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CAN CARRIER WITH REINFORCING MEANS

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CAN CARRIER WITH REINFORCING MEANS

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This invention relates in general to new and useful improvements in the construction of can carriers, and more specifically relates to a novel can carrier of the wrap-around paperboard type.

At the present time, there are in use can carriers of the wrap-around paperboard type wherein the side walls of the can carrier are provided with openings along the fold lines along which the side walls are connected to top and bottom walls of the can carrier, the openings being for the purpose of receiving the seams of cans to locate the cans within the can carrier, and the material struck from the side walls in the formation of the openings therein remaining integral with the top and bottom walls and projecting outwardly beyond the side walls to provide supports for the seams of the cans. Since the openings are disposed along the fold lines of the can carrier, the can carrier is subject to rupture along the fold lines due to the outward directed pressure on the fold lines by the seams of the cans. As a result, in instances rupture occurs along the fold lines to the extent that the endmost cans in particular are dislodged accidentally from the carrier.

In view of the foregoing, it is the primary object of this invention to provide a novel can carrier of the wrap-around paperboard type wherein the openings in side walls thereof for receiving the seams of the cans are provided with suitable reinforcing means to prevent the accidental rupture of the can carrier along the fold lines thereof.

Another object of this invention is to provide a conventional type of can carrier with flaps struck from the walls thereof and folded into a partial overlying relation to the side, top and bottom walls of the can carrier surrounding the openings formed in the side walls of the can carrier so as to reinforce the fold lines of the can carrier at opposite ends of the openings formed in the side walls thereof.

Still another object of this invention is to provide in a conventional can carrier of the paperboard type, flaps which are struck from the top and bottom walls of the can carrier and folded towards the side walls of the can carrier, the flaps being provided with fold lines which, when the flaps are in position, are disposed coextensive with the fold lines of the can carrier and which flaps are aligned with openings in the side walls of the can carrier so that the flaps engage the seams of the can carrier and serve to reinforce the can carrier in the areas of the openings in the side walls.

A further object of this invention is to provide a novel blank for forming a can carrier, the blank having portioon thereof which are cut out and are ready to be struck therefrom to define flaps which will serve as reinforcements for openings formed in the side walls of the can carrier which is formed from the blank.

Still another object of the invention is to provide a can carrier of the customary wrap-around paperboard type with reinforcing flaps which are struck from the top and bottom walls thereof, the reinforcing flaps being foldable out of the planes of the top and bottom walls to positions generally surrounding the openings formed in the side walls of the can carrier to serve as reinforcements for the can carrier in the vicinity of the side wall openings, the flaps being disposed in alignment with only the endmost ones of the side wall openings, and each of the flaps being provided with an edge portion for engaging the seam of a central can to restrict the outward movement of the central can and thereby resist the tearing force of a central can on the can carrier along a fold line thereof.

A still further object of this invention is to provide a novel can carrier of the customary wrap-around paperboard type wherein the can carrier is provided with suitable reinforcing means to prevent the rupture of the can carrier along the fold lines thereof, the can carrier being of the type having openings in the side walls thereof for the reception of seams of cans, the can carrier means being in the form of a centrally located flap aligned with each central opening of the can carrier, and the flap being provided with edge portions for engaging the seams of next adjacent cans to prevent inward movement of the cans, and the can carrier being further provided with edge flaps for engaging the seams of the outermost cans to resist outward movement thereof, whereby the can carrier is reinforced against tearing along the fold lines thereof due to pressures exerted thereon by cans disposed therein and projecting through the side wall openings.

With the above, and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawing.

