July 28, 1964 M. A. GROGEL 3,142,413

CONTAINER WITH FLAT HEMS AT THE CORNERS THEREOF

Filed Aug. 14, 1962 2 Sheets-Sheet 1

Fig 1.

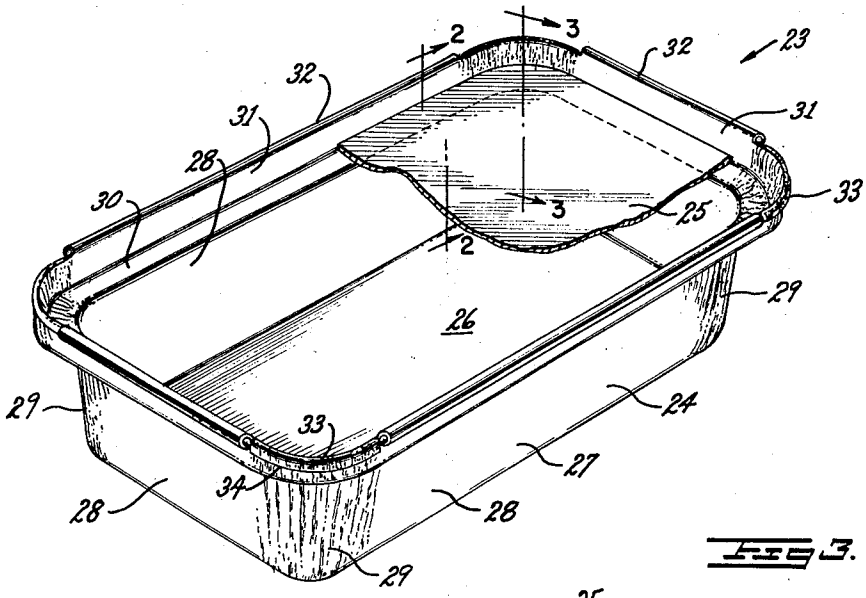
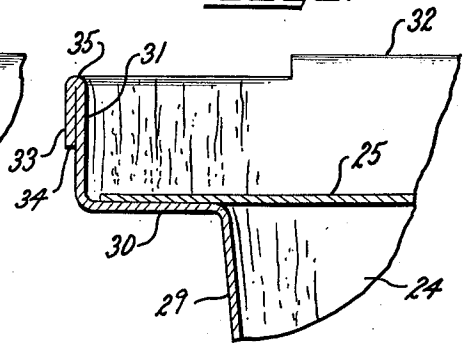


Fig 3.



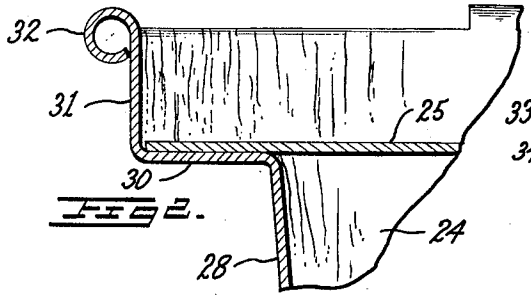


Fig 2.

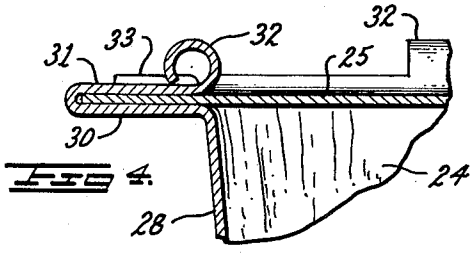
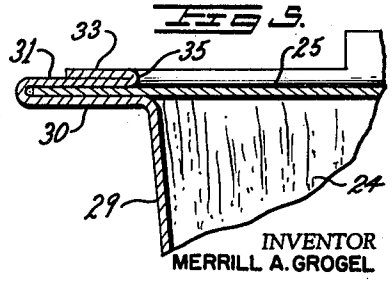


Fig 4.

Fig 5.



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CONTAINER WITH FLAT HEMS AT THE CORNERS THEREOF

Filed Aug. 14, 1962 2 Sheets-Sheet 2

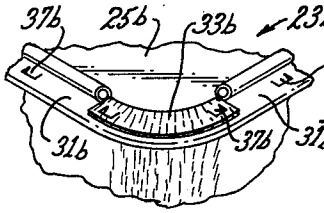


Fig 6

Fig 12.

