April 20, 1965 J. C. BAUGH 3,179,282

CONTAINER MANUFACTURE

Filed June 12, 1963

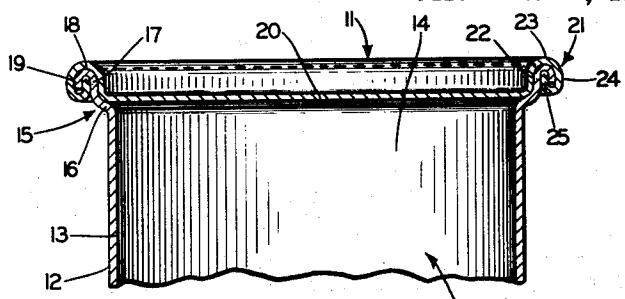

Fig. 1

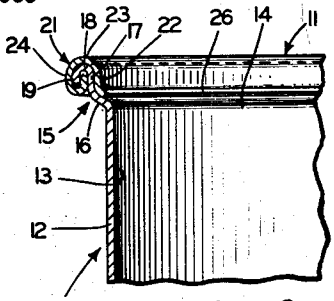

Fig. 2

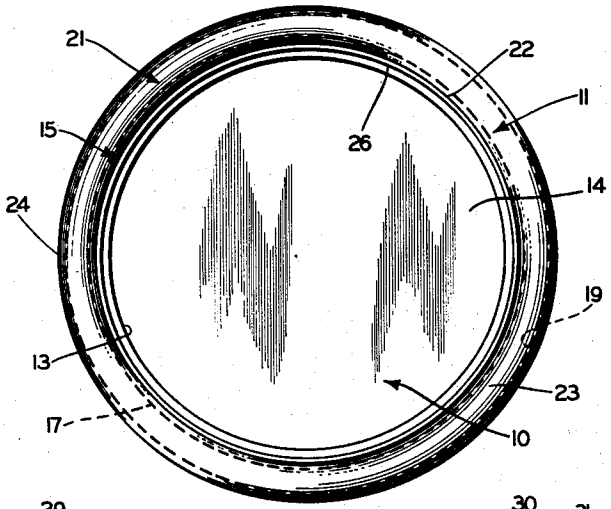

Fig. 3

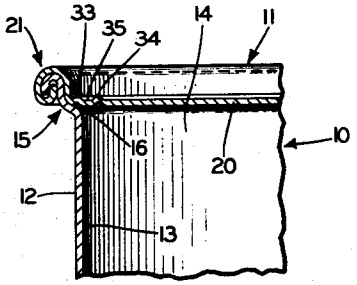

Fig. 5

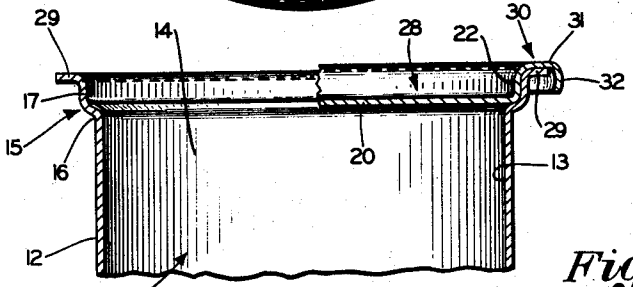

Fig. 4

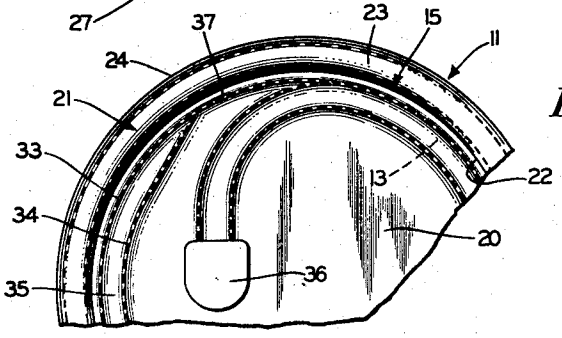

Fig. 6

INVENTOR.
John C. Baugh
BY
Frease, Bishop, Johns & Schick
ATTORNEYS

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CONTAINER MANUFACTURE

John C. Baugh, Massillon, Ohio, assignor to The Central States Can Corporation, Massillon, Ohio, a corporation of Ohio

