July 10, 1951 R. K. POTTLE 2,559,658

CONTAINER

Filed Dec. 29, 1945 2 Sheets-Sheet 1

Fig 1

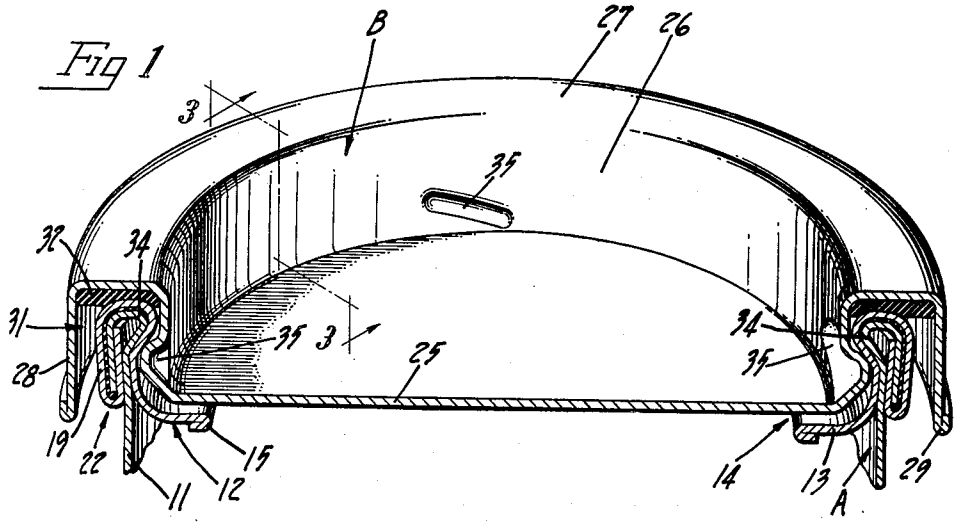
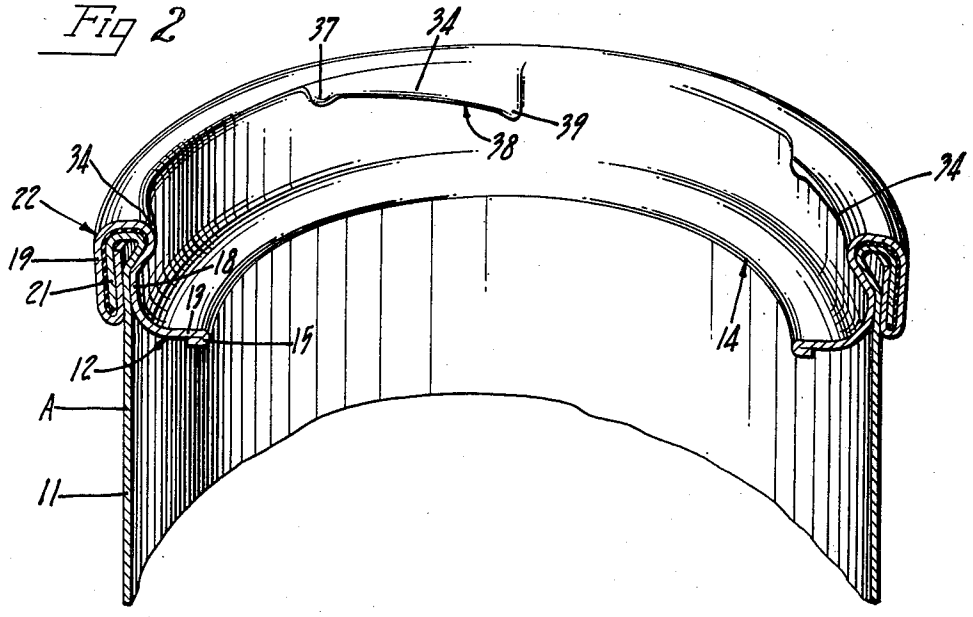


