

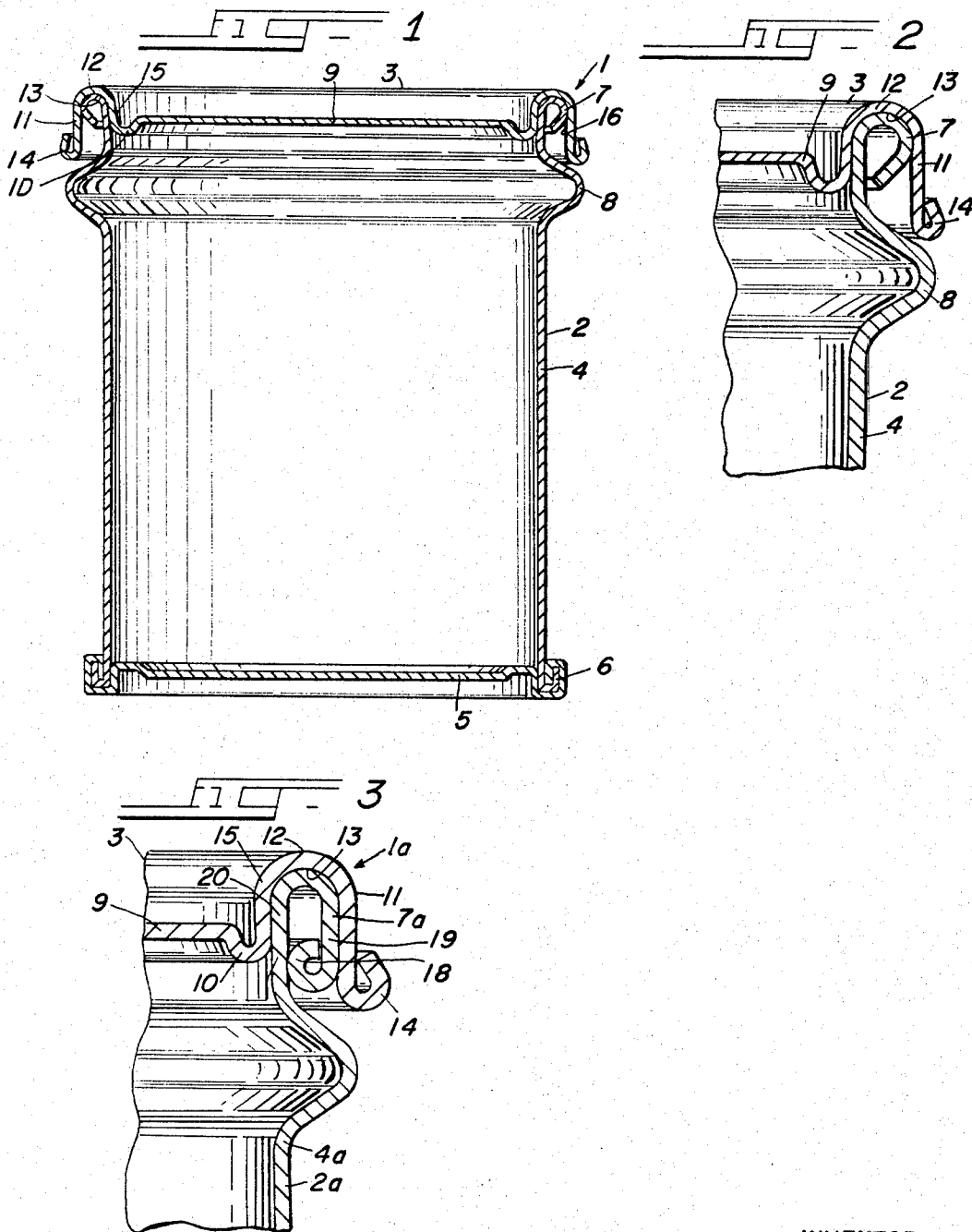
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CONTAINER CONSTRUCTION

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CONTAINER CONSTRUCTION

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ABSTRACT OF THE DISCLOSURE

A container having a removable and replaceable cover member held thereon by frictional engagement with the interior and exterior of the container.

This invention relates to container construction and, more particularly, to container construction which is particularly well adapted for use in the commercial construction of cans, and the like.

It is a primary object of the present invention to afford a novel container.

Another object of the present invention is to afford a novel open-mouth container having a removable cover.

