April 3, 1951 G. D. JANSEN 2,547,395

CONTAINER

Filed Dec. 31, 1948

Fig. 1.

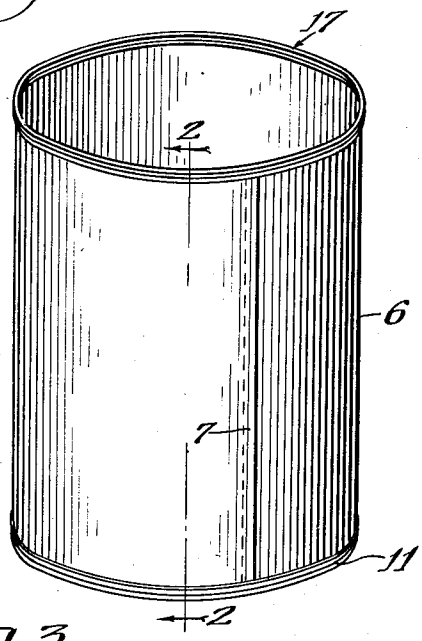


Fig. 2.

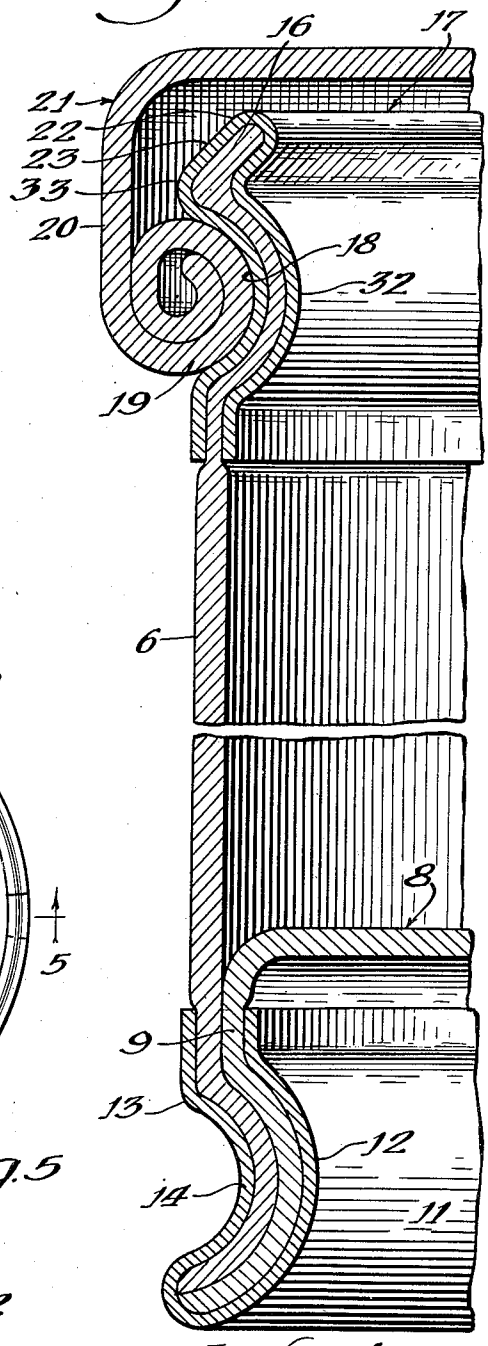


Fig. 3

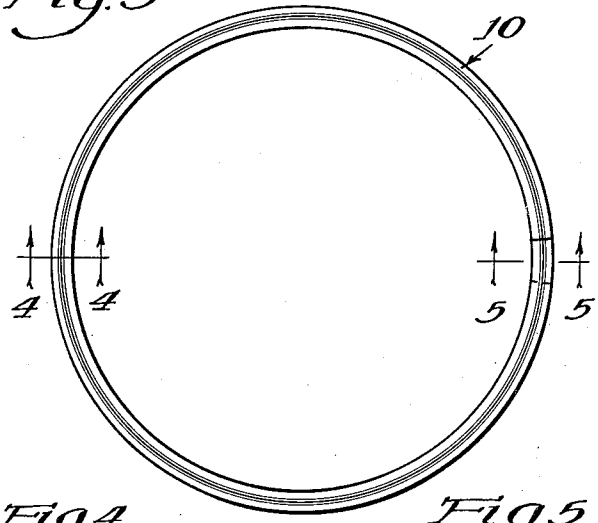


Fig. 4.

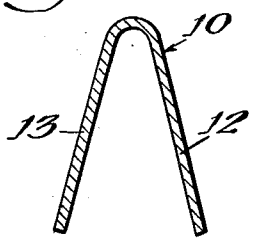
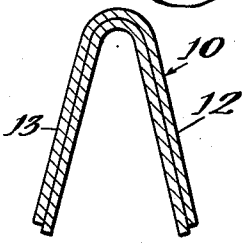


Fig. 5



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UNITED STATES PATENT OFFICE

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CONTAINER

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3 Claims. (Cl. 229—5.5)

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This invention relates to containers and is more particularly concerned with the provision of a container structure adapted to be shipped in a knock-down disassembled condition for assembly at the point of use to provide a relatively strong, durable, lightweight liquid-type container suitable to receive ice cream and other food products.

