April 11, 1944. J. M. HOTHERSALL 2,346,165

CONTAINER

Filed July 23, 1940 2 Sheets-Sheet 1

Fig 1

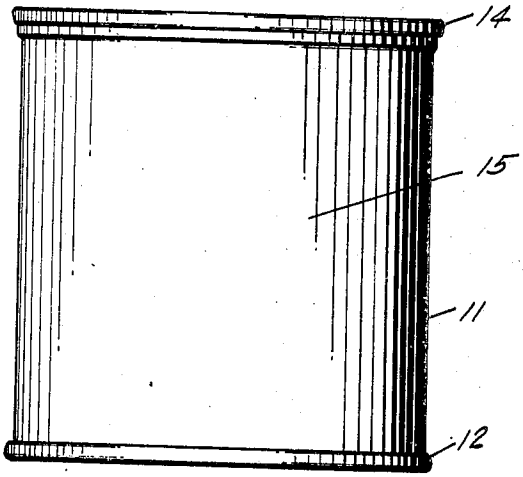


Fig 2

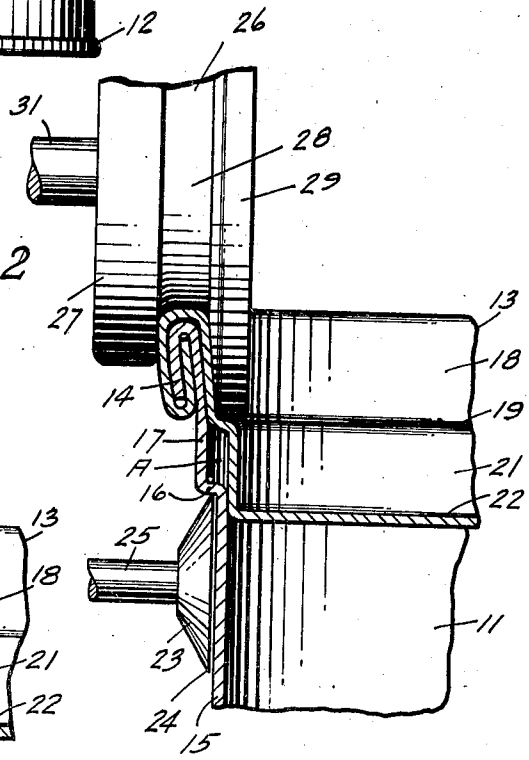
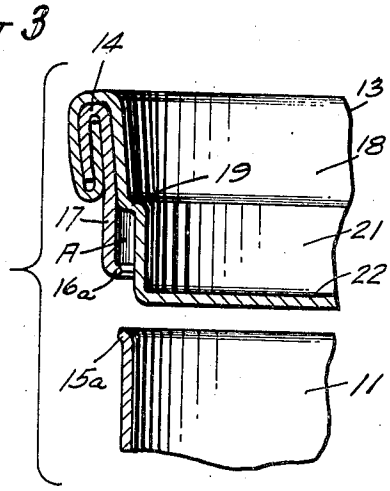


Fig 3



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April 11, 1944. J. M. HOTHERSALL 2,346,165