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2 Claims. (Cl. 220—54)

My invention relates to improvements in container manufacture, and more specifically to a container of the type having a preferably metal body and top closure in which the closure is seamed to the body with a preferably conventional permanent seam. Even more specifically, my invention relates to a container construction of the foregoing type specifically formed such that the closure may be conventionally severed inwardly of the permanent seam, yet the internal wall surfaces of the body will be completely exposed endwise without interference from any closure severed edge.

The most common conventional form of container includes a tubular body and top closure normally double seamed at the top open end of the body, and access to the container by a consumer for removing the contents thereof is gained by severing the closure inwardly of the seam and usually completely around the top end of the container. This severing of the closure is normally accomplished by a conventional opener, whether hand operated or otherwise, and such openers normally use the permanent double seam as a guide with the severing of the closure taking place immediately inwardly adjacent this seam.

Thus, in use of the conventional container construction, when the closure has been completely severed, the severed edge of the closure remaining secured to the container body by the seam projects a short distance inwardly of the seam in such a manner that this edge forms a slight endwise interference with the inner confines or inner wall surfaces of the container body. This endwise interference or slight obstruction of the inner confines of the container body is not of importance not troublesome where the contents of the container are liquids, since despite such obstruction, it is still a simple matter to pour the contents from the open container.

In the case where the contents of the container is a moist, tightly packed substance, however, this slight obstruction can cause a definite problem. Since the substance is tightly packed and moist, or of a somewhat gelatin-like form, the substance cannot be directly poured from the container such as is possible with liquids, but rather, if the substance is to be removed en masse, it must be slipped endwise through the body end and this is prevented by the slight obstruction of the closure severed edge.

Consider, for instance, the modern container packaging of various forms of meats wherein relatively large pieces of the meats are packaged in a conventional container with various types of sauces which become gelatin-like in form when cooled and as received by the consumer. In such a case, after the closure has been conventionally inwardly severed from the container body, it is most convenient to then merely upend the container and remove the contents en masse, but this is prevented by the slight obstruction of the closure severed edge inwardly of the seam, so that it is necessary to use some form of implement to remove the contents of the container merely a small portion at a time.

It is, therefore, a general object of the present invention to provide a container construction and method for forming the same in which the closure may be conventionally permanently seamed to an open end of the container, yet, when the closure is severed inwardly adjacent the seam by the consumer for removal of the contents of the container, the inner confines of the container body are

endwise completely unobstructed by any closure severed edge.

It is a primary object of the present invention to provide a container construction and method for forming the same in which the permanent seam securing the closure to an open end of the container body is outwardly offset a sufficient distance from the normal endwise alignment of the container body inner wall surfaces such that the closure may be severed from the body in the conventional manner inwardly of the permanent seam, yet the closure severed edge will not project inwardly so as to interfere or form any endwise obstruction of the body inner wall surfaces.

It is a further object of the present invention to provide a container construction and method for forming the same wherein an open end of the container is formed with an outwardly offset flange, whereby a conventional closure may be coventionally seamed thereon, yet, when the closure is severed inwardly of the seam, such severing will take place totally within the body outward offset and the closure severed edge will be free of projecting inwardly into the endwise alignment of the body inner wall surfaces.

It is still a further object of the present invention to provide a container construction and method for forming the same which satisfies all of the foregoing objects, yet may be adapted for severing of the end closure in the conventional manner, or may be provided with a usual form of tear strip for accomplishing such severing.

Finally, it is an object of the present invention to provide a container construction and method for forming the same which satisfies all of the foregoing objects in a simple and efficient manner, and may be provided at a minimum of expense.

These and other objects are accomplished by the parts, constructions, arrangements, combinations, subcombinations, and methods comprising the present invention, preferred embodiments of which—illustrative of the best modes in which applicant has contemplated applying the principles—are set forth in the following description and illustrated in the accompanying drawings, and which are particularly and distinctly pointed out and set forth in the appended claims forming a part hereof.

