Feb. 9, 1943. D. E. GRAHAM 2,310,420

CONTAINER

Filed Oct. 30, 1939 2 Sheets-Sheet 1

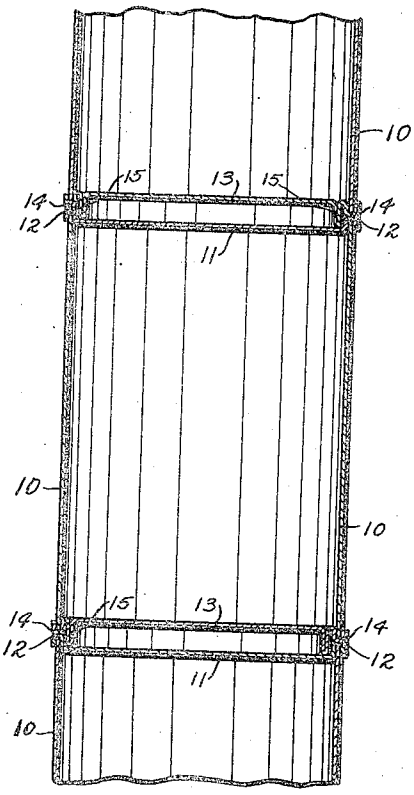


FIG. 1

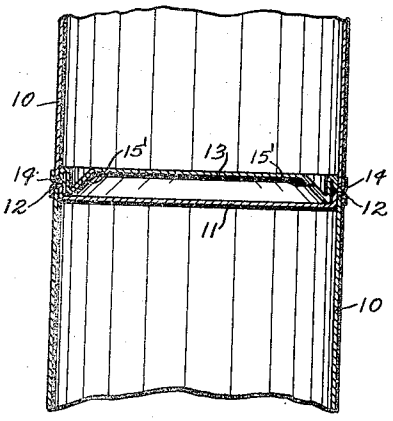


FIG. 3

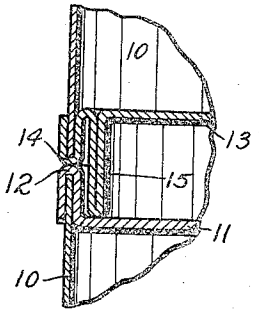


FIG. 2

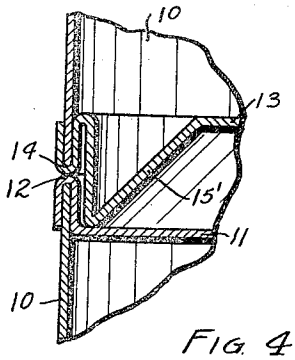


FIG. 4

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Feb. 9, 1943. D. E. GRAHAM 2,310,420

CONTAINER

Filed Oct. 30, 1939 2 Sheets-Sheet 2

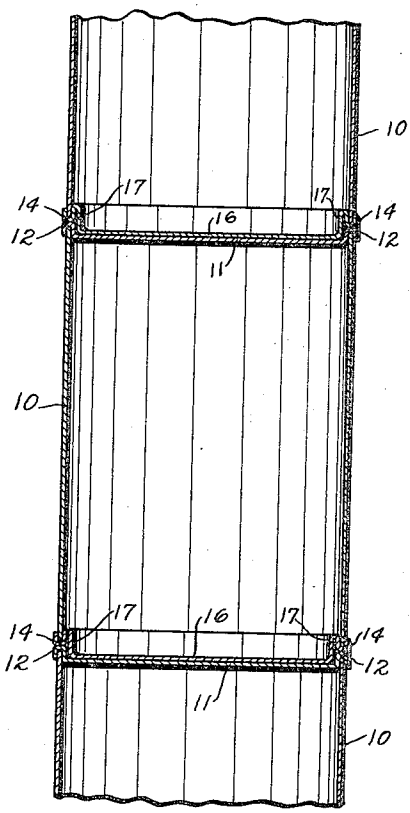


FIG. 5

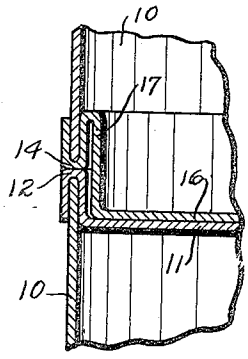


FIG. 6

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Patented Feb. 9, 1943 2,310,420

UNITED STATES PATENT OFFICE

2,310,420

CONTAINER

Duncan Earl Graham, Denver, Colo.