CONTAINER

Filed July 23, 1940 2 Sheets-Sheet 2

Fig 4

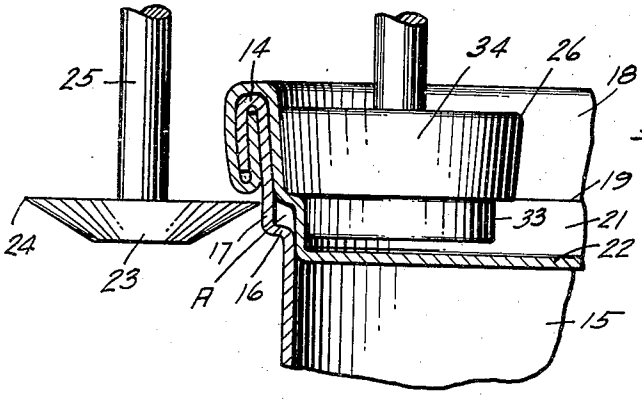


Fig 5

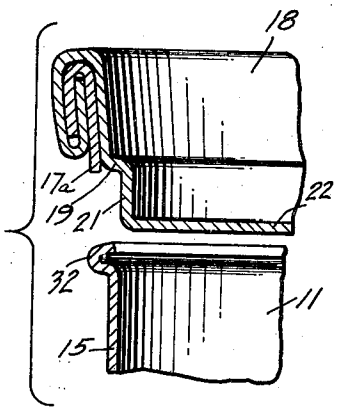


Fig 6

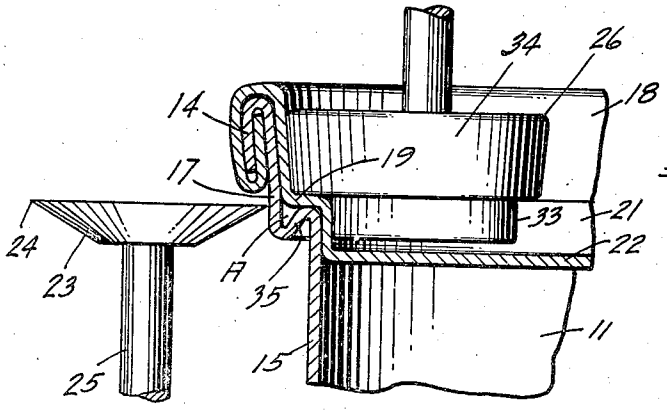
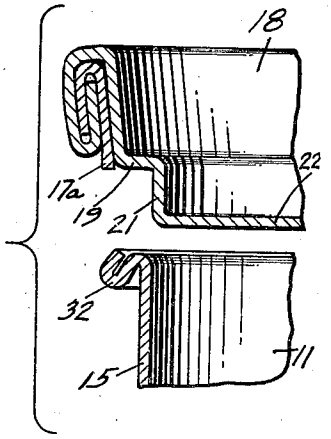


Fig 7



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Patented Apr. 11, 1944 2,346,165

UNITED STATES PATENT OFFICE

2,346,165

CONTAINER

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Application July 23, 1940, Serial No. 347,032

1 Claim. (Cl. 220—48)

This invention relates in general to containers and more particularly to a novel end construction of container body and end closure which is readily severable to open the container, after which the end closure may be used as a convenient reclosure.

An object of the invention is the provision of a sanitary container having a novel end construction, including body and end closure parts, which construction provides a ready cutting portion which may be readily cut along a definite line of severance without the cutting means or any of the cut parts coming in contact with the contents of the container and for these reasons the invention is especially adapted for embodiment in sanitary food containers.

Another object of the invention is the provision of such a novel easy-to-open container in which certain body and cover walls cooperate to provide a hollow cutting zone which confines the cutting to a predetermined wall section, gives adequate cutting room to a cutter means and shields the contents from said means and any cut parts.

Still another object of the invention is the provision of such a novel body and end closure construction having its various parts cooperatively arranged and its cutting or severing line so located that the cutting tool is solidly supported and accurately guided during the cutting operation.

Yet another object of the invention is the provision of a novel body and en closure construction which can be formed economically with only a slight change in existing body and end forming devices and which does not interfere with the attainment of a tight and (if desired) a hermetic joint between container body and end closure.

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 side elevation of a container embodying the invention;

Fig. 2 is an enlarged sectional view of the upper part of the container and end closure construction and also shows in perspective the cutting and feeding parts of a rotary cutter in position for the cutting operation;

Fig. 3 is an enlarged sectional view of the container and end reclosure in separated, superposed position, as they appear separated after the cutting operation is completed.

Figs. 4 and 5 are views like Figs. 2 and 3 and illustrate a modification of the body and end construction of the invention.

Figs. 6 and 7 are views like Figs. 2 and 3 and illustrate another modified embodiment of the invention.

Referring now to the drawings in more detail, one embodiment of the invention as illustrated in Figs. 1 to 3 inclusive, comprises a cylindrical container of sheet metal or other suitable material having a body 11, a bottom end closure secured to the body 11, as by the usual double seam 12 and a top end closure 13 secured to the body 11 preferably also by the usual double seam 14. When the container is constructed of sheet metal such as tin plate, the bottom and top double seams 12 and 14 comprise the usual five thicknesses or layers of interlocked body and enclosure flanges.

The body 11 for its major part has a straight cylindrical wall 15, but near its top and below the double seam 14, the material of the body wall is bent outwardly at a substantially right angle to the straight body wall 15 to form a horizontal wall part 16, then upwardly again to form a vertical wall part 17, which is parallel with and spaced slightly outwardly from the straight body wall 15 and which merges into the body flange which furnishes two layers of body material for the double seam 14. The body wall part 16 thus forms a ledge or shoulder which provides a convenient cutter track and defines by the corner formed by the body wall parts 15 and 16 a line of severance which may be readily followed and cut by a rotary cutter later described.