In the drawing:
FIGURE 1 is a perspective view of a can carrier formed in accordance with the invention, the can carrier having cans therein.
FIGURE 2 is an enlarged fragmentary vertical sectional view taken along the line 2—2 of FIGURE 1, and shows the specific construction of the can carrier including the reinforcing thereof, the cans therein being shown in phantom lines.
FIGURE 3 is an enlarged fragmentary perspective view of a portion of the bottom wall and side wall of the can carrier with the cans removed and shows the specific details of the reinforcing which is the subject of this invention.
FIGURE 4 is a plan view of the blank from which the can carrier is formed.
FIGURE 5 is a perspective view of another form of can carrier and shows the same with cans therein.
FIGURE 6 is a fragmentary longitudinal vertical sectional view taken along the line 6—6 of FIGURE 5, and shows the specific details of the reinforcing for the can carrier, the cans being omitted for purposes of clarity.
FIGURE 7 is an enlarged fragmentary horizontal sectional view, taken along the line 7—7 of FIGURE 5, and shows further the details of the can carrier including the reinforcing therefor.
FIGURE 8 is a plan view of the blank from which the can carrier of FIGURE 5 is formed.
FIGURE 9 is a perspective view of still another form of can carrier having cans therein.
FIGURE 10 is an enlarged fragmentary horizontal sectional view, taken along the line 10—10 of FIGURE 9, and shows the specific details of the reinforcing for the can carrier.
FIGURE 11 is an enlarged fragmentary internal perspective view showing a portion of the bottom wall and a side wall of the can carrier of FIGURE 9, and the specific details of the reinforcing for the can carrier.
FIGURE 12 is a plan view of the blank from which the can carrier of FIGURE 9 is formed.

Reference is now made to the drawings in detail, wherein the specific features of embodiments of the invention are illustrated. In FIGURES 1 through 4, inclusive, there are illustrated the details of a can carrier, generally re-
can carriers 15. The cans C, when the can carriers 15 are moved, have a tendency to shift relative to the can carrier 15. This resistance against shifting is prevented only by the interlocking of the cans with respect to the can carrier 15, with the result that the pressure is exerted on the can carrier 15 principally along the fold lines 17, 19, 27 and 28 with a tendency to rupture the fold lines at the openings 34. The present invention has to do with the reinforcing of these fold lines.

The top wall 29 of the blank 16 is provided with a plurality of generally C-shaped cuts 43 which face respective ones of the C-shaped cuts 23. Each of the C-shaped cuts 43 terminates in a fold line 44 which is disposed parallel to a respective one of the fold lines 27 and 28. The bottom forming panels 18 and 20 are provided with like C-shaped cuts 43 which terminate in fold lines 44 which are disposed parallel to the fold lines 17 and 19. Each C-shaped cut 43, together with each fold line 44, defines a flap, generally referred to by the numeral 45.

Each flap 45 is provided with a C-shaped cut 46 which is disposed in part concentric with its associated C-shaped cut 43. The ends of the C-shaped cut 46 terminate in fold lines 47, which in turn, terminate at the C-shaped cut 43. Thus, each C-shaped cut 46 is associated therewith to divide each flap 45 into two flap portions 48 and 49, as is best shown in FIGURE 3. The flap portion 49 is connected to the respective portion of the can carrier 15 while the flap portion 48 is carried by the flap portion 49.

Considering now FIGURE 3 in detail, it will be seen that when the flap 45 illustrated therein is folded to its can carrier reinforcing position, the fold lines 47 thereof are disposed coextensively with the fold line 19 in the illustration. The flap portion 49 overlies the bottom forming panel 20 and the flap portion 48 is disposed in opposed relation to the inner surface of the side wall 21. As a result of the C-shaped cut 46 in the flap 45, an opening 50 is formed in the flap portion 48, the opening 50 being aligned with a respective one of the openings 34. Also, a projection 51 is formed on the flap portion 49, which projection 51 projects through the aligned openings 50 and 34 and overlies the associated projection 35, as is best shown in FIGURE 1. It is to be understood that the others of the flaps 45 are likewise so positioned with respect to the can carrier 15.

It will be readily apparent that when the flaps 45 are folded to the position of the flap 45 illustrated in FIGURE 3, there is an interlocking between each flap and the can carrier 15 to retain the flap in place. Furthermore, the flaps 45 are held in place by the cans C after the can carrier 15 has been wrapped therearound in the conventional manner. Each flap 45 extends entirely about its associated opening 34 and provides a double thickness of material along its associated one of the fold lines 17, 19, 27 and 28. Therefore, the flaps 45 serve to suitably reinforce the can carrier 15. All of this is done without the requirement of additional material in the formation of the blank 16.

Reference is now made to FIGURE 5 in particular, wherein a can carrier, generally referred to by the numeral 60, is illustrated. The can carrier 60 holds six cans C, the cans C being of a conventional type, such as a conventional beer can, and having chimes or seams S at opposite ends thereof. The can carrier 60 is formed from a blank 61.