Fig 2



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Fig 3

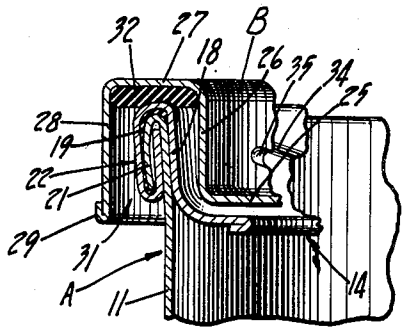


Fig 4

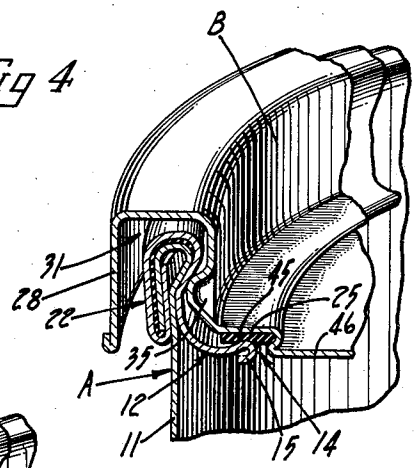
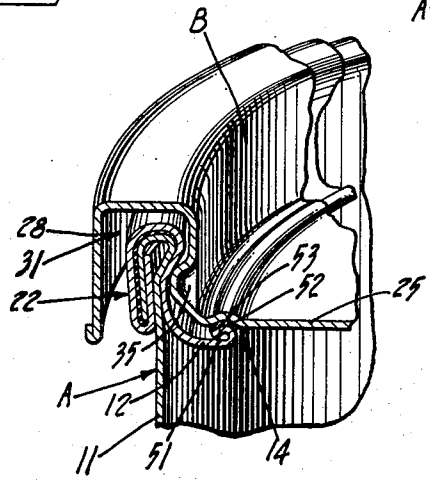


Fig 5



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Patented July 10, 1951

2,559,658

UNITED STATES PATENT OFFICE

2,559,658

CONTAINER

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Application December 29, 1945, Serial No. 638,149

4 Claims. (Cl. 220—40)

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The present invention relates to containers or cans having a reclosure cover and has particular reference to a novel combination of complementary locking lugs formed on the end seam of the container and on the cover for securing the cover in place on the can.

An object of the invention is the provision of a reclosure can having an end member secured thereto in an end seam and adapted to hold a reclosure cover in position, wherein the end seam is formed with a laterally displaced portion projecting beyond the normal contour of the seam and providing a locking lug for engagement with the cover to hold it in place on the can as a reclosure.

Another object is the provision of such a can wherein the locking lugs are formed as a displaced portion of the countersunk wall of an end double seam and are tapered to draw the reclosure cover down tightly against the can in an hermetic seal when the cover is rotatably applied to the can.

Another object is the provision of such a container end construction which cooperates with complementary locking members on an end closure so that the latter may be used as the original hermetic closure or as a subsequent hermetic reclosure.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a perspective sectional view taken through the upper end of a sealed can and closure embodying the instant invention;

Fig. 2 is a view similar to Fig. 1, showing the upper end of the can with its reclosure cover removed;

Fig. 3 is a sectional view taken substantially along a plane indicated by the broken line 3—3 in Fig. 1 with the reclosure applied and with parts broken away;

Fig. 4 is a view similar to Fig. 1 showing a modified form of the invention; and

Fig. 5 is a view similar to Fig. 4 showing a second modified form of the invention.

As a preferred embodiment of the instant invention, Figs. 1 to 3, inclusive, of the drawings illustrate the upper end of a sheet metal can A comprising a tubular body member 11 having a countersunk end member 12 permanently secured thereto. The end member 12 preferably

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is formed as an annulus having a flat countersunk panel or wall section 13 (Fig. 2) with a centrally located dispensing opening 14. The inner terminal edge of the annulus is bent back on itself to provide a smooth hemmed edge 15 surrounding the dispensing opening. However, the invention is equally well adapted to other types of end members, such as imperforate, scored, frangible seal, friction plug, and many others.

The end member 12 preferably fits snugly within the upper end of the body member 11 and for this purpose the end member countersunk panel wall 13 merges into an annular upright wall section 18 (see also Fig. 3) which engages against the inner surface of the body member 11. This wall section 18 extends up and over the edge of the body member in a flange portion 19 which is interfolded with a similar flange portion 21 on the body member to provide a multiple layer, compound lined, double seam, hermetic joint 22 which permanently secures the end member to the body member.

