings, forming a part of this specification, and wherein similar reference characters

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designate corresponding parts throughout the several views:

Figure 1 is a side elevation showing two cans in superposed column relation.

Figure 2 is a plan view of the end wall construction of one of the containers.

Figure 3 is a transverse cross-sectional view showing a pair of containers with the end walls in column stacked position, only fragmentary portions of the cans being shown, and the section being taken on a general section line, such as shown by the line 3—3 in Figure 2.

Figures 4 and 5 are fragmentary cross sectional views taken through nested column stacked cans at the approximate locations represented by the respective lines 4—4 and 5—5 shown in Figure 2.

Figure 6 is a view showing a pyramid stacked arrangement of the improved cans.

Figure 7 is a plan view showing another pyramid stacking of the cans.

The present application is a continuation in part of my copending applications Serial Nos. 313,673 and 313,674, both filed on October 18, 1952, and now both abandoned.

In the drawings, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may generally designate one of the cans, having a cylindrical or other shaped side or body wall arrangement B and identically formed novel end walls C.

The side wall structure B is preferably cylindrical, although it may be otherwise shaped. The walls B and C are preferably constructed of some thin-gauged material, such as tin, aluminum, other sheet metal, plastic or glass.

Referring specifically to the construction of end wall C, the same is preferably stamped to the conformation shown, with the exception of the rim, which is later sealed in place upon the marginal edge of the can body. In final form the rim 20, is channelled to receive the marginal edge of the can body B, as shown in Figure 3. Extending from the inner edge of the rim 20 the wall C includes a sloping annular portion 21 of appreciable width, defining a space 22 wherein the rim forming portion of the sealing machine is received. The sloping annular portion 21 is smooth and not wavy, and it terminates at an annular horizontal flat band portion 24, narrow in width, the external surface of which lies flush with the outer edge of the rim 20, as will be noted from Figure 3. The next innermost annular portion of the wall C comprises a novel arrangement of alternating protrusions and depressions. The external surfacing of the protrusions and depressions is the same, in order that the protrusions of wall C may fit within depressions of the facing wall of an adjacent can or container stacked therewith. These protrusions and depressions are of novel outline. The protrusions 26 are bulged outwardly from the plane of the band portion 24; being in the form of the segment of an oval in cross section radially of the end wall, as shown in Figure 3. The bulge dimension of these protrusions 26, from the plane of the wall portion 24 may vary but is relatively shallow and the bulge extends beyond the plane of the outer edge of the rim portion 20. In transverse cross section the peak 26 is of somewhat inverted V-shaped formation, including the straight line side portions 28 and 29, terminating in a convexly arcuate top edge 30, as shown in Figure 4. The external surfacing of each depression 35 has the same dimensional characteristics as a protrusion 26. That is, in cross section radially of the can wall each depression defines an oval socket segment and in transverse cross section each conforms to the characteristics and shape of the surfaces of the portions 28, 29 and 30

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of a protrusion 26, in order that the latter will snugly nestle therein.

Radially inwardly of the annular series of protrusions 26 and depressions 35 the wall C has a narrow annular horizontal band portion 40 flush with the portion 24, and the external surface of which lies flushed with the outer edge of the rim 20, as is shown in Figure 3. The central portion of the wall C is preferably inset, in one or more places, and as shown in form of invention A the central portion 45 of the lid is flat and spaced inwardly an appreciable distance from the outer edge of the rim portion 20. It has a sloping annular flat portion 46 joining it with the annular portion 40.

In Figure 2 the protrusions and depressions are represented by certain full lines, but actually the contouring is not so clearly visible in the wall of the container to an observer. For instance, the lines 50 designated in Figure 2 show the locations where the curvature of the portion 30 merges into the side portions 28 and 29.

I have found that with this arrangement of protrusions and depressions a better interlocking of the stacked cans is obtained, so as to prevent relative rotation of the cans and lateral shifting thereof, whether the cans are stacked in column or pyramid formation.

It will be noted from Figure 3 of the drawings that the facing walls C of the stacked cans A not only have the rim edges in complete circumferential unbroken contact, but also the annular band portions 24 and 40 are in surface contact, as well as contact interfitting of the protrusions and depressions of the two end walls C. This arrangement not only provides for a proper interlock, but also enables efficient load distribution of the weight of the cans without distortion of the abutting end walls C.

It will be apparent from the foregoing that the improved end wall structures of the cans will enable giant size displays to be quickly assembled by unskilled labor and without liability of circumferential or lateral displacement. Whether stacked in column or pyramidal formation the display has great stability. Labor saving costs in the arrangement and maintenance of these mass displays is an extremely important item.

Various changes in the shape, size, and arrangement of parts may be made to the form of the end wall structures of the improved container and association of containers herein shown and described, without departing from the spirit of the invention or scope of the claims.

