Dec. 26, 1950 J. COYLE ET AL 2,535,839

METAL CONTAINER FOR FOOD PRODUCTS

Filed Feb. 5, 1947

Fig. 2.

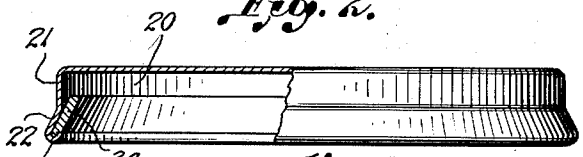



Fig. 1.

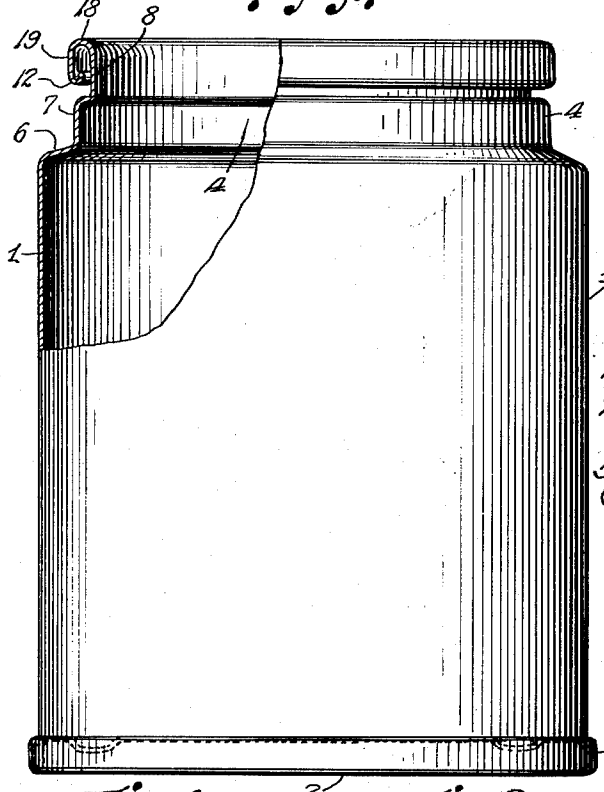



Fig. 3.

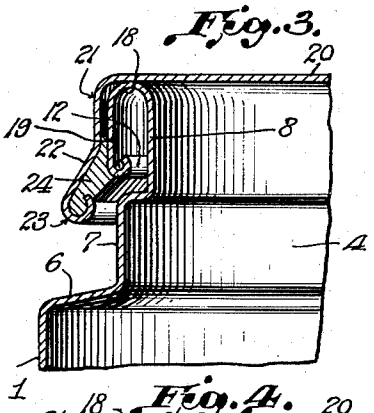



Fig. 4.

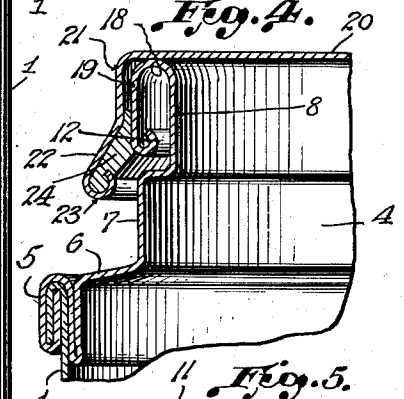



Fig. 5.

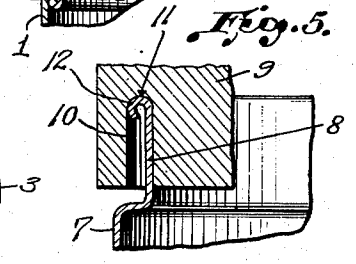



Fig. 6.

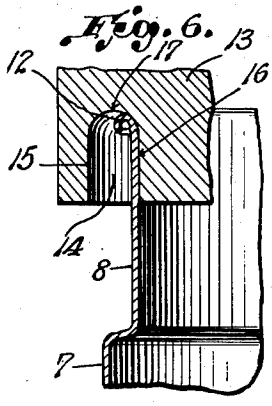



Fig. 7.