This invention further contemplates the provision of a container embodying several parts which are designed to occupy a minimum amount of space during storage or shipment in their knock-down condition.

This invention further contemplates the provision of a container structure embodying a flanged bottom secured within one end of a tubular side wall by means of a metallic retaining ring, the other end of the side wall being provided with a metallic reinforcing ring formed to snugly receive and engage a cover against accidental displacement. The side and flanged bottom are preferably formed of non-metallic sheet material, such as paperboard, to provide a relatively inexpensive container suitable for a single use.

In other types of container structures known in this art, it has been the practice to form the metallic reinforcing and retaining rings trough-shape in cross section to provide opposing flange portions of different widths to receive and engage the ends of a non-metallic side wall or side wall and bottom flange, the edge of the relatively narrow flange being disposed in annular line contact engagement against the non-metallic material. As the metallic reinforcing and retaining rings are usually formed of relatively thin sheet metal having a thickness of from .01 to .014 inch, it would be appreciated that the rings tend to cut into the non-metallic material. It has also been found that this type of reinforcing and retaining ring is apt to be accidentally displaced from the side wall of the container, as the relatively thin metal offers little resistance to bending stresses.

In the present invention, the metallic reinforcing and retaining rings are preferably similar in construction and formed V-shape in cross section with the flanges substantially coextensive in width. These rings are also preferably formed from strips of metal bent into V-shape in cross section and having the ends of the strips arranged in overlapping relation. The flanges of these rings are pressed into tight clamping engagement against opposite surfaces of the non-metallic material by means of forming rolls

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which cause the medial portions of the side flanges and the non-metallic material interposed therebetween to assume a concavo-convex form in cross section. During this forming operation the non-metallic material interposed between the flanges of the rings is compressed and maintained under compression due to the conformation of the flanges. After assembly of the container, it has been found that the amount of force required to displace a ring from a container wall is greater than the amount of force required to rupture the wall of a container placed under tension.

This invention further contemplates the provision of a container structure in which the metallic reinforcing ring has the medial portion of its flanges concavo-convex in cross section to provide an outer annular groove to receive a peripheral lip formed on the flange of a cover, the outer portion of the reinforcing ring sloping upwardly and inwardly from the concavo-convex portion to provide a downwardly and outwardly inclined surface to facilitate the application of the cover to the container.

This invention embodies other novel features, details of construction and arrangement of parts which are hereinafter set forth in the specification and claims, and illustrated in the accompanying drawing wherein:

Fig. 1 is a perspective view illustrating a container embodying features of this invention.

Fig. 2 is an enlarged sectional view taken along the line 2—2 of Fig. 1, a cover being applied to the open end of the container.

Fig. 3 is a plan view illustrating a metallic ring employed in the construction of the container.

Fig. 4 is an enlarged detail sectional view taken along the line 4—4 of Fig. 3.

Fig. 5 is an enlarged detail sectional view taken along the line 5—5 of Fig. 3, showing the ends of the annular strip material disposed in overlapping relation.

Referring now to the drawing for a better understanding of this invention, the container is shown as comprising a tubular side wall 6 which is preferably formed from a sheet of fiberboard having its ends adhesively united in overlapping relation at 7. A bottom 8 formed with an annular flange portion 9 is mounted within one end of the tubular side wall 6 with the peripheral edge of the flange disposed in alignment with the adjacent end of the side wall. The bottom 8 is also preferably formed from fiberboard.

The annular flange portion 9 of the bottom 8 is secured to the adjacent portion of the tubular

side wall 6 by means of a metallic retaining ring 11. As illustrated in Figs. 3 to 5 in the drawing, the metallic retaining ring 11 is preferably formed from a blank 10 of strip metal bent into ring-shape with the ends of the strip disposed in overlapping relation, the strip also being bent V-shape in cross section throughout the circumference of the ring to provide a pair of opposing flanges 12 and 13 substantially coextensive in width. The flanges 12 and 13 of the metallic retaining ring 11 are rolled into tight clamping engagement to secure the flange 9 of the bottom 8 to the adjacent portion of the side wall 6. During the rolling operation, the medial annular portions of the flanges 12 and 13 and the fiberboard material interposed therebetween are formed concavo-convex in cross section at 14. The annular free edge portions of the flanges 12 and 13 are arranged parallel with the longitudinal axis of the container during the rolling operation. By forming the medial portions of the flanges 12 and 13 concavo-convex in cross section, it is possible to tightly compress the fiberboard between the opposing flanges and throughout their entire opposing surfaces. It will further be noted that the opposing walls 12 and 13 of the retaining ring do not tend to cut or otherwise decrease the physical properties of the fiberboard. It will also be noted that the concavo-convex cross section of the retaining ring insures a tight seal between the flange 9 and the side wall 6, and that the retaining ring 11 will not readily be accidentally displaced from the container.