Cans, having removable covers, for shipping and storing various materials have been heretofore known in the art. However, such cans heretofore known in the art have commonly had several inherent disadvantages such as, for example, being of such construction that it was difficult to empty all of the contents therefrom, being so constructed that it was difficult to remove the cover therefrom; being so constructed that once the cover had been removed it was difficult to reinstall it on the can body; being so constructed that, once the cover had been removed therefrom, when it was again reinstalled in closing relation to the can body it was not reliably held thereon; or not having the structural strength necessary to afford a can for commercially packaging material to be sold, and the like. It is an important object of the present invention to overcome such disadvantages.

Another object of the present invention is to afford a novel can having the parts thereof constituted and arranged in a novel and expeditious manner.

Another object of the present invention is to afford a novel container of the aforementioned type embodying a removable lid constituted and arranged in a novel and expeditious manner.

An object ancillary to the foregoing is to afford such a novel container wherein the lid thereof is frictionally held in operative position on the assembled container.

Yet another object of the invention is to afford a novel container of the aforementioned type which embodies a lid which may be readily removed and replaced.

A further object is to afford a novel container of the aforementioned type wherein the lid is effectively protected against accidental dislodging from the container during shipping, and the like.

Another object of the present invention is to afford a novel container which affords a practical shipping and storing container for the commercial products to be sold and shipped, and which container may be readily and economically produced commercially.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show preferred embodiments of the present invention and the principles thereof and what I now consider to be the best mode in which I have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing

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from the present invention and the purview of the appended claims.

In the drawings:

FIG. 1 is a longitudinal sectional view through a container embodying the principles of the present invention;

FIG. 2 is an enlarged, fragmentary detail sectional view showing a portion of the container shown in FIG. 1; and

FIG. 3 is a fragmentary, detail sectional view, similar to FIG. 2, but showing a modified form of the container shown in FIG. 1.

A container 1, embodying the principles of the present invention, is shown in the drawings to illustrate the presently preferred embodiment of the present invention.

The container 1 embodies, in general, a body portion 2, which is closed at the bottom, and a closure member or cover member 3 mounted on the open, upper end of the body member 2 in covering and closing relation thereto.

The container construction illustrated in the drawings is particularly well adapted for the construction of cans, and the like, wherein the body portion 2 and the cover 3 are constructed from suitable sheet metal, such as, for example, tin plate. However, as will be appreciated by those skilled in the art, the present invention is not limited thereto and the body portion 2 and the cover 3 may be constructed of other suitable sheet material.

The body portion 2 includes a substantially cylindrical shaped, tubular side wall portion 4, having a bottom wall 5 mounted on the lower end thereof in closing relation thereto. The bottom wall 5 is sealed to the lower end of the side wall portion 4 by a rolled double seam 6, in the usual manner.

At its upper end, the side wall portion 4 of the body portion 2 terminates in a horizontally outwardly projecting curl 7, FIGS. 1 and 2. The curl 7 is of a type herein referred to as an "open curl." That is, the parts thereof are so constituted and arranged that they define a passageway which extends around the periphery of the top of the body portion 2, as distinguished from a tightly rolled curl or hemmed edge wherein the side walls thereof are disposed in intimate contact with each other.

A convex-outwardly, concave-inwardly annular rib 8 is formed in the upper end portion of the side wall portion 4 of the body portion 2, in downwardly spaced relation to the curl 7, FIGS. 1 and 2. The curl 7 and the rib 8 act as reinforcing members for the upper portion of the side wall portion 4, for resisting radial distortion of the upper end of the body portion 2. The rib 8 also affords protection for the cover member 3 in the assembled container 1, as will be discussed in greater detail presently.

The cover portion 3 is preferably made from a single piece of sheet material such as, for example, the aforementioned tin plate, and includes a substantially flat, disk-shaped central portion 9. A convex-downwardly, concave-upwardly, annular rib 10 extends around the central portion 9 in immediately adjacent relation thereto. An annular outer flange 11 is disposed radially outwardly of the rib 10, in spaced relation thereto, and the upper end of the flange 11 is connected to the upper outer end of the rib 10 by an arcuate-shaped, concave-downwardly intermediate portion 12, to thereby afford a concave-downwardly inner recess 13 between flange 11 and the rib 10. The flange 11 terminates at its lower edge in an outwardly and upwardly bent or curved portion, preferably in the form of an open curl 14.