In general terms the container constructions and methods comprising the present invention may be stated as being an improvement in container constructions of the type having the usual preferably metal tubular body side walls terminating in an open end, with a preferably metal end closure permanently seamed to the body side walls at and closing the open end.

The improvements in construction of the present invention may include an annular outward offset formed in the body side walls preferably formed by an annular outwardly extending offset shoulder spaced from the body open end and an axially extending offset wall portion extending from this shoulder to the open end, with both the offset shoulder and the offset wall portion extending outwardly from an axial alignment with inner surfaces of the body side walls. Further, the construction improvements may include a closure having a central disc-like portion terminating outwardly in axial alignment with the body offset and spaced outwardly from axial alignment with the body inner wall surfaces in a closure edge portion, with this closure central portion preferably terminating outwardly axially overlying and preferably contacting the offset shoulder inwardly adjacent the offset wall portion, and with the closure edge portion preferably extending from the closure central portion preferably at the offset shoulder axially abutting the offset wall portion to the body open end and then outwardly adjacent said body open end. Still further, the construction improvements may include the closure edge portion being perma-

nently seamed with the body side wall preferably outwardly of the body offset.

Also, the improvements in construction of the present invention may further reside in the provision of tear strip score line means formed in the closure central portion in axial alignment with the body offset, and preferably within the body offset, axially overlying the offset shoulder, to thereby place the score line means spaced outwardly from axial alignment with the body inner wall surfaces. In carrying out this part of the invention, it is preferred to locate an outer tear strip score line in this closure central portion within the body offset axially overlying the body offset shoulder and an inner tear strip score line also in the closure central portion, spaced uniformly inwardly from the outer tear strip score line.

Whether or not the score line means is provided with these improvements in the closure construction of the present invention, the closure central portion may be totally severed, either by a conventional container opening tool or by the tear strip score line means, outward of axial alignment with the container body inner surfaces, so that the remaining closure severed edge will be totally within the body offset and will not constitute an axial obstruction for the body inner wall surfaces.

The container construction improvements of the present invention may still further reside in the construction of container body and closure blanks which ultimately result in the completed construction of the present invention. These improvements in container blank construction may comprise the body blank side walls being formed with the annular outwardly extending offset shoulder spaced from the body open end and extending outwardly from an axial alignment with the inner surfaces of the body side walls; the axially extending offset wall portion connected to the offset shoulder and extending axially to the body open end, spaced outwardly from axial alignment with the body inner wall surfaces; and an outwardly extending body and flange portion, preferably generally flat, and being connected to and extending outwardly from axial alignment with the offset wall portion.

The closure blank construction may be provided with the central disc-like portion terminating outwardly axially overlying and contacting the body offset shoulder inwardly adjacent the body offset wall portion in a closure edge portion, with this closure edge portion extending from the closure central portion axially abutting the body offset wall portion to the body open end, and then extending outwardly abutting the body end flange portion, and finally reversely axially in an axially extending edge flange reversely telescoping the body end flange portion.

The improved methods of forming a container construction comprising the principles of the present invention may include the steps of forming the tubular body with the side walls and open end, forming the annular offset in the body side walls with the offset shoulder spaced from the open end and the offset wall portion extending from the shoulder to the open end, preferably forming the body with the outwardly extending end flange portion, forming the closure with the central disc-like portion and the closure edge portion, forming the closure edge portion with an axially extending flange abutting the body offset wall portion to the body open end and then outwardly over the body end flange portion and then reversely axially in an axially extending flange reversely co-axial with and outwardly of the body side walls at the body open end, telescoping the closure over the body open end with the closure edge portion reversely telescoping the body offset wall portion, and finally permanently seaming the closure edge portion to the body offset wall portion in a location spaced outwardly from axial alignment with the body inner wall surfaces.

The methods of the present invention may also include the further step of forming the tear strip score line means

in the closure central portion within the body offset axially overlying the offset shoulder and spaced outwardly from axial alignment with the body inner wall surfaces. This step may be accomplished by forming the tear strip score line means as an outer tear strip score line in the closure central portion within the body offset axially overlying the body offset shoulder, and an inner tear strip score line in the closure central portion spaced uniformly inwardly from the outer tear strip score line.