Fig 10.

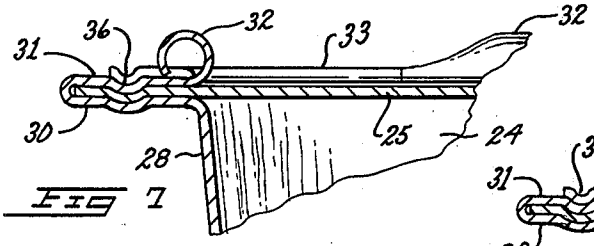
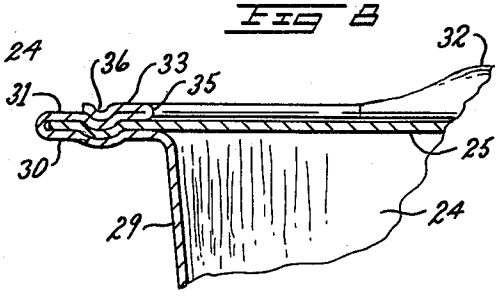


Fig 7

Fig 8



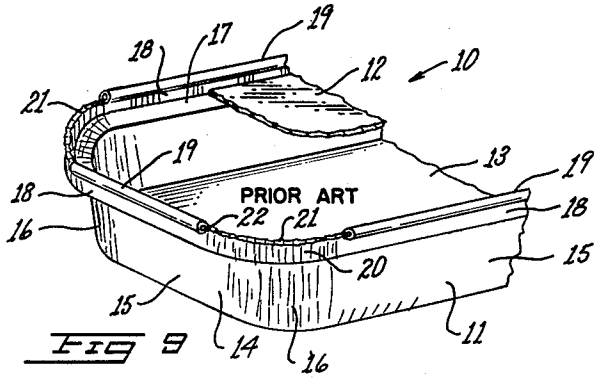


Fig 9

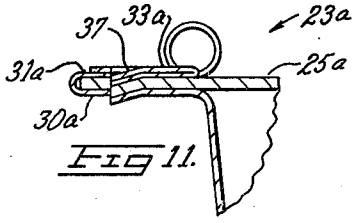


Fig 11.

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3,142,413
CONTAINER WITH FLAT HEMS AT THE CORNERS THEREOF

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Filed Aug. 14, 1962, Ser. No. 216,778
29 Claims. (Cl. 220—67)

This invention relates to an improved container as well as to improved parts therefor.

Heretofore, substantially rectangular, open ended container bodies have each been made from a sheet of material, such as metallic foil or the like, drawn in such a manner that the drawn sheet of material defines a bottom wall means integrally interconnected to substantially vertically extending side wall means having a plurality of straight portions respectively interconnected together by arcuate corner portions.

Such a container body has an outwardly directed horizontal flange surrounding the opened end thereof and interconnected to a peripheral flange which is adapted to be subsequently crimped over a cover member placed on top of the horizontal flange to hold the cover member in place whereby the ultimate consumer can open the container by merely peeling back the peripheral flange and lifting the cover member therefrom.

At first, the free edge of the peripheral flange was curled to form a continuous bead surrounding the container body so that the ultimate consumer would grasp the bead to peel back the peripheral flange in order to remove the cover member from the container.

However, it had been found that when such a container is drawn from a sheet of material, such as metallic foil or the like, substantial wrinkles were formed at the corner portions of the side wall means, horizontal flange and peripheral flange thereof.

Such wrinkles at the corner portions of the container body completely distorted the curled bead of the peripheral flange at the corner portions thereof so that the attractiveness of the container was destroyed by the wrinkled corner portions thereof.

One attempt has been made to eliminate such distortion at the corner portions of the container by interrupting the curled bead of the peripheral flange at the corner portions thereof to provide uncurled portions having substantially straight edges.

However, it has been found that the straight edges of the peripheral flange at the corner portions of the container body are substantially irregular because of the uneven drawing of the sheet of material and provide ragged edges which tend to cut the fingers of the ultimate consumer.

According to the teachings of this invention, however, flat hem portions are provided at the corner portions of the container body to eliminate such ragged and sharp edges at the corner portions, whereby the fingers of the ultimate consumers are not subject to damage when opening the containers of this invention.