In the assembled container 1, the cover 3 is disposed on the upper end portion of the side wall portion 4 of the body portion 2, with the outer wall portion 15 of the

rib 10 disposed in snug frictional engagement with the inner surface of the upper end portion of the side wall portion 4, FIGS. 1 and 2. The rib 10 affords a resilient mounting for the wall portion 15 thereof, and the engagement of the wall portion 15 with the adjacent portion of the side wall portion 4 is such that when the cover 3 is disposed in assembled relation on the body portion 2, the wall portion 15 is flexed radially inwardly from the position it normally occupies when the cover 3 is disposed in unassembled position to the body portion 2. Such construction affords a strong, but yieldable frictional engagement between the rib 10 of the cover 3 and the upper end of the body portion 2 in the assembled container 1.

Also, the flange 11 is so disposed relative to the wall portion 15 of the rib 10, that, when the cover 3 is disposed in unassembled relation to the body portion 2, the flange 11 slopes inwardly, in a downward direction, toward the rib 10 a sufficient distance that the lower edge of the inner face 16 of the flange 11 is of somewhat smaller diameter than the outside diameter of the curl 7. Preferably, the difference in diameter between the lower edge of the inner face 16 of the flange 11 and the outer periphery of the curl 7 is such that when the cover 3 is placed loosely on top of the body portion 2, in such position that the curl 14 rests on top of the curl 7, engagement of the cover 3 with the body portion 2 is effected outwardly of the vertical center line of the curl 7 and inwardly of the outer periphery thereof, and inwardly of the vertical center line of the curl 14 and outwardly of the inner periphery thereof. At its upper end, the flange 11 is so disposed relative to the wall portion 15 of the rib 10 that, when the cover 3 is disposed in unassembled relation to the body portion 2, the width of the recess 13 is somewhat less than the thickness of the curl 7.

With this construction, when the cover 3 is to be mounted on the upper end portion of the body portion 2, it may first be placed on top of the body portion 2 with the curl 14 resting on the curl 7. Thereafter, it may be pushed vertically downwardly to thereby cause the lower edge portion of the flange 11 to be cammed outwardly by the curl 7, the engagement of the abutting outwardly curved faces of the curl 7 and the curl 14 being effective to so cam the lower edge of the flange 11 outwardly during downward movement of the cover 3. Continued downward movement of the cover 3 is effective to cause the flange 11 to move downwardly along the outside of the curl 7. As shown in FIGS. 1 and 2, the flange 11 extends downwardly below the rib 10, and when the cover 3 has moved downwardly a sufficient distance to engage the rib 10 with the upper edge of the body portion 2, the engagement of the adjacent curved surfaces of the rib 10 and the curl 7 are effective to cam the wall portion 15 of the rib 10 inwardly to thereby permit the rib 10 to move downwardly into the upper end portion of the side wall portion 4. When the cover 3 is disposed in assembled relation on the body portion 2, the intermediate portion 12 rests on top of the curl 7, and the curl 7 is resiliently clamped between the flange 11 and the wall portion 15 of the rib 10. Thus, with this construction, a strong, yieldable frictional engagement is effected between the wall portion 15 of the rib 10 and the inner face of the side wall portion 4, and between the inner face of the flange 11 and the radially outer face of the curl 7.

The rib 8 in the upper end portion of the body portion 2 is preferably disposed in such position relative to the curl 7 that, when the cover 3 is disposed in assembled relation on the body portion 2, the rib 8 terminates at its outer peripheral edge in closely adjacent, directly vertical underlying relation to the curl 14 on the flange 11, as shown in FIGS. 1 and 2. Preferably, the vertical spacing between the rib 8 and the curl 14 in the assembled container 1 is such that the end of a suitable tool, such as a screw driver or a coin of relatively small thickness, such as, for example, one-sixteenth of an inch, may be

manually inserted between the curl 14 and the rib 8 with a snug fit. By prying upwardly with such a tool, after it has been so inserted between the rib 8 and the curl 14, the cover 3 may be removed from the body portion 2 of the assembled container 1.

As the cover member 2 is thus pried upwardly from its normal assembled position on the body portion 2, the operator may, if desired, engage his fingers under the flange 11, the lower edge portion thereof being so constructed that he is protected against receiving a cut therefrom. Subsequently, if desired, the removed cover 3 may be reinstalled in the aforementioned normal assembled relation to the body portion 2 by following the procedure heretofore described for mounting the cover 3 on the body portion 2. The engaging portions of the body portion 2 and the cover 3 embody sufficient resiliency that when the cover member 3 is thus reinstalled on the body portion 2 it is again strongly, yieldably held in operative, closing position thereon.