By way of example, embodiments of the container constructions and methods of the present invention are illustrated in the accompanying drawings forming a part hereof, wherein like numerals indicate similar parts throughout the several views, and in which:

FIG. 1 is a fragmentary vertical sectional view, part in elevation, showing the container construction of the present invention;

FIG. 2, a fragmentary vertical sectional view, part in elevation, of the container construction of FIG. 1, but with the closure severed from the container body inwardly of the seam;

FIG. 3, a top plan view of the container construction of FIG. 2;

FIG. 4, a fragmentary vertical sectional view, part in elevation, with a portion of the closure broken away, showing the closure and container body of the container construction of FIG. 1 in assembled blank form prior to the seaming operation;

FIG. 5, a fragmentary vertical sectional view, part in elevation, showing the container construction of the present invention formed with a tear strip for severing the portion of the closure from the container body inwardly of the seam; and

FIG. 6, fragmentary top plan view of the tear strip container construction of FIG. 5.

An embodiment of the improved container construction of the present invention in finished form is shown in FIG. 1, and includes a preferably metal, tubular or preferably hollow cylindrical container body, generally indicated at 10, and a preferably metal closure, generally indicated at 11. The body 10 is formed by the relatively thin tubular body side walls 12 having the inner axially extending wall surfaces 13 terminating in an open end 14.

As shown in cross-section in FIG. 1, and particularly according to the improvements of the present invention, the body side walls 12 at the open end 14 are formed with an annular outward offset, generally indicated at 15, formed by the annular outwardly extending and somewhat angular offset shoulder 16 spaced axially from the open end 14, and an offset wall portion 17 extending axially from the offset shoulder to the open end. In finished form as shown in FIG. 1, the body side walls 12 at the open end 14 are formed with an arcuate outwardly extending end flange 18 connected to the offset wall portion 17 and extending outwardly from the body offset 15, which end flange is in turn connected to a reverse axial extending seam flange 19 extending reversely co-axial with and spaced outwardly from the offset wall portion 17.

Thus, and important to the principles of the present invention, the body offset shoulder 16, offset wall portion, 17, arcuate end flange 18, and axially extending seam flange 19 all extend outwardly from or are positioned spaced outwardly from axial alignment with the inner wall surfaces 13 of the body side walls 12.

The closure 11 is formed with the preferably substantially flat and disc-like central wall portion 20 which, when the closure is positioned over the body open end 14 as shown in FIG. 1, terminates outwardly within the body offset 15 axially overlying and preferably contacting the body offset shoulder 16. Further, the closure 11 is formed with an edge portion, generally indicated at 21, which edge portion preferably includes an inner axially extending side flange 22 connected to the central wall portion 20 and positioned inwardly abutting the body offset wall portion 17 to the body open end 14.

Further, the closure edge portion 21 includes the outwardly extending, preferably arcuate, end flange 23 connected to and extending outwardly from the inner side flange 22 axially overlying and preferably conforming to the body end flange 18. Still further, the reverse axially extending outer side flange 24 is outwardly connected to the end flange 23 and extends outwardly abutting and telescoping the body seam flange 19, then wrapping inwardly around the end of the body seam flange 19, and finally terminating in an axially extending closure seam flange 25, so that the closure seam flange 25 is positioned inwardly of the body seam flange 19 and outwardly of the body offset wall portion 17.

Thus, the closure portion 21 is permanently seamed to the body side walls 12, preferably outwardly aligned with the body offset wall portion 17, in a conventional double seam. Most important to the principles of the present invention is the fact that this double seam is located spaced outwardly from axial alignment with the body inner wall surfaces 13, and preferably, for the main part, outwardly of the body offset 15.

In use of the improved container construction of the present invention, in view of the closure central wall portion 20 extending outwardly into the body offset 15, by use of a conventional container cutting or opening tool, the closure central wall portion 20 may be severed, as shown in FIGS. 2 and 3, totally within the body offset 15. Thus, the container construction of the present invention may be opened in the conventional manner, yet when the closure 11 is severed, the severed edge 26 will not form an axial interference or obstruction with the body side walls 12, but rather will be contained totally within the body offset 15.