I claim:

1. A container for receiving food stuffs and the like comprising a body wall having end walls arranged transverse thereto, each of the end walls being similarly formed and each including a rim portion sealed upon the margin of the body wall with an adjacent annular sloping inset wall portion and inwardly of said wall portion having an annular series of alternating protrusions and depressions with the protrusions projecting above the outermost edge of the rim, each end wall both radially inwardly and outwardly of the annular series of protrusions and depressions having narrow annular flat horizontal bands the outer surfaces of which lie flush with the top edging of the rim, the central portion of each end wall including an annular sloping wall portion joined to the innermost horizontal band and a central flat horizontal portion appreciably set inwardly from the outermost edging of the rim.

2. A stacking container comprising a wall-forming body, an end wall for each end of said body, said end walls being identical and each having a peripheral rim for sealingly engaging the end edge of the body, each rim projecting endwise beyond its respective end wall, each end wall further having a series of alternately arranged protrusions and depressions spaced from said rim, said protrusions projecting beyond the adjacent rim outwardly thereof in a direction lengthwise of the container, each end wall having a flat surface portion located between its respective series of protrusions and

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depressions and its rim, said depressions extending inwardly of said flat surface portion in a direction opposite from said protrusions.

3. A stacking container as described in claim 2 wherein the protrusions and depressions in each end wall of the container are presented in annular arrangement.

4. A stacking container as described in claim 2 wherein the protrusions and depressions are elongated radially of the respective end wall and arcuately formed in longitudinal cross-section, the transverse cross-section of the protrusions and depressions defining flat surfaces with arcuate, exposed convex joining surface for the protrusions and an arcuate joining surface for the depressions.

5. A stacking container comprising a cylindrical wall-forming body, an end wall for each end of said body, said end walls being identical and each having a peripheral rim for sealingly engaging the end edge of the body, each rim projecting endwise beyond its respective end wall, each end wall further having radially inwardly of its rim an annular series of alternately arranged protrusions and depressions, each end wall having a flat annular surface immediately radially outwardly of the protrusions and depressions, the protrusions projecting beyond the adjacent rim and the flat annular surface, the depressions extending inwardly of said flat annular surface.

6. A stacking container as described in claim 5 wherein the flat annular surface and the end presented surface of the adjacent rim are co-planar.

7. A container comprising a body portion having end walls and defining a chamber therein, said end walls being similarly formed and each including an unbroken sealing rim projecting beyond the plane thereof for embracing the body portion at its extreme outer peripheral portion, each end wall having an annular series of symmetrically arranged protrusions and depressions, the exposed surfacing of said protrusions and depressions being dimensionally identical, the protrusions projecting beyond the adjacent rim outwardly thereof in a direction lengthwise of the container, each end wall having radially inwardly and outwardly of its annular series of protrusions and depressions flat, narrow annular band portions the outer surfaces of which are co-planar with the outer edge of the adjacent rim.

8. In a stacking arrangement for containers the combination of a plurality of containers each including a body portion with end walls, the end walls of each container being similarly constructed whereby to enable the interfitting connection of either end wall of one container with either end wall of an adjacent container, each container having both end walls provided with an annular flanged rim extending beyond the normal plane of the end wall, both end walls of each container being further provided with an annular series of uniformly and recurrently spaced protrusions and depressions spaced radially inwardly of the associated rim, said protrusions projecting endwise beyond the related rim outwardly thereof in a direction lengthwise of the container, the depressions extending inwardly of the plane of the end walls in a direction opposite from said protrusions, whereby when said containers are in column formation the protrusions of either end wall of one container will be snugly received within the depressions of the confronting end wall of the adjacent container with the rim edges of the adjacent containers in surface engagement whereby the interfitting protrusions and depressions will not be visible externally of the containers.

9. In a system of container stacking the combination of a pair of similarly formed containers each including a body wall and similarly formed end walls defining a chamber for the container, the ends of each of the containers having an unbroken annular sealing rim engaging the marginal edge of the body wall with an adjacent annular portion of each end wall set inwardly of the outermost edge of the respective rim, each of the end walls of each container being provided with an annular

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symmetrical series of protrusions and depressions presenting identical surface dimensions and wherein only the protrusions of the end walls project beyond the outermost edge of the associated rim outwardly thereof in a direction lengthwise of the container, said protrusions and depressions being so arranged that the protrusions of the end wall of one container fit snugly in non-turning and non-shifting relation within the depressions of the confronting end wall of the other container, the end walls of each container further having annular horizontal band portions radially outwardly and inwardly of the annular series of protrusions and depressions, the outer surfacing of said bands being flush with the edging of the rim of the corresponding end wall.

10. In a system of container stacking the combination of a pair of similarly formed containers each including a body wall and similarly formed end walls defining a chamber for the container, the ends of each of the containers having an unbroken annular sealing rim engaging the marginal edge of the body wall, each of the end walls of each container being provided with an annular symmetrical series of protrusions and depressions, the protrusions of the end walls project beyond the outermost

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edge of the associated rim outwardly thereof in a direction lengthwise of the container, said protrusions and depressions being so arranged that the protrusions of the end wall of one container fit snugly in non-turning and non-shifting relation within the depressions of the confronting end wall of the other container, the end walls of each container further having an annular horizontal band portion radially outwardly of the annular series of protrusions and depressions.

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