The can is equipped with a reclosure cover B for hermetically sealing the dispensing opening 14 before and after initially opening the can. In case the end member 12 is of a type which is imperforate and also hermetic, the reclosure cover B constitutes a second or auxiliary hermetic seal for the protection of the contents when the first hermetic seal has been broken. The cover B is formed with an imperforate depressed or countersunk panel wall 25 (Figs. 1 and 3) and a surrounding upright annular wall section 26 which are disposed within the countersink of the end member 12 when the cover is in place on the can. The cover upright or inside wall section 26 merges into a flange wall section 27 which extends outwardly over the top of the double seam 22. This flange wall 27 merges into an outer depending wall or skirt 28 which extends down adjacent the outside of the double seam in spaced relation thereto and preferably terminates in a smooth edge hem 29.

The cover inside wall section 26, its flange 27, and its skirt 28 thus set off an inverted U-shaped channel 31 and this channel encloses the annular end member 12 as well as an hermetic seal or gasket 32, such as a rubber compound or the like. The gasket 32 is attached to the cover flange 27 and engages against the top of the double seam 22 when the cover is in place on the can. In this manner an hermetic seal is provided between the cover and the can to seal

the dispensing opening 14 or to provide a second hermetic seal when the cover is on the can.

The reclosure cover B is removably attached to the can so that it may be taken off to dispense the can contents and then replaced to re-seal the can after such a dispensing action. For this reason it is especially adapted for the packaging of products which are dispensed in repeated fractional portions. For this purpose the can and the cover are formed with cooperating and complementary interrupted thread can body locking lugs 34, and protuberances or cover locking lugs 35 respectively. The locking lugs 34 are formed as an integral part of the double seam 22 on the can. There are preferably four of these lugs spaced equally around the inner surface of the vertical countersunk wall of the seam although any number may be used as desired.

The locking lugs 34 preferably are formed simultaneously with the forming of the double seam 22 by interlocking the end member and body flange portions 19 and 21 to produce the double seam. During this formation of the double seam a portion of the inside vertical wall section 18 of the end member 12 and an adjacent portion of the body member 11 are laterally displaced and projected into the countersink of the end member 12 beyond the normal contour of the inner surface of the seam and it is these projections in the two inner layers of the double seam that constitute the locking lugs 34. This displacement of portions of the seam in no way affects the outer contour of the seam, such outer contour remaining smooth and true to its usual desired form.

The locking lugs 34 project inwardly from the seam 22 a uniform distance to make them an even thickness as shown in Fig. 2. The under portion of each lug is formed with a locking node 37 which merges into a tapered or inclined interrupted thread surface 38. This tapered surface terminates in a second locking node 39. The tapering surface gives the lugs a wedge shape.

The protuberances 35 of the cover B preferably are straight elongated thread sections or members formed in the upright or inner wall section 26 adjacent the countersunk panel wall 25. There are four of these protuberances to correspond with the four locking lugs 34 on the double seam 22 and they extend outwardly for engagement under the locking lugs. These protuberances are slighter shorter in length than the tapered locking surfaces 38 of the locking lugs and they are disposed at an angle substantially equal or conforming to the inclination of these tapered surfaces.

Hence when applying the cover B to the can, the cover is inserted into the countersunk end member 12 with the cover protuberances 35 disposed in a position between the locking lugs 34 on the double seam 22. By rotating the inserted cover toward the right as viewed in Fig. 1, the cover protuberances snap under the locking nodes 37 and ride along the tapered locking surfaces 38 of the locking lugs 34.

The cover skirt 28 may be knurled if desired to facilitate gripping the cover during this rotation. This action draws the cover down on the can and brings the cover sealing gasket 32 into sealing position against the top of the double seam as best shown in Figs. 1 and 3. When the cover protuberances become wedged under the tapered locking sections 38 of the lugs 34, the cover is fully applied and hermetically seals the can. The second locking nodes 39 prevent turning the cover to such an extent that the cover protuberances ride off the tapered locking surfaces 38.

Opening of the can is effected by merely rotating the cover toward the left or counterclockwise direction as viewed in Fig. 1. This disengages the cover protuberances 35 from under the locking lugs 34 and thereby releases the cover. The locking node 39 of the adjacent locking lug 34 serves as a stop to limit this unlocking rotation of the cover. The cover may thereupon be lifted off the can for the dispensing of the contents thereof and replaced repeatedly as a reclosure cover to hermetically re-seal the can after such a dispensing action.

