

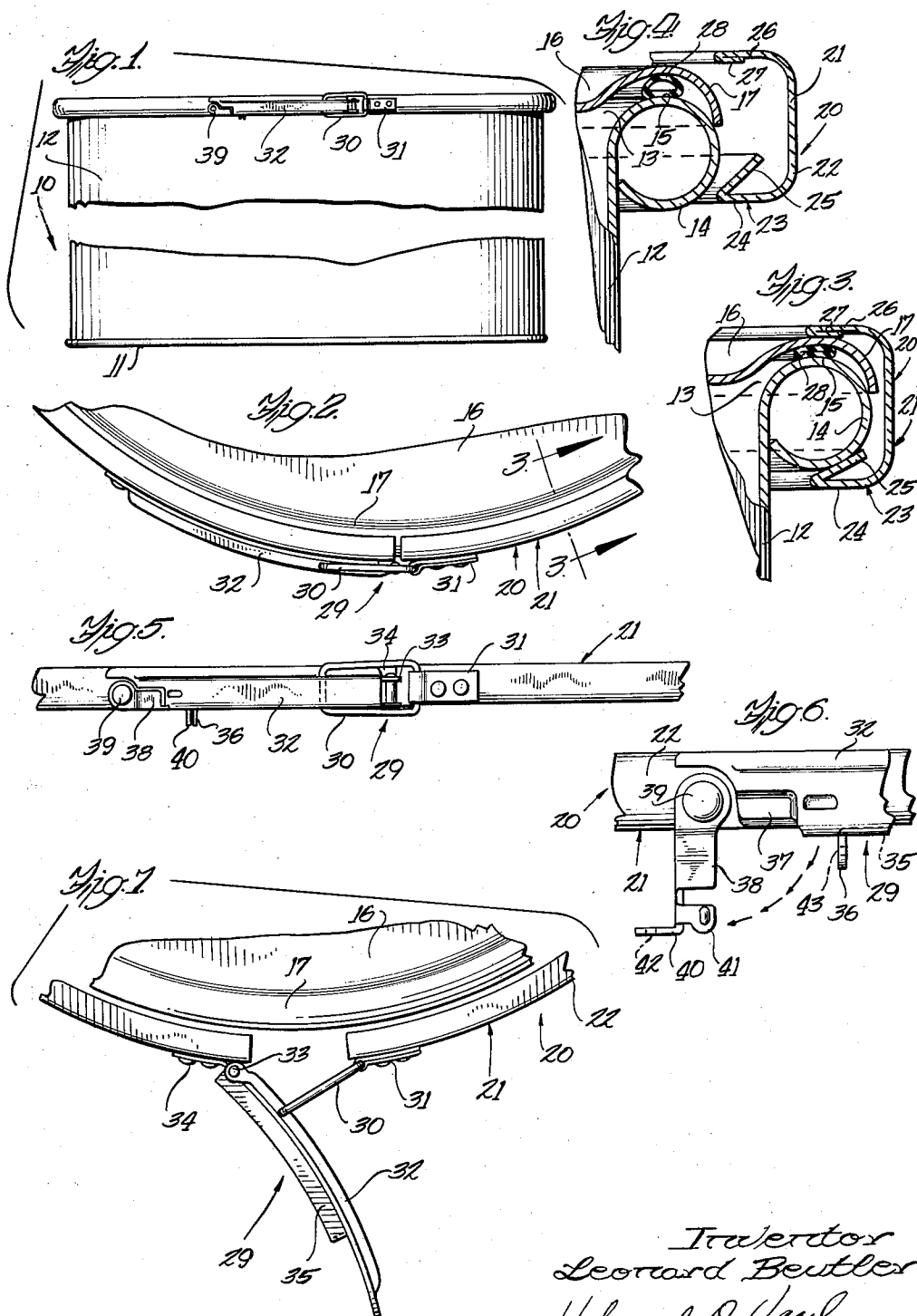
Sept. 10, 1963

L. BEUTLER

3,103,293

WEDGE TYPE CLAMPING RIM FOR CONTAINERS

Filed Oct. 9, 1961



Inventor
Leonard Beutler
Hilmond O. Vagel
Attorney

1

3,103,293

WEDGE TYPE CLAMPING RIM FOR CONTAINERS

Leonard Beutler, 171 Brook St., Elgin, Ill.