When the rib 8 is disposed on the body portion 2 in the aforementioned closely underlying relation to the curl 14, it serves the additional function of affording an effective protection against the accidental dislodging of the cover 3 from the body portion 2 during shipment, and the like. As is well known by those skilled in the art, one of the problems of affording a suitable removable-cover can, and the like, for the commercial packaging of materials, is that of insuring that the covers of the cans are not dislodged from the body portions thereof during shipment or storage by accidental blows to the covers such as, for example, by one can striking against another. With the parts of the assembled container 1 constituted and arranged in the manner disclosed herein, the rib 8 affords effective protection against such accidental dislodging of the cover 3 from the body portion 2, the rib 8 extending radially outwardly a sufficient distance, and in such closely underlying relation to the cover 3, that it affords effective protection against the curl 14 being accidentally struck upward blows during such shipping, or storing, and the like.

In FIG. 3 a somewhat modified form of a container is shown. The container shown in FIG. 3 is identical in construction to the container shown in FIGS. 1 and 2, except that the curl on the upper end of the body portion of the container shown in FIG. 3 is of somewhat different construction than that shown in FIGS. 1 and 2. In the drawings, parts shown in FIG. 3 which are identical to parts shown in FIGS. 1 and 2 are indicated by the same reference numerals, and parts which have been substituted for corresponding parts are indicated by the same reference numerals with the suffix "a" added thereto.

In the container 1a shown in FIG. 3 the curl 7a on the upper end of the side wall portion 4a of the body portion 2a is also of an "open curl" construction. However, the curl 7a embodies another open curl 18 in the lower edge portion thereof, which is spaced downwardly from the upper edge portion of the curl 7a.

When the cover 3 is mounted in normal assembled relation to the body portion 2a of the container 1a, the flange 11 extends downwardly along and in abutting engagement with the outer side wall 19 of the curl 7a, FIG. 3. When the container 1a is thus assembled, the outer side wall portion 19 of the curl 7a is disposed in substantially parallel relation to the inner side wall portion 20 of the curl 7a.

The container construction shown in FIG. 3 affords a particularly strong construction for the upper end portion of the body portion 2a. Also, it will be seen that in the container 1a, shown in FIG. 3, frictional engagement of the flange 11 with the curl 7a extends over a substantial surface area to afford an effective engagement between those two portions of the container 1a, which is particularly difficult to accidentally dislodge.

From the foregoing it will be seen that the present

invention affords a novel container construction, which enables a practical, substantially cylindrical-shaped, open-mouth container to be afforded in a novel and expeditious manner.

Also, it will be seen that the present invention affords a novel container embodying a cover member constituted and arranged in a novel and expeditious manner.

In addition, it will be seen that the present invention affords a novel and practical container for commercially packaging various types of material for shipping and storage purposes, and which container may be readily and economically produced commercially.

Thus, while I have illustrated and described the preferred embodiments of my invention, it is to be understood that these are capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. A container comprising
 - (a) a tubular body portion having
 - (1) a closed lower end, and
 - (2) an open upper end,
 - (b) a cover member removably mounted on said upper end in position to close the latter,
 - (c) said upper end terminating in an annular outwardly projecting curl,
 - (d) said cover member
 - (1) being concave downwardly, and
 - (2) having
 - (a') a substantially disk-shaped central portion,

(b') an annular, substantially smooth convex-downwardly rib,

(1') surrounding said central portion, and

(2') disposed in said body portion in direct frictional engagement with the inner surface thereof,

(c') an annular flange

(1') disposed outwardly of said rib,

(2') extending downwardly beyond said curl in direct frictional engagement with the outer surface thereof, and

(3') terminating at its lower edge in a curl,

(e) said first mentioned curl having a horizontal thickness greater than the distance between said rib and flange when said cover is disposed in removed relation to said body portion, and

(f) said body portion having a convex-outwardly projecting annular rib in said upper end, and

(g) said last mentioned rib being disposed in vertically underlying relation to said lower edge of said flange.

2. A container as defined in claim 1, and in which

(a) said first-mentioned curl has another curl disposed in the lower edge portion thereof,

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