In a modified form of the invention as shown in Fig. 4 the cover sealing gasket 32 in the channel 31 of the cover B is omitted and a flat annular preformed sealing gasket 45 is provided in the countersunk panel wall 25 of the cover. The gasket surrounds a countersunk plug section 46 formed in the panel wall and this plug section is crimped over the inner edge of the gasket to hold the gasket in place on the cover. The gasket engages against the smooth hemmed edge 15 of the countersunk end member 12. For this purpose the hemmed edge 15 is disposed at a slightly elevated position above the plane of the floor of the end member as best shown in Fig. 4 to facilitate sealing engagement with the gasket.

In the second modified form of the invention as disclosed in Fig. 5 the countersunk end member 12 at its mouth 14 is formed with an upwardly and outwardly turned back or hemmed edge providing an annular curl or seat 51 for sealing engagement against a gasket 52 in an annular recess 53, formed in the countersunk panel wall 25 of the cover B. The gasket 52 preferably is of a compound lining material or the like which may be deposited in the recess 53 while in a fluid condition and later dried for use as a sealing gasket.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A container and cover assembly comprising a body member having an annular end member secured thereto and a cover having a depressed panel wall removably secured to said body member, peripheral portions of said annular end member being engaged with peripheral portions of said body member in a folded end seam for permanently securing the end member to the body member, spaced portions of said folded seam being laterally offset and projected inwardly from the inner periphery of said seam to constitute spaced reenforced cover locking lugs of double wall thickness formed integrally with the seam, integral portions of the cover defining the depressed panel wall thereof being laterally offset and projected outwardly to constitute spaced locking lugs engageable beneath the aforesaid spaced locking lugs on said body member and seam to removably secure the cover to the container body, said cover having a depending peripheral flange forming with said depressed cover wall a channel enclosing said annular end member.

2. A container comprising a body member hav-

ing an annular end member secured thereto, said end member having a peripheral flange interfolded with a flange on said body member in a double seam having a smooth unbroken outer periphery for permanently securing the end member to said body member, portions of said interfolded seam at spaced intervals therearound being laterally displaced out of the normal contour of said seam from the inner periphery of said seam and separated from the adjacent portions of said interfolded flanges adjacent the outer periphery of said seam to provide integral open locking lugs of double wall thickness projecting laterally inwardly from the inner periphery of said end seam for removably holding a cover in place on said container.

3. A container and cover assembly comprising a body member having an annular end member secured thereto and a cover having a depressed panel wall insertable within and removably secured to said body member, peripheral portions of said annular end member being engaged with peripheral portions of said body member in a folded end seam for permanently securing the end member to the body member, said annular end member having a countersunk annular wall terminating in a raised edge defining a dispensing opening for the container, said depressed panel wall of the cover having an annular gasket crimped in place thereon for engagement with said raised edge on said countersunk end member wall, spaced portions of said folded seam being laterally offset and projected inwardly from the inner periphery of said seam to constitute spaced reenforced cover locking lugs of double wall thickness formed integrally with the seam, integral portions of the cover defining the depressed panel wall thereof being laterally offset and projected outwardly to constitute spaced locking lugs engageable beneath the aforesaid spaced locking lugs on said body member end seam to draw said cover gasket tightly against said raised wall edge of the end member to hermetically seal the container and removably secure the cover to the container body.

4. A container and cover assembly comprising a body member having an annular end member secured thereto and a cover having a depressed panel wall insertable within and removably secured to said body member, peripheral portions of said annular end member being engaged with peripheral portions of said body member in a folded end seam for permanently securing the end member to the body member, said annular end member having a countersunk annular wall terminating in a raised edge defining a dispensing opening for the container, said depressed panel wall of the cover having an annular recess therein, a compound sealing gasket in said recess for engagement with said raised edge on said countersunk end member wall, spaced portions of said folded seam being laterally offset and projected inwardly from the inner periphery of said seam to constitute spaced reenforced cover locking lugs of double wall thickness formed integrally with the seam, integral portions of the cover defining the depressed panel wall thereof being laterally offset and projected outwardly to constitute spaced locking lugs engageable beneath the aforesaid spaced locking lugs on said body member end seam to draw said cover gasket tightly against said raised wall edge of the end member to hermetically seal the container and removably secure the cover to the container body.

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