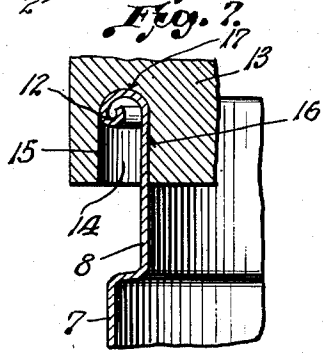
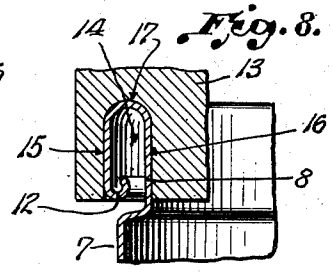



Fig. 8.




INVENTORS.
John Coyle.
and William F. Punte.
BY
Mason, Porter, Siller & Stewart.
ATTORNEYS.

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## METAL CONTAINER FOR FOOD PRODUCTS

John Coyle and William F. Punte, Baltimore, Md., assignors to Continental Can Company, Inc., New York, N. Y., a corporation of New York

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1 Claim. (Cl. 220—46)

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The invention relates to new and useful improvements in a metal container for food products and more particularly a container wherein the closure member is secured to the container body by the frictional grip of a sealing gasket.

An object of the invention is to provide a container of the above type wherein the body is provided with a neck portion, which neck portion has formed integral therewith at its upper end a cylindrical friction wall which surrounds the neck portion and is spaced away therefrom, with which cylindrical friction wall the sealing gasket of the closure member makes wedging contact.

A further object of the invention is to provide a container of the above type wherein the cylindrical friction wall is formed as a part of the neck of the container by rolling the metal at the upper end of the container outwardly and thence downwardly in spaced relation with the neck.

A still further object of the invention is to provide a container of the above type wherein the metal at the lower end of the cylindrical friction wall is rolled inward into a bead for strengthening the friction wall.

A still further object of the invention is to provide a container of the above type wherein the inwardly rolled portion at the lower end of the friction wall is spaced away from the container top and the neck so that the sealing gasket carried by the closure member may not only make wedging contact with the friction wall but engage beneath said bead sufficiently to lock the closure member on the container.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings:

Figure 1 is a side view of one form of container body embodying the improvements with parts broken away to show more clearly the shaping of the neck portion so as to provide a cylindrical friction retaining wall;

Figure 2 is a view partly in side elevation and partly in section of the closure member used in the sealing of the container;

Figure 3 is an enlarged sectional view of a portion of the container body illustrated in Figure 1 with the closure member in sealing engagement therewith;

Figure 4 is a view similar to Figure 3 but showing the neck portion seamed to the body instead of being formed integral therewith;

Figure 5 is a detailed view in section of a curling die showing the first step in the method of rolling the neck portion outwardly to form a cylindrical sealing wall;

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Figure 6 is a detailed view in section of another curling die showing the second step in the method of rolling the neck portion outwardly to form the cylindrical sealing wall;

Figure 7 is a view similar to Figure 6 but showing a further step in the rolling process; and

Figure 8 is a view similar to Figure 6 but showing the complete rolling or die shaping of the neck portion to provide the depending cylindrical friction wall.

The invention resides in a metal container for food products. Said container includes a body portion 1 to which is attached a bottom end 2 by means of a double seam 3. At the upper end of the body there is a top 4 which as shown in Figure 1 is formed integral with the body portion 1, and as shown in Figure 4 is connected to the body portion by a double seam 5. When the top portion is integral with the body portion, then the body portion may be drawn from a metal blank so as to be seamless and the top portion is also drawn and shaped from said metal blank at the same time. When the top portion is double seamed to the body portion, then the body portion may be formed by shaping the blank into cylindrical form and joining the ends of the blank by a side seam of the usual type. The top, however, is drawn and die shaped from a metal blank preferably prior to the attachment of the same to the body by seaming.