Application October 30, 1939, Serial No. 302,009

2 Claims. (Cl. 220—97)

This invention relates to containers of conventional type commonly employed for the packaging of food and other commodities to facilitate merchandising, handling, storage preserving, and display of such products, and has as an object to provide a modified and improved construction for such containers whereby their convenience and utility is enhanced.

A further object of the invention is to provide a modified construction susceptible of convenient incorporation in and with conventional containers to adapt such containers for non-slipping interengagement when in stacked relation.

A further object of the invention is to provide an improved closure member for one end of a conventional container and adapted to engage in non-slipping relation with the conventional end closure of a like container when stacked.

A further object of the invention is to provide an improved end closure for conventional containers having each one conventional end closure, whereby said containers are adapted for non-slipping interengagement in stacked relation.

A further object of the invention is to be found in the provision of a conventional container end closure modified for non-slipping engagement with the conventional end closure of an adjacent container and susceptible of attachment to and in operative relation with otherwise conventional container structure through the use of known and commonly-employed methods and means.

My invention consists in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a vertical section taken axially through a complete container modified in accordance with the principles of the invention and portions of two like containers in stacked relation therewith. Figure 2 is a fragmentary, detail section, on an enlarged scale, through abutting margins of adjacent containers as shown in Figure 1. Figure 3 is a vertical section axially of the bottom and top portions of stacked containers whereto the principles of the invention have been applied in modified form. Figure 4 is a fragmentary, detail section, on the same scale as Figure 2, illustrating abutting margins of the container structure shown in Figure 3. Figure 5 is a view similar to Figure 1 illustrating a further modified or alternative embodiment of the invention. Figure 6 is a fragmentary, detail section similar to Figure 2 and illustrating abutting margins of the containers shown in Figure 5.

Throughout the various views of the drawings, the numeral 10 designates the body portion of a conventional container and the numeral 11 designates a conventional end closure of the type commonly associated with both ends of such containers. The body portion 10 is shown as a straight-walled, open-ended, hollow cylinder, and may be formed of any suitable material having the requisite rigidity, sealing properties, and resistance to moisture, such as sheet metal, molded plastics, fiber, paper board, and the like, in any suitable or convenient manner. The end closure 11 is a flat disc of a diameter such as will fit fairly closely within the open container end and is formed with an annular, marginal flange disposed to lie closely against the inner, end surface of the portion 10 and be bent over the end margin of said body portion and against and in overlying, exterior relation with the outer end surface of said portion to provide a bead 12 which is crimped, rolled, pressed, cemented, or soldered to said body portion in accordance with conventional methods to perfect a sealed joint between meeting portions of the elements 10 and 11. The end closure 11 is usually of the same material as the body portion 10, but may be of differing material, as is occasionally the case in conventional practice, without in any way affecting the principles and purposes of the instant invention. As will be readily apparent, the end closure 11 is not flush with the outer margin of the corresponding body portion end, but the major plane of said end closure is disposed inwardly of the body portion end sufficiently to provide a shallow, exterior recess on the end of the finished container.

The end closure 11 illustrated and above described is typical of the conventional closures normally found on both ends of conventional, finished containers, one of which closures is applied at the packing plant after filling or charging of the container, but in the instant invention, the end closure 11 is the one last applied to the container after filling or charging thereof, hence, being of conventional type, it may readily be applied in the known and usual manner with the facilities heretofore and at present available for such purpose.

The instant invention contemplates substitution of a modified end closure for the first end closure normally furnished as a fixed component of the container as supplied to the packer or user, which modified end closure is adapted for telescopic cooperation with the conventional end closure 11 in a manner to limit and substantially obviate relative lateral movement between adjacent stacked containers, thus permitting secure stacking of the completed containers for storage, display, shelving, packing, and handling, to a degree far beyond that possible with conventional constructions. The improved container end closure may be variously modified for the purpose above set forth, and certain such specific modifications within the contemplation of

the invention are illustrated in the drawings and hereinafter described.