Filed Oct. 9, 1961, Ser. No. 143,683

6 Claims. (Cl. 220-46)

This invention relates to sealing closures for a container and more particularly to an improved clamping ring for connecting a cover to a container in sealing relation.

The present invention is applicable to a container, generally of metal construction, having at its upper open end an outwardly extending circumferential bead. The container, which is conventional, includes a cover having an outer circumferentially extending arcuate edge and a resilient ring type seal is usually positioned on the top of the bead and the cover is then secured to the container by drawing it down tightly in sealing relation with the use of a split ring having clamping provisions for drawing the ring together to seal the container and cover. Various types of split rings have been used for this purpose, some of which include arcuate cross sectional bodies or V-shaped bodies which attempt to force the cover downwardly against the split ring. Most of these have proved unsatisfactory since for them to function the cover must be first forced downwardly by a machine or fixture prior to the attachment of the rings since these rings of various shapes have not been able to function in initially clamping the cover firmly against the bead of the container. Other rims have been of a construction wherein a great amount of pressure is exerted on the sides of the container without any effective drawing together of the cover and seal and thus providing a very unsatisfactory construction. Thus, it is a prime object of this invention to provide an improved sealing rim for effectively sealing a cover to a container and to eliminate the disadvantages inherent in rims now used.

Still another object of this invention is to provide an improved split type sealing rim for connecting a cover to a container in sealing relation, the said rim including positive and effective means for drawing the cover and the bead of the container in sealing relation.

Another object is to provide an improved split type sealing rim for a cover and container, the said rim including an improved wedge arrangement to effectuate drawing of the cover against the bead of the container.

A more specific object of the invention is to provide an improved split type rim for a cover and container, the said rim having a lower horizontally extending flange including a resilient V-shaped lip which resiliently exerts a force to draw the cover downwardly upon the bead of the container in sealing relation during the assembly of the rim with the container.

These and other objects will become more readily apparent from a reading of the description when examined in connection with the accompanying sheet of drawings.

In the drawings:

FIGURE 1 is a side elevational view of upper and lower portions of a container embodying an improved split type sealing or clamping rim;

FIGURE 2 is a fragmentary plan view of a container and sealing and clamping rim;

FIGURE 3 is an enlarged cross sectional view taken substantially along the line 3-3 of FIGURE 2 showing a rim assembled in sealing condition with respect to a cover and container;

FIGURE 4 is a view similar to FIGURE 3 showing the sealing rim in position to be assembled in connection with a cover and container;

FIGURE 5 is an enlarged fragmentary view of a sealing rim showing in side elevation a clamping arrangement;

2

FIGURE 6 is an enlarged detail view of a clamping arrangement for a sealing rim; and

FIGURE 7 is a plan view showing a sealing and clamping ring and clamping device in position for attachment to a cover and container.

Referring now to the drawings, a conventional type barrel or container is generally designated by the reference character 10. The container 10 comprises a bottom 11 and a cylindrical body 12 which at its upper end includes an outwardly extending circumferentially extending or annular bead 14 having an upper edge 15.

A cover for the container or barrel 10 is designated at 16 and includes an annular arcuate shaped outer circumferential bead designated at 17. A split ring or sealing and clamping rim is designated at 20 and comprises an annular body 21 having an outer flat vertical portion 22. A lower wedge element is generally designated at 23 and includes an annular flange 24 extending inwardly towards said container 10. A wedge lip 25 is connected to the innermost peripheral edge of the flange 24, the said lip 25 extending upwardly and outwardly relative to the container toward the vertical portion 22. Since the rim 20 is made of a relatively strong metal, the wedge lip 25 is stiff and in effect provides a resiliency in connecting the rim as will be further described. The rim 20 also is provided at its upper end with an annular upper flange or wedge element 26 extending inwardly above the bead 17 in the assembled condition as shown in FIGURE 4. The upper flange 26 also includes a bent-over reinforcing fold 27 to further strengthen the said upper flange 26. A conventional resilient ring seal is designated at 28 and is positioned on the upper edge 15 between the bead 14 and the bead 17.