Said top portion, whether integral with the body or seamed thereto, includes an inwardly extending portion 6 carrying the cylindrical upwardly extending portion 7. The top is further offset inwardly from the upper end of said cylindrical portion 7 and thence extends upwardly in a cylindrical neck 8. This cylindrical neck 8 surrounds an opening through which the container may be filled and access had thereto. This cylindrical portion 8 is subjected to the curling action of a die 9. This die 9 is formed with an annular channel 10 having spaced cylindrical walls and a curved wall 11. When the die is moved down onto the cylindrical portion 8 of the neck, it will roll said cylindrical portion outwardly into an open bead, indicated at 12 in Figure 5. This completes the first die shaping operation in the forming of a friction wall which is integral with the neck and to which the closure member may be secured. The pre-curled cylindrical wall 8 is next subjected to a second curling die 13 which has an annular channel 14 with an outer cylindrical

wall 15 and an inner cylindrical wall 16. As the die moves down over the cylindrical wall 8 with the pre-curl at the upper end thereof, this curl will follow the curved portion 17 between the inner and outer cylindrical walls of the die. The pre-curl or open bead 12 remains as originally formed and will follow along the curved surface 17 and thence to the outer wall 14 of the die 15, as shown in Figure 7. It will then follow along the outer cylindrical wall, as shown in Figure 8. This provides the neck portion with a curved section 18 which carries a cylindrical section 19 and at the lower end of the cylindrical section 19 is the hollow bead 12. It will be noted that the cylindrical wall 19 is spaced away from the neck portion 8 and the bead 12 carried thereby is free from contact with the shoulder or inwardly offset portion carrying the cylindrical neck.

The closure member is preferably formed from sheet metal and includes a top 20 having a depending skirt 21. The depending skirt is tapered outwardly at 22 and at its lower edge portion is rolled inwardly to form an open curl 23. A ring gasket 24 tapered to conform to the taper of the lower portion of the skirt is placed within the skirt and the curl 23 extends around the lower edge of the gasket and secures the gasket to the skirt as a unit. This gasket is dimensioned so that it extends slightly above the tapered surface of the skirt as shown in Figure 2. The gasket 24 and the cylindrical wall 19 are dimensioned so that when the closure is forced down onto the cylindrical wall of the neck portion, said gasket contacts with the cylindrical wall making a wedging sealing contact therewith. In other words, the gasket will be slightly deformed and lengthened as the closure member is forced on the cylindrical friction wall. This friction wall is dimensioned as to length so that when the closure member is fully seated the gasket will expand to a certain extent and protrude inwardly beneath the bead 12 at the lower end of the cylindrical wall. This bead 12 forms a sealing and retaining shoulder for the closure member. Inasmuch as the cylindrical wall is suspended from the curved portion 18 of the neck and is out of contact with the neck at the lower end thereof, there is a certain yielding of the cylindrical wall which aids in forming a very efficient wedging sealing engagement between the gasket and the friction wall. The open curl 12 at the lower edge of the cylindrical wall greatly strengthens the wall, giving sufficient rigidity thereto to enable a very tight seal to be formed to the lower portion of the cylindrical wall.

By this construction of the closure member the container is very efficiently sealed and the closure member is not easily dislodged, but can be removed by a suitable pry-off tool applied to the lower edge portion of the skirt.



It is obvious that changes in the shaping of the parts may be made without departing from the spirit of the invention as set forth in the appended claim.

We claim:

A metal container comprising a body, a bottom and a top, said top having a cylindrical neck providing an opening to the container, the upper end of said neck being rolled outwardly and thence downwardly to provide a cylindrical friction wall spaced away from said neck, the cylindrical friction wall at the lower end thereof being rolled inwardly to form a curl for strengthening said friction wall and so as to provide a friction seat on the outer face of the friction wall which is of uniform diameter all the way to the lower end of the wall, a closure member for said body having a depending skirt the upper portion of which is cylindrical and the lower portion of which tapers outwardly, a ring gasket engaging said tapered portion and held in contact therewith by curling the lower portion of said skirt inwardly into engagement with the inner face of the gasket, said gasket being dimensioned so as to extend above said tapered portion the cylindrical portion of said skirt being of less length than the cylindrical friction wall on the neck and being spaced from each other a distance less than the thickness of the gasket so that when the closure member is forced onto the container the gasket will wedge between said cylindrical portions so that said gasket when the closure member is fully seated will expand inwardly beneath the curled portion at the lower end of the friction wall sufficiently to firmly hold the closure member seated on the neck of the container.

JOHN COYLE.
WILLIAM F. PUNTE.


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