Therefore, it is an object of this invention to provide an improved container having one or more of the novel features set forth above or hereinafter shown or described.

Another object of this invention is to provide an improved container body for such a container or the like.

Other objects, uses and advantages of this invention are apparent from a reading of this description which proceeds with reference to the accompanying drawings and forming a part thereof and wherein:

FIGURE 1 is a perspective view illustrating the container of this invention before the cover member thereof has been secured in place.

FIGURE 2 is an enlarged, fragmentary, cross-sectional view taken on line 2—2 of FIGURE 1.

FIGURE 3 is a view similar to FIGURE 2 and is taken on line 3—3 of FIGURE 1.

FIGURE 4 is a view similar to FIGURE 2 and illustrates the peripheral flange in its securing position.

FIGURE 5 is a view similar to FIGURE 3 and illustrates the peripheral flange in its securing position.

FIGURE 6 is a perspective view similar to FIGURE 1 illustrating the container with the cover member firmly secured thereto.

FIGURE 7 is an enlarged, fragmentary cross-sectional view of the container illustrated in FIGURE 6 and is taken on line 7—7 thereof.

FIGURE 8 is a view similar to FIGURE 7 and is taken on line 8—8 of FIGURE 6.

FIGURE 9 is a fragmentary, perspective view of a prior art container.

FIGURE 10 is a fragmentary, perspective view of another container construction of this invention.

FIGURE 11 is an enlarged cross-sectional view taken on line 11—11 of FIGURE 10.

FIGURE 12 is a view similar to FIGURE 10 illustrating another embodiment of this invention.

While the various features of this invention are hereinafter described as being particularly adaptable for foil containers for food and the like, it is to be understood that the various features of this invention can be utilized singly or in any combination thereof to provide other containers formed of other materials.

Therefore, this invention is not to be limited to only the embodiments illustrated in the drawings, because the drawings are merely utilized to illustrate one of the wide variety of uses of this invention.

Referring now to FIGURE 9, a prior known container is generally indicated by the reference numeral 10 and comprises a container body 11 and a cover member 12.

The container body 11 is drawn from metallic foil, such as aluminum-containing metallic foil or the like, to define a bottom wall means 13 and substantially vertically extending side wall means 14 having a plurality of straight portions 15 respectively interconnected together by arcuate corner portions 16.

The container body 11 has an outwardly directed horizontal flange 17 adapted to receive the peripheral edge of the cover member 12 and support the same above the bottom wall means 13.

A peripheral flange 18 is integrally interconnected to the outer edge of the horizontal flange 17 and is adapted to be bent inwardly over the cover member 12 to hold the cover member 12 in place on the container body 11.

As previously set forth, the outer free edge of the peripheral flange 18 is curled along the straight portions 15 of the side wall means 14 to define substantially straight beads 19 separated from each other by substantially straight portions 20 of the peripheral flange 18, the straight portions 20 being disposed at the arcuate corner portions 16 of the side wall means 14.

However, during the drawing operation to form the container body 11, substantial wrinkling occurs at the corner portions 16 of the side wall means 14 as well as at the corner portions of the horizontal flange 17 and peripheral flange 18 to provide ragged edges 21 at the straight portions 20 of the peripheral flange 18 which tend to cut the fingers of the ultimate consumer peeling back the peripheral flange 18 to release the cover member 12.

Further, it has been found that rather sharp projections 22 are formed at the juncture of the straight portions 20 and the beads 19 of the peripheral flange 18 which also cause cutting of the fingers of the ultimate consumer.

However, according to the teachings of this invention, an improved container is provided wherein the ragged edges **21** of the prior known container **10** are eliminated so that no hazardous surfaces or edges are present that might cut the fingers of the ultimate consumer when opening the container of this invention.

In particular, reference is made to FIGURES 1–3 wherein the improved container of this invention is generally indicated by the reference numeral **23** and comprises a container body **24** and cover member **25**.

The container body **24** of this invention is formed in the prior known manner by drawing a sheet of metallic material, such as aluminum-containing metallic foil or the like, into the configuration illustrated in FIGURE 1 whereby the container body **24** has a bottom wall means **26** integrally interconnected to substantially vertically extending side wall means **27** respectively having a plurality of substantially straight portions **28** interconnected together by arcuate corner portions **29**.