The blank 61 is illustrated in FIGURE 8, and is formed of a paper product, such as cardboard. The blank 61 has an elongated outline and the outline of the blank 61 is identical with that of the blank 16. Further, the basic details of the blank 61 are the same as those of the blank 16 and will therefore be identified by like numerals. Therefore, the can carrier 60 has a bottom wall 33 which is formed of overlapped and interlocked bottom wall forming panels 18 and 20, side walls 30 and 31, and a top wall 29.
The can carrier 60 differs from the can carrier 15 in the means provided for reinforcing the same along the various fold lines between the top and bottom walls and the side walls. The top panel 29 and the bottom forming panels 18 and 20 are each provided with flaps, generally referred to by the numeral 62. Each flap 62 is bounded by a fold line 63 and a cut line 64 which are disposed in parallel relation and are parallel to the fold lines 17, 19, 27, and 30, with the fold lines 63 being disposed adjacent to the respective one of these fold lines. The outer ends of the fold lines 63 and the cut lines 64 are connected together by a C-shaped cut 65. A concave cut 66 is disposed at the inner end of the fold line 63 and a similar concave cut 67 is disposed at the inner end of the cut line 64. The adjacent portions of the cuts 66 and 67 are connected together by a cut line 68. Thus, each flap 62 may be folded out of the plane of its respective portion of the can carrier 60.

Each flap 62 is provided with a C-shaped cut 69 which is aligned with the in the vicinity of the central opening. The formation of each flap 62, the cut 66 forms a curved edge 75 at the inner end of the flap portion 71. The position and curvature of this curved edge corresponds to the position and curvature of the seam S of an associated central can C, as is best shown in FIGURE 7. Since the two flaps 62 along each line of cans C combine to engage the seams S on opposite sides of the center can C, it will be apparent that the centermost cans are restrained against movement by the flaps 62. Thus, in effect, the can carrier 60 is reinforced in the vicinity of the center openings 34.

Reference is now made to FIGURES 9 through 12, inclusive, and to FIGURE 9 in particular, wherein there is illustrated another form of can carrier, generally referred to by the numeral 80. The can carrier 80 is very similar to the can carriers 15 and 60, but differs therefrom only in the means for reinforcing the same. The can carrier 80 is also intended for holding six cans C having chimes or seams S at the opposite ends thereof. The can carrier 80 is formed from a blank which is generally referred to by the numeral 81.

The basic construction of the blank 81 is the same as that of the blanks 16 and 61. Accordingly, only the differences between the blank 16 and blank 81 will be described in detail, and like parts of the two blanks will be provided with like numerals.

A noticeable difference between the blanks 16 and 81 is that the blank 81 is provided with a pair of extension strips 82 which extend along the opposite sides thereof and which overlap small portions of the bottom forming panels 18 and 20 and extend alongside the ends of the top wall 29 and the side walls 30 and 31. These strips 82 are connected to the main portion of the blank 81 along elongated fold lines 83. It is to be noted that the fold lines 17, 19, 27 and 28 extend to the outer edges of the blank 81, that is, these fold lines extend across the strips 82. In the forming of the carrier 80 from the blank 81, the strips 82 are folded into overlying relation with the inner surface of the blank 81 and are adhesively secured thereto in a known manner.

The strips 82 form reinforcing for the can carrier 80 in a manner to be described in detail hereinafter. The carrier 90 also has other reinforcing which is different and the reinforcing of the can carriers 15 and 69.

Each of the bottom forming panels 18 and 20 is provided with a single flap, generally referred to by the numeral 84, and the top panel 29 is provided with a pair of the flaps 84. Each flap 84 is aligned with a central one of the openings 34 in the final can carrier 80. Each flap 84 is defined by a fold line 85 and a cut line 86 which are in parallel relation and are parallel to the fold lines 17, 19, 27, and 28, with the fold line 85 being closest to the fold lines. At each end of each of the folds 85 is a concave cut 87, and a similar concave cut 88 is formed at each end of the cut line 86. The concave cuts 87 and 88 adjacent each other have their adjacent ends connected together by a straight cut 89. Each flap 84 is divided into a pair of flap portions 90 and 91 by a generally centrally located fold line 92 which extends the full length thereof. The fold line 92 is interrupted by a C-shaped cut 93 which is aligned with and opposes a respective one