For this reason, materials packed in the container construction of the present invention, such as those having a gelatin-like consistency at the time the container is opened and remaining in an integral mass, will not require removal of a portion at a time by some form of implement, but rather may be removed en masse merely by upending the container body 10 after removal of the closure central wall portion 20 as described. This is particularly important in modern container constructions and modern food packaging wherein the container may be formed for sale to the consumer with a distinctive aesthetically pleasing configuration and it is desirable to present the food product for consumption removed from the container en masse and conforming to this original distinctive packaged configuration.

In forming the improved container construction of the present invention, the body blank, generally indicated at 27, and closure blank, generally indicated at 28, are formed and assembled prior to the final seaming operation in the manner shown in FIG. 4. Furthermore, where these blanks are formed of metal or other materials which might attack or be attacked by the particular food product being packaged, at least the inner surfaces of these blanks would be provided with the conventional protective coatings in the usual manner.

As shown in FIG. 4, the body blank 27 is formed with the finished body offset 15 having the finished offset shoulder 16 and offset wall portion 17. In this blank form, however, the body offset wall portion 17 would terminate at the body open end 14 merely in the substantially flat, outwardly extending blank flange 29.

The closure blank 28 is formed with the finished central wall portion 20 terminating outwardly of axial alignment with the body inner wall surfaces 13 within the body offset 15, axially overlying and contacting the body offset shoulder 16. Furthermore, the closure blank 28 is formed with the blank edge portion 30 including the finished inner side flange 22 inwardly abutting the body offset wall portion 17 and extending axially from the body offset shoulder 16 to the body open end 14.

At this point, however, the closure blank 28 is formed outwardly substantially flat with the blank end flange 31 axially overlying the blank end flange 29 of the body blank 27. Finally, the blank edge portion 30 of the closure blank 28 terminates outwardly in a reverse axially extending, somewhat arcuate, outer blank flange 32, outwardly telescoping both the blank end flange 29 and a part of the offset wall portion 17 of the body blank 27.

When assembled, as shown in FIG. 4, the body and closure blanks 27 and 28 are ready for the usual double seaming operation to provide the finished container construction shown in FIG. 1 and previously described.

The closure blank 28 of FIG. 4 may be provided with tear strip score line means in the central wall portion 20 for providing the improved container construction of FIG. 1 with tear strip means for opening, as shown in FIGS. 5 and 6. This tear strip score line means is preferably formed by the outer score line 33 formed in the closure central wall portion 20 within the body offset 15, axially overlying the body offset shoulder 16 and outward from axial alignment of the body inner wall surfaces 13.

Further, an inner score line 34 is formed spaced uniformly inwardly from the outer score lines 33 in the closure central wall portion 20. This thereby forms the tear strip 35, the outer edge of which is formed by the outer score line 33 within the body offset 15 to ultimately form the same severed edge 26 on the closure 11 as shown in FIGS. 2 and 3, which severed edge is free of forming any axial interference or obstruction with the body inner wall surfaces 13.

As shown in FIG. 6, the outer and inner score lines 33 and 34 may be formed extending inwardly into the closure central wall portion 20 in the usual manner and may be provided with the usual finger tab 36 to provide the breakthrough for starting the removal of the tear strip 35. Furthermore, as is conventional, the inner score line 34 may be tapered into the outer score line 33 at the end of the tear strip 35, with the remaining part 37 of the outer score line 33 serving as a weakened line for finally breaking off and completely removing the part of the closure central wall portion 20 inwardly of these score lines.

Thus, according to the improved construction of the present invention, whether or not a tear strip 35 is provided, the central wall portion 20 of the permanently seamed closure 11 may be removed to provide the severed edge 26 totally within the body offset 15 and free of axial interference or obstruction of the body inner wall surfaces 13.