The container body **24** has an outwardly directed horizontal flange **30** surrounding the opened end thereof and adapted to receive the peripheral edge of the cover member **25** to space the cover member **25** from the bottom wall means **26** thereof in the manner previously described.

A peripheral flange **31** extends from the outer edge of the horizontal flange **30** to provide means for securing the cover member **25** in place in a manner hereinafter described, the peripheral flange **31** having the outer free edge thereof curled backwardly to form substantially straight beads **32** along the straight portions **28** of the side wall means **27** of the container body **24** in the manner previously described.

However, the outer free edge of the peripheral flange **31** of the container body **27** in the region of the corner portions **29** thereof are reversely turned to provide hems **33** extending completely between adjacent beads **32** so that no ragged and sharp edges will be provided on the grasping portion of the peripheral flange **31** which would tend to cut the fiangers of the ultimate consumer when opening the container **23** in a manner hereinafter described.

As illustrated in FIGURE 3, the reversely turned hems **33** are disposed against the peripheral flange **31** throughout the entire width of the hems **33** whereby the hems **33** are substantially flat as viewed in FIGURE 3 and will be hereinafter referred to as flat hem portions **33**.

Therefore, it can be seen that even though the lower ends **34** of the flat hem portions **33** may be ragged because of uneven drawing of the sheet of material forming the container body **24**, the grasping edge **35** of the corner portions of the peripheral flange **31** between adjacent beads **32** are smooth and rounded so that the same will not tend to cut fingers grasping the same to open the container **23**.

After the container body **24** has been formed in the above manner, the desired product is placed in the container body **24** through the opened end thereof and the cover member **25** is disposed on the horizontal flange **30** in the manner illustrated in FIGURES 1–3 to close the opened end of the container body.

Thereafter, the peripheral flange **31** is bent inwardly against the exterior surface of the cover member **25** in the manner illustrated in FIGURES 4 and 5 to hold the cover member **25** in place.

If desired, the peripheral flange **31** and horizontal flange **30** of the cover member **24** can be crimped toward each other to crimp the peripheral edge of the cover member **25** therebetween to more firmly secure the cover member **25** in place.

In particular, reference is made to FIGURES 6–8 wherein it can be seen that a groove **36** has been pressed into the peripheral flange **31**, cover member **25** and horizontal flange **30** to more firmly secure the cover member **25** in place.

As illustrated in FIGURE 8, the groove **36** is formed in the flat hem portions **33** of the peripheral flange **31** whereby a double thickness of the peripheral flange **31** is provided over the cover member **25** at the corners thereof to further reinforce the peripheral flange **31** in the crimping region thereof.

Alternately, the peripheral flange **31** can be crimped to the cover member **25** without the groove means **36** in the manner illustrated in FIGURES 4 and 5 to firmly hold the cover member **25** in place.

When it is desired to open the container **25**, the ultimate consumer merely inserts his finger nails under the beads **32** and peels the peripheral flange **31** back to the position illustrated in FIGURE 1 to release the cover member **25** from the container body **24**.

However, in peeling back the peripheral flange **31**, it has been found that the corner portions of the peripheral flange **31** must also be peeled back whereby the ultimate consumer merely inserts his finger nails under the smooth edges **35** at the corner portions of the peripheral flange **31**, to bend the corner portions of the peripheral flange **31** backwardly without subjecting his fingers to sharp edges and the like as provided in the prior known device as illustrated in FIGURE 9.

Therefore, it can be seen that this invention provides an improved container or the like wherein finger cutting edges and the like are eliminated and the container construction more readily secures a cover member thereto than in the prior known container constructions.

Further, it is well known that the cover member of such a container construction can be more firmly secured in place to withstand forces that are applied to the center of the cover member and tend to pull the cover member from under the peripheral flange during handling of the container construction and forces applied to the peripheral flange that tend to pull the peripheral flange away from the cover member.

In particular, it is common practice to partially cut round or rectangular perforations through the peripheral flange, cover member and horizontal flange and bend the cut portions downwardly to interlock the parts together to oppose the above forces.

Alternately, the peripheral flange, cover member and horizontal flange could merely be slit in the desired locations and portions of the material adjacent the slits could be bent downwardly to provide the above interlocking feature.