The top cover or end closure 13 inwardly of its marginal flange which is interlocked with the body flange to form the double seam 14, merges into a vertical or countersink wall part 1 which runs parallel with and tightly hugs the body wall part 17 and is then bent inwardly to form a short substantially horizontal cover wall part 19, which in turn is bent downwardly to form a vertical cover wall 21, which runs parallel with the body wall parts 17 and 15 and frictionally engages the latter for a short distance below the body wall part 16. The cover wall 21 in turn is bent inwardly and continued to form a horizontal cover panel 22, which completes the end closure 13. Such an arrangement of the body and cover wall parts 16, 17, 19 and 21 defines an annular space A, which cooperates with a rotary cutter now to be described.

In order to open the container above described a cutter of the rotary type is used or may be adapted for use. The opener exemplified in Fig. 2 essentially comprises a rotary cutter roller 23, of hardened or tempered steel, which is preferably tapered and is provided with a sharp annular cutting edge 24, and is operatively supported on a roller shaft 25, which is journalled in parts and driven by parts not here shown. A propelling or feeding roller 26, having an outer roller portion 27, a central recessed portion 28 and an inner roller portion 29 is mounted on a shaft 31 and is adapted to ride over and frictionally engage the top double seam 14 and the cover wall part 19 and cooperates with the cutter roll 23, assisted by connecting and driving parts (not shown) to propel the cutter roll 23 and itself around the periphery of the container.

When the cutter roll 23 is in the cutting position illustrated in Fig. 2 and the cutter is operated the cutting edge 24 coincides with the corner formed by body wall parts 15 and 16 and severs the material of the container body along a line of severance defined by said corner and because of the usual pressure exerted between the cutter roll 23 and the feed roll 26, a clean cut is effected and the cover 13 is separated from the body 11. The result of this cutting operation is clearly shown in Fig. 3, where it is seen that the cutting operation leaves a body flange 15*a* and a cover flange 16*a*. The remaining body 11 and separated cover 13 may then be reassembled, the cover parts 17 and 21 receiving the body 11 between them and the cover parts 21 and 22 fitting within the body wall 15 and functioning as a friction reclosure.

The modified body and end constructions illustrated in Figs. 4 and 5 and Figs. 6 and 7 embody the same inventive principle as Figs. 1 to 3 inclusive in slightly different form and therefore corresponding body and cover parts have been designated with corresponding reference numerals without repeating a detailed description of the same. However, it should be pointed out that in these modified constructions the cutter roller 23 is set to cut in a horizontal direction into body wall 17, leaving a cover flange 17*a* (see Figs. 5 and 7) and a substantially S-shaped body flange 32. The feed roller 26 shown in these modifications has a small diameter roller portion 33 which engages the cover wall part 21 and a large diameter roller portion 34 which engages the cover wall parts 13 and 19 and is supported by the latter. The body wall part in Fig. 6 which corresponds to the body wall part 16 in the other views, instead of the being horizontal, forms with the body wall parts 15 and 17 an S-shaped connecting wall. The manner of horizontal cutting as illustrated in Figs. 4 and 6 has the advantage of leaving the body flanges 32 in rounded rather than sharp edge condition.

It will be appreciated that when the end seams are required to be liquid or air tight it is desirable to interpost a packing or sealing compound material between the interlocked body and end closure flanges in a well known manner.

From the foregoing description of the several illustrations it will be seen that the invention involves in all cases a novel body and cover construction which has a hollow cutting zone which permits the cutting of a predetermined wall section in such a manner that a clean line of severance is provided without bringing the cutter parts or the cut container parts in contact with the container contents and which has all the advantages heretofore mentioned and other advantages which have not been specifically mentioned.

Also it is understood that the body and cover constructions above described may be used at either bottom or top end of the container or at both ends. Also that the invention is not necessarily limited to the use of sheet metal in the construction of the container but that it may be adapted to other materials.

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:

A sanitary hermetically sealed container for food products and the like constructed to be opened by a cutting tool without the tool or cut parts coming in contact with the contents, comprising a tubular body member and a countersunk end member secured together in an end seam, said body member for the greater portion of its length having a straight wall, said body member intermediate said seam and straight wall being bent outwardly, obliquely downwardly and then upwardly to provide a substantially S-shaped offset portion which provides a shouldered container end portion of larger diameter than said straight wall and forms an annular substantially triangular pocket in said shouldered portion, said end member adjacent said shouldered portion being offset substantially horizontally inwardly and contacting the upper portion of said S-shaped offset portion, thereby closing said pocket, said end member thence being extended downwardly into close frictional sealing engagement with the interior of said straight wall of said body member inwardly of said shouldered portion, said annular pocket in opening the container being penetrated by a cutting tool applied to an outer wall of said pocket, said annular pocket when thus penetrated by said cutting tool functioning both as a cutting channel and as a shield which keeps the tool and any cut parts away from the contents of the container.

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