The split ring 20 may be secured in position by means of a conventional clamp generally designated at 29. While different types of clamps may be utilized, it is felt that this particular clamp is effective to secure the excellent wedging characteristics afforded by the wedge lip 25. The clamp 29 comprises a link 30 which is pivotally connected to a bracket 31 securely fastened to the flat vertical portion 22 of the rim 20. The link 30 is pivotally connected to an arm 32 which in turn is pivotally connected as indicated at 33 to a bracket 34 fastened to the vertical portion 22. The clamp 29 also includes a lower horizontal flange 35 on the arm 32 which in the closed position is disposed in engagement underneath the annular flange 24 as best shown in FIGURE 6. The flange 35 has a downwardly extending lip 36. The arm 32 also is provided at its front end as shown in FIGURE 6 with a recessed portion 37.

A hinged lock member 38, as shown in FIGURE 6, is pivotally connected at 39 to the vertical portion 22 and includes a lip 40 having an opening 42 adapted to mate with an opening 43 in the lip 36 when the member 38 is moved into the position shown in FIGURE 5 whereby a suitable lock or key may be inserted through the openings 42 and 43 to securely lock the rim in position. In the event that the lips 40 and 36 are not locked together, a resilient tab 41 seats within the recess 37 to maintain the lock member 38 in closed position.

In assembly the rim 20 is placed around the cover 16 as shown in FIGURE 7 with the arm 32 in the position shown in FIGURE 7. By pivoting the arm 32 clockwise, the split ends of the rim 20 are drawn together whereupon the wedge lip 25 engages the underneath portion of the bead 14 and simultaneously the upper wedge flange 26 engages the upper edge of the circumferential bead 17 of the cover whereupon the cover is tightly drawn down over the bead 14 as shown in FIGURE 3. The sealing ring 28 is thus tightly clamped between the bead 14 and the bead 17. The lip 25 is a resilient wedge lip in that it exerts a continuing

3

resilient pressure urging the parts in the position shown in FIGURE 3. Thus the wedge lip 25 effectively brings the cover seal and bead of the container together in sealing relation without the necessity of utilizing prior compressing fixtures or machines. In other words, the rim itself provides the means whereby the cover and container are drawn toward each other in tight sealing relation. This sealing relation is constantly maintained during the use of the container since the lip 25 maintains a continuing pressure urging the parts in the assembly shown in FIGURE 3.

Thus the objects of the invention have been fully achieved and it must be understood that changes and modifications may be made without departing from the spirit of the invention as disclosed or from thereof as defined in the appended claims.

What is claimed is:

1. For a cylindrical container having an upper open end, a bead extending circumferentially about said container adjacent said open end, a cover for said open end, said cover having, an outer circumferentially extending portion of generally arcuate cross sectional shape radially of the container and adapted to overlie a portion of said cylindrical bead, and a resilient ring seal between said rim and said bead; a securing rim for said cover and container comprising an annular split type body having a generally vertical portion disposed outwardly of said bead and extending circumferentially thereabout, said vertical portion having an outer cylindrical surface, a lower wedge element connected to said vertical portion, said lower wedge element including an annular flange extending inwardly toward said container underneath said cylindrical bead, an annular wedge lip connected to the innermost end of said flange and being disposed between said flange and said bead, said lip projecting outwardly relative to said container and upwardly relative to said flange in radially cross sectional V-shaped relation, an annular upper wedge element connected to said vertical portion, said annular upper wedge projecting in radial cross section upwardly from said vertical portion and inwardly toward said container, and a clamp connected to the outer flat surface of said vertical portion adjacent the split of said body, for tightening said rim whereby said lower wedge lip engages said bead and said upper wedge element engages said arcuate portion of said cover to clamp said cover on said bead in sealing relation.

2. For a cylindrical container having an upper open end, a bead extending circumferentially about said container adjacent said open end, a cover for said open end, said cover having an outer circumferentially extending portion of generally arcuate cross sectional shape radially of the container and adapted to overlie a portion of said cylindrical bead, and a resilient ring seal between said rim and said bead; a securing rim for said cover and container comprising an annular split type body having a generally vertical portion disposed outwardly of said bead and extending circumferentially thereabout, said vertical portion having an outer cylindrical surface, a lower wedge element connected to said vertical portion, said lower wedge element including an annular flange extending inwardly toward said container underneath said cylindrical bead, an annular flexible wedge lip connected to the innermost end of said flange and disposed between said flange and said bead, said lip projecting in radial cross section outwardly relative to said container and angularly upwardly relative to said flange, an annular upper wedge element connected to said vertical portion, said annular upper wedge projecting in radial cross section upwardly from said vertical portion and inwardly toward said container, and a clamp connected to the outer flat surface of said vertical portion adjacent the split of said body for tightening said rim whereby said lower wedge lip engages said bead and said upper wedge

4

element engages said arcuate portion of said cover to clamp said cover on said bead in sealing relation.