By providing the extra thickness of material at the corners of the container construction of this invention, it has been found that a more secure interlocking structure is provided than in the past.

For example, reference is made to FIGURES 10 and **11** wherein it can be seen that the container construction **23***a* has the peripheral flange **31***a*, cover member **25***a* and horizontal flange **30***a* perforated by partially cut circles **37** spaced around the periphery thereof whereby the cut portions are pushed downwardly to interlock the peripheral flange **31***a*, cover member **25***a* and horizontal flange **30***a* together, the pushed down portion **37** of the peripheral flange **31***a* interlocking into the cover member **25***a* and the pushed down portion **37** of the cover member **25***a* interlocking into the horizontal flange **30***a*.

If desired, the circular cuts **37** can be of the order of ⅛ of an inch in diameter and have from 180° to 270° of the circumference cut.

It can be seen that since the hems **33***a* of this invention provide an additional thickness of material at the corners of the container construction **23***a*, a more secure interlocking structure is provided at the corners by the portions **37** of the hems **33***a* being received in the cover member **25** to interlock therewith in addition to the portions **37** of the peripheral flange **31***a* interlocking with the cover member **25***a*.

If desired, the interlocking portions can be substantially rectangular as illustrated at **37***b* in FIGURE 12 or

the interlocking portions could have other desired configurations or be formed by pushed in portions adjacent straight-line slits, the important feature being to provide an additional thickness of material at the corners of the container construction to add additional strength to the prior known interlocking structure.

While the form of the invention now preferred has been disclosed as required by the statutes, other forms may be used, all coming within the scope of the claims which follow.

What is claimed is:

1. In combination, a container body having side wall means defining an open end of an article-receiving compartment, and a cover member disposed over said open end, said side wall means having a plurality of first portions respectively interconnected together by corner portions, said side wall means having a peripheral flange interconnected thereto and disposed against the exterior surface of said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof curled into beads along said first portions of said side wall means and having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions.

2. A combination as set forth in claim 1 wherein said peripheral flange and said cover member are crimped together.

3. In combination, a container body having side wall means and bottom wall means defining an open ended article-receiving compartment, and a cover member disposed over said open end, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having a peripheral flange interconnected thereto and disposed against the exterior surface of said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof curled into substantially straight beads along said straight portions of said side wall means and having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions.

4. A combination as set forth in claim 3 wherein said beads extend inwardly beyond said reversely turned hem portions of said peripheral flange.

5. A combination as set forth in claim 3 wherein said reversely turned hem portions of said peripheral flange engage said peripheral flange throughout the entire width of said reversely turned hem portions.

6. A combination as set forth in claim 3 wherein four of said corner portions of said side wall means are provided.

7. A combination as set forth in claim 3 wherein said corner portions of said side walls means are arcuate.

8. A combination as set forth in claim 3 wherein said peripheral flange and said cover member are crimped together.

9. In combination, a container body having side wall means and bottom wall means defining an open ended article-receiving compartment, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having an upper horizontal flange surrounding said compartment and extending outwardly therefrom, and a cover member disposed on said horizontal flange to close said open end of said container body, said side wall means having a peripheral flange interconnected to the outer edge of said horizontal flange and disposed against said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof curled into substantially straight beads along said straight portions of said side wall means and having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions.

10. A combination as set forth in claim 9 wherein said beads and reversely turned hem portions of said peripheral flange are directed toward the exterior of said container body.

11. A combination as set forth in claim 9 wherein said peripheral flange, said horizontal flange and said cover member are crimped together.

12. A container body having side wall means defining an open end of an article-receiving compartment, said side wall means having a plurality of first portions respectively interconnected by corner portions, said side wall means having a peripheral flange interconnected thereto at said open end, said peripheral flange having the outer edge thereof curled into beads along said first portions of said side wall means and having the outer edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions.

13. A container body having side wall means and bottom wall means defining an open ended article-receiving compartment, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having a peripheral flange interconnected thereto, said peripheral flange having the outer edge thereof curled into substantially straight beads along said straight portions of said side wall means and having the outer edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions.

14. A container body as set forth in claim 13 wherein said beads extend outwardly beyond said reversely turned hem portions of said peripheral flange.

15. A container body as set forth in claim 13 wherein said reversely turned hem portions of said peripheral flange engage said peripheral flange throughout the entire widths of said reversely turned hem portions.