The methods for forming the improved container construction of the present invention include the various steps of forming the body 10 with the body side walls 12 having the inner wall surfaces 13, forming the body offset 15 at the body open end 14 with the offset shoulder 16 and offset wall portion 17, and forming the blank end flange 29 on the body 10. Further, the methods include the steps of forming the closure 11 with the central wall portion 20 terminating outwardly in the edge portion 21, and forming the edge portion 21 with the inner side flange 22, the blank end flange 31 and the outer blank flange 32. Also, the methods include the step of positioning the closure 11 over the body 10 with the closure central wall portion 20 contacting the body offset shoulder 16, the closure inner side flange 22 abutting and extending axially along the body offset wall portion 17, the closure blank end flange 31 overlying the body blank end flange 29, and the closure outer blank flange 32 axially telescoping the body blank end flange 29 and body offset wall portion 17, as shown in FIG. 4.

Still further, the methods of the present invention may include the steps of forming the outer and inner score lines 33 and 34 in the closure central wall portion 20 so that when the closure 11 is positioned telescoped with the body open end 14, the outer score line 33 will be positioned within the body offset 15 and outward of axial alignment with the body inner wall surfaces 13.

Finally, the methods of the present invention include the step of permanently seaming the closure 11 to the body side walls 12, as shown in FIGS. 1 or 5, thereby locating this permanent seaming between the closure 11 and body 10 outward of axial alignment with the body inner wall surfaces 13 and preferably at least partially outward of the body offset 15.

Thus, container constructions and methods for forming the same are provided, according to the principles of the present invention, in which the permanent seam securing the closure 11 to the open end 14 of the body 10 is outwardly offset a sufficient distance from the normal endwise or axial alignment of the body inner wall surfaces 13 such that the closure 11 may be severed from the body 10 in the conventional manner inwardly of the permanent seam by use of usual container opener or cutting tools, or by the provision and use of a tear strip 35, yet the closure severed edge 26 will not project inwardly so as to interfere or form any endwise obstruction of the body inner wall surfaces 13.

In the foregoing description, certain terms have been used for brevity, clearness and understanding but no unnecessary limitations are to be implied therefrom, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved constructions and methods illustrated and described herein are by way of example and the scope of the present invention is not limited to the exact details of construction and method shown.

Having now described the invention, the constructions and methods, operation and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby, the new and useful constructions and methods and reasonable mechanical equivalents thereof obvious to those skilled in the art are set forth in the appended claims.

I claim:

1. In container construction of the type having a tubular body side wall terminating in an open end and having an end closure permanently seamed to the body at and closing said open end; the improvements which comprise an annular radially outwardly extending offset shoulder formed in the body side wall spaced from the body open end, an offset wall portion in said body side wall extending axially from the outward extent of said offset shoulder to said open end and spaced radially outward from axial

alignment with the inner surface of the body side wall, said offset shoulder and wall portion forming a body offset, a metal closure having a central dis-like portion terminating radially outwardly within said body offset axially adjacent said offset shoulder and abutting said offset wall portion, an annular closure edge wall portion connected to and extending axially from the closure central disc-like portion abutting the body offset wall portion to the body open end, an annular closure seaming portion connected to said closure edge wall portion and extending radially outwardly adjacent the body open end, said closure seaming portion being permanently seamed to the body offset wall portion radially outward of said body offset and the body open end with that part of the closure central disc-like portion radially within the body offset being axially accessible, said radially outward seaming being the sole means permanently securing the closure on and closing the body open end, and said body offset shoulder having radial dimensions locating said closure edge wall portion and said termination of the closure central disc-like portion entirely within the extent of the body offset and spaced radially outward from axial alignment with said body side wall inner surface sufficient that said part of said closure central disc-like portion is axially accessible and may be severed entirely within said body offset and the resulting closure severed edge will be located entirely within said body offset.

2. Container construction as defined in claim 1 in which tear strip score line means is formed in and completely around said part of said closure central disc-like portion located radially within the extent of the body offset for severing said closure central disc-like portion entirely within said body offset and locating the resulting closure severed edge entirely within said body offset.

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THERON E. CONDON, *Primary Examiner.*

EARLE J. DRUMMOND, *Examiner.*