3. For a cylindrical container having an upper open end, a bead extending circumferentially about said container adjacent said open end, a cover for said open end, said cover having an outer circumferentially extending portion of generally arcuate cross sectional shape radially of the container and adapted to overlie a portion of said cylindrical beads; a securing rim for said cover and container comprising an annular split type body having a generally vertical portion disposed outwardly of said bead and extending circumferentially thereabout, a lower wedge element connected to said vertical portion, said lower wedge element including an annular flange extending inwardly toward said container underneath said cylindrical bead, an annular flexible wedge lip connected to the innermost end of said flange and disposed between said flange and said bead, said lip projecting in radial cross section outwardly relative to said container and angularly upwardly relative to said flange, an annular upper wedge element connected to said vertical portion, said annular upper wedge in radial cross section projecting inwardly toward said container and a clamp connected to said vertical portion adjacent the split of said body, for tightening said rim whereby said lower wedge lip engages said bead and said upper wedge element engages said arcuate portion of said cover to clamp said cover on said bead in sealing relation.

4. For a cylindrical container having an upper open end, a bead extending circumferentially about said container adjacent said open end, and a cover for said open end, said cover having an outer circumferentially extending portion adapted to overlie a portion of said cylindrical bead; a securing rim for said cover and container comprising an annular split type body having a generally vertical portion disposed outwardly of said bead and extending circumferentially thereabout, a lower wedge element connected to said vertical portion, said lower wedge element including an annular flange extending inwardly toward said container underneath said cylindrical bead, an annular flexible wedge lip connected to the innermost end of said flange and being disposed between said flange and said bead, said lip projecting in radial cross section outwardly relative to said container and angularly upwardly relative to said flange, an annular upper wedge element connected to said vertical portion, said annular upper wedge projecting in radial cross section inwardly toward said container and a clamp connected to said vertical portion adjacent the split of said body, for tightening said rim whereby said lower wedge lip engages said bead and said upper wedge element engages said arcuate portion of said cover to clamp said cover on said bead in sealing relation.

5. For a cylindrical container having an upper open end, a bead extending circumferentially about said container adjacent said open end, and a cover for said open end, said cover having an outer circumferentially extending portion adapted to overlie a portion of said cylindrical bead; a securing rim for said cover and container comprising an annular split type body disposed outwardly of said bead and extending circumferentially thereabout, a lower wedge element connected to said body, said lower wedge element including an annular flange extending inwardly toward said container underneath said cylindrical bead, an annular flexible wedge lip connected to the innermost end of said flange and being disposed between said flange and said bead, said lip projecting in radial cross section outwardly relative to said container and angularly upwardly relative to said flange in V-shaped relation, an annular upper wedge element connected to said body, said annular upper wedge projecting in radial cross section inwardly toward said container, and a clamp connected to said body adjacent the split of said body, for tightening said rim whereby said lower wedge lip engages said bead and said upper wedge element engages said arcuate por-

5

tion of said cover to clamp said cover on said bead in sealing relation.

6. For a cylindrical container having an upper open end, a bead of circular radially cross section extending circumferentially about said container adjacent said open end, and a cover for said open end, said cover having an outer circumferentially extending portion adapted to overlap a portion of said cylindrical bead; a securing rim comprising a split ring having an outer vertical side, an annular upper flange connected to the upper portion of said vertical side and in radial cross-section projecting inwardly and engaging the circumferential portion of said cover, a lower wedge element connected to the lower portion of said vertical side comprising an annular inwardly extending lower flange disposed below said bead, wedge means on said lower flange disposed between the lower flange and said bead, said wedge means comprising an

6

annular resilient lip in radial cross section extending upwardly and outwardly in sloping relation relative to said lower flange, and clamping means for drawing said split ring together whereby said wedge means engages the underneath portion of said bead and draws said cover and container together in sealing relation.

References Cited in the file of this patent

UNITED STATES PATENTS

10	2,075,383	Vaughn	Mar. 30, 1937
	2,108,944	Rheem	Feb. 22, 1938
	2,237,952	Smith	Apr. 8, 1941
	2,579,974	Scott et al.	Dec. 25, 1951
15	2,773,709	Smith	Dec. 11, 1956
	2,773,710	Smith	Dec. 11, 1956