As shown in Figures 1 and 2, the modified end closure may be closely similar to the conventional end closure 11 in that it presents a flat disc portion 13 and a marginal bead 14 substantially identical in structure and function with the analogous elements of the closure 11, the bead 14 being adapted to embracingly grip over and be secured to an end margin of the body portion 10, and differs from the conventional closure 11 in the provision of an annular rib 15 concentrically of the disc 13 within and immediately adjacent the bead 14 and formed from a fold of the material disposed to project axially from said disc in the same direction as the bead 14 and beyond the outer end margin of said bead a distance substantially equal to the depth of the bead 12 relative to the disc portion of the conventional end closure 11. The rib 15 has thus an outer diameter such as will permit it to be received within the bead 12 of an adjacent conventional container end 11, and an extension beyond its own bead 14 sufficient to bring the free margin of said rib into seated engagement against the closure 11 at or before engagement of the beads 12 and 14 with one another, the rib 15 thus engaging within the recess of the conventional end closure 11 to limit lateral relative travel of the container provided with said rib with respect to an adjacent, axially-aligned similar container equipped with a conventional closure on the end opposed to the rib 15. Figure 1 illustrates the manner in which containers provided with a rib 15 on one end each may be stacked and held against displacement laterally from their stacked relation through telescopic engagement of their respective ribs 15 within the exterior recesses of the conventional closures 11 of adjacent containers, in the manner above described.

Figures 3 and 4 illustrate a construction functionally identical with that shown in Figures 1 and 2 and differing only in that the rib 15 is modified by angular disposition of its inner fold 15' to form a V-shaped annular trough whereof the outer wall corresponds with the outer fold of the rib 15 and the inner wall inclines to connect and close between the free margin of said outer wall and the periphery of the disc 13. The modified construction last above described serves to hold containers equipped therewith against relative lateral displacement in exactly the same manner as does the rib 15, but does slightly increase the capacity of a container so equipped in an amount equal to the capacity of the V-shaped trough formed by the divergence of the folds or walls forming the modified rib.

The modified end closure construction shown in Figures 5 and 6 is closely similar to that illustrated by the preceding figures but differs therefrom in that instead of the disc 13 merging with the base of the rib 15, a similar disc 16 is provided in marginally merging relation with the outer margin of a single-walled rib 17 which corresponds with the outer wall or fold of the rib 15. In this construction, the capacity of the container is increased considerably, which may be of advantage in certain instances, and the disc 16 is disposed to set on and bear against the disc portion outer surface of the conventional end closure 11 carried by and in sealing relation with the opposite end of like containers.

As will be readily apparent, all of the modified end closures illustrated and described may conveniently be associated with conventional containers as fixed closure member at the time of container manufacture and through the use of the usual and well-known methods and apparatus available for such purpose, the containers being thus adapted for ultimate closure by means of the conventional end closure 11 applied after packing is completed through the use of the facilities now available for such purposes, the modified end closures in no way interfering with the normal packing and sealing processes. Further, the modified end closures illustrated in Figures 3–6, inclusive, may be utilized to increase the normal capacity of a container to a degree which permits the use of a container of less length or diameter while maintaining the capacity of a relatively larger body portion 10.

The advantages inherent in the modified end closure construction are obvious, since the difficulty of securely stacking conventional containers is so well known as to obviate the necessity for elaboration.

Since many changes, variations, and modifications in the specific form, construction, and arrangement of the elements shown and described may be had without departing from the spirit of my invention, I wish to be understood as being limited solely by the scope of the appended claims, rather than by any details of the illustrative showing and foregoing description.

I claim as my invention:

1. In a container having a tubular straight-walled body and top and bottom end closures, each comprising a circular web portion positioned inwardly of the end edges of the body of said container and formed with an axially offset rim defining an annular channel disposed to telescopically receive one end of the container body and engage therewith to position its web portion in recessed relation interiorly of the container end closed thereby, means on the bottom end closure for limiting lateral displacement between stacked containers of like size, said means comprising an annulus formed by folding said web upon itself closely adjacent the junction of said web portion with its channeled rim in concentric relation with and in axial extension outwardly of the container beyond said rim, said annular member being received within the offset rim portion of the top of the next adjacent container and contacting the web thereof with the aforesaid outer rim portion in substantially contacting relation.

2. In a container having a tubular straight-walled body and top and bottom end closures, each comprising a circular web portion at least the top web of which is positioned inwardly of said container, said web portions formed with an axially offset rim defining an annular channel disposed to telescopically receive one end of the container body and engage therewith to secure said web portions to the container end closed thereby, means on the bottom end closure for limiting lateral displacement between stacked containers of like size, said means comprising an annulus formed by folding said web upon itself closely adjacent the junction of said web portion with its channeled rim in concentric relation with and in axial extension outwardly of the container beyond said rim, said annular member being received within the offset rim portion of the top of the next adjacent container and contacting the web thereof with the aforesaid outer rim portions in substantially contacting relation.

DUNCAN EARL GRAHAM.