16. A container body as set forth in claim 13 wherein four said corner portions of said side wall means are provided.

17. A container body as set forth in claim 13 wherein said corner portions of said side wall means are arcuate.

18. A container body having side wall means and bottom wall means defining an open ended article-receiving compartment, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having an upper horizontal flange surrounding said compartment and extending outwardly therefrom, said side wall means having a peripheral flange interconnected to the outer edge of said horizontal flange, said peripheral flange having the outer edge thereof curled into substantially straight beads along said straight portions of said side wall means and having the outer edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions.

19. A container body as set forth in claim 18 wherein said beads and reversely turned hem portions of said peripheral flange are directed toward the exterior of said container body.

20. In combination, a container body having side wall means defining an open end of an article-receiving compartment, and a cover member disposed over said open end, said side wall means having a plurality of first portions respectively interconnected together by corner portions, said side wall means having a peripheral flange interconnected thereto and disposed against the exterior surface of said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions, said flat hem portions, said peripheral flange and said cover member having aligned portions thereof pushed transversely thereof to interlock said hem portions and said peripheral flange to said cover member.

21. A combination as set forth in claim 20 wherein said pushed portions have part of the perimeters thereof defined by die cuts.

22. In combination, a container body having side wall means defining an open end of an article-receiving com-

partment, and a cover member disposed over said open end, said side wall means having a plurality of first portions respectively interconnected together by corner portions, said side wall means having a peripheral flange interconnected thereto and disposed against the exterior surface of said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof curled into beads along said first portions of said side wall means and having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions, said flat hem portions, said peripheral flange and said cover member having aligned portions thereof pushed transversely thereof to interlock said hem portions and said peripheral flange to said cover member.

23. In combination, a container body having side wall means and bottom wall means defining an open ended article-receiving compartment, and a cover member disposed over said open end, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having a peripheral flange interconnected thereto and disposed against the exterior surface of said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions, said flat hem portions, said peripheral flange and said cover member having aligned portions thereof pushed transversely thereof to interlock said hem portions and said peripheral flange to said cover member.

24. A combination as set forth in claim 23 wherein said pushed portions have part of the perimeters thereof defined by die cuts.

25. In combination, a container body having side wall means and bottom wall means defining an open ended article-receiving compartment, and a cover member disposed over said open end, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having a peripheral flange interconnected thereto and disposed against the exterior surface of said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof curled into substantially straight beads along said straight portions of said side wall means and having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions, said flat hem portions, said peripheral flange and said cover member having aligned portions thereof pushed transversely thereof to interlock said hem portions and said peripheral flange to said cover member.

26. In combination, a container body having side wall means and bottom wall means defining an open ended

article-receiving compartment, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having an upper horizontal flange surrounding said compartment and extending outwardly therefrom, and a cover member disposed on said horizontal flange to close said open end of said container body, said side wall means having a peripheral flange interconnected to the outer edge of said horizontal flange and disposed against said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions, said flat hem portions, said peripheral flange, said cover member and said horizontal flange having aligned portions thereof pushed transversely thereof to interlock said hem portions and said peripheral flange to said cover member and to interlock said cover member to said horizontal flange.

27. A combination as set forth in claim 26 wherein said pushed portions have part of the perimeters thereof defined by die cuts.

28. A combination as set forth in claim 26 wherein said pushed portions are disposed in the same direction.

29. In combination, a container body having side wall means and bottom wall means defining an open ended article-receiving compartment, said side wall means having a plurality of substantially straight portions respectively interconnected together by corner portions, said side wall means having an upper horizontal flange surrounding said compartment and extending outwardly therefrom, and a cover member disposed on said horizontal flange to close said open end of said container body, said side wall means having a peripheral flange interconnected to the outer edge of said horizontal flange and disposed against said cover member to hold said cover member to said container body, said peripheral flange having the free edge thereof curled into substantially straight beads along said straight portions of said side wall means and having the free edge thereof reversely turned at said corner portions of said side wall means to provide flat hem portions, said flat hem portions, said peripheral flange, said cover member and said horizontal flange having aligned portions thereof pushed transversely thereof to interlock said hem portions and said peripheral flange to said cover member and to interlock said cover member to said horizontal flange.

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