A metal blank 10 is applied to the rim portion 16 of the side wall 6 to provide a reinforcing ring 17 having inner and outer opposing connected flanges 32 and 33. The medial portion of the flanges 32 and 33 and the fiberboard interposed therebetween are bent concavo-convex in cross section to form an outwardly facing annular groove 18 to receive and engage an inturned bead 19 provided on the flange 20 of a cover 21. The rim portion 22 of the reinforcing ring 17 is inclined toward the axis of the container to provide a frusto-conical surface 23 to facilitate the mounting of the cover 21 over the reinforcing ring. The inner annular free edge portions of the flanges 32 and 33 are rolled parallel to the longitudinal axis of the side wall 6. It will be noted that the concavo-convex formation of the flanges 32 and 33 and the fiberboard interposed therebetween serves to prevent accidental displacement of the retaining ring without injuring the physical properties of the fiberboard. It will also be observed that the frusto-conical surface 23 of the reinforcing ring 17 serves to facilitate the application of the cover 21 to the container and that the outwardly facing annular groove 18 snugly receives and engages the annular bead 19 of the cover to prevent accidental displacement of the latter. It is contemplated that the cover 21 may be provided with an annular bead 19 formed of metal, if desired.

An important feature of the present invention is to provide a container structure which is adapted to occupy a minimum amount of space in its disassembled knock-down condition during storage or shipping to the point of use. This is accomplished by providing a tubular side wall 6 adapted to be flattened during shipping or storage and opened to its cylindrical form during assembly of the container. The bottoms 8 of the container are adapted to be stacked in telescopic relation during shipping or storage by forming the annular flange portions 9 slightly frusto-conical. The blanks 10 forming the retaining ring 11 and reinforcing ring 17, are adapted to be arranged in telescopic stacked relation due to their V-shape cross section. This feature is of considerable importance to manufacturers of ice cream and similar food products due to their limited storage facilities. During assembly of the container at the point of use, the side wall 6 is pressed from its flattened state to a cylindrical form to receive the bottom 8. A pair of metallic blanks 10 are then rolled onto the ends of the side wall 6 to form a finished container suitable to receive ice cream or other food products. After the container is filled with ice cream, or the like, the cover 21 is snapped into position over the reinforcing ring 17.

While this invention has been shown in but one form, it is obvious to those skilled in the art that it is not so limited but is susceptible of various changes and modifications without departing from the spirit and scope of the claimed invention.

I claim as my invention:

1. A container comprising a tubular fiberboard side wall, a fiberboard bottom mounted within one end of said side wall, said bottom having an annular flange engaging the inner surface of said side wall and with its edge flush with the adjacent rim of the side wall, a metallic retaining ring formed to secure said annular bottom flange to said side wall, a metallic reinforcing ring disposed to enclose the rim at the other end of said side wall, said retaining and reinforcing rings each being formed from a strip of metal bent along its longitudinal axis to provide opposing inner and outer flanges substantially coextensive in width, the medial portions of said retaining and reinforcing ring flanges and the fiberboard therebetween being formed concavo-convex in cross-section to define outwardly facing annular grooves, the inner peripheral portions of said retaining and reinforcing ring flanges being parallel with the longitudinal axis of the container.

2. A container comprising a tubular fiberboard side wall, a fiberboard bottom mounted within one end of said side wall, said bottom having an annular flange engaging the inner surface of said side wall and with its edge flush with the adjacent rim of the side wall, a metallic retaining ring formed to secure said annular bottom flange to said side wall, a metallic reinforcing ring disposed to enclose the rim at the other end of said side wall, said retaining and reinforcing rings each being formed from a strip of metal bent along its longitudinal axis to provide opposing inner and outer flanges substantially coextensive in width, the medial portions of said retaining and reinforcing ring flanges and the fiberboard therebetween being formed concavo-convex in cross-section to define outwardly facing annular grooves, the inner peripheral portions of said retaining and reinforcing ring flanges being parallel with the longitudinal axis of the container, the outer peripheral portions of said reinforcing ring flanges sloping inwardly to provide a frustro-conical surface to facilitate the mounting of a cover thereon.

3. A container comprising a tubular fiberboard side wall, a fiberboard bottom mounted within one end of said side wall, said bottom having an annular flange engaging the inner surface of said side wall and with its edge flush with the adjacent rim of the side wall, a metallic retaining ring formed to secure said annular bottom flange

to said side wall, a metallic reinforcing ring disposed to enclose the rim at the other end of said side wall, said retaining and reinforcing rings each being formed from a strip of metal bent along its longitudinal axis to provide opposing inner and outer flanges substantially coextensive in width, the medial portions of said retaining and reinforcing ring flanges and the fiberboard therebetween being formed concavo-convex in cross-section to define outwardly facing annular grooves, the inner peripheral portions of said retaining and reinforcing ring flanges being parallel with the longitudinal axis of the container, the outer peripheral portions of said reinforcing ring flanges sloping inwardly to provide a frustro-conical surface to facilitate the mounting of a cover thereon, and a cover formed with an annular flange to receive and engage said reinforcing ring, said cover flange being formed on its inner surface with an annular ridge for snap engagement into the outwardly facing groove formed in the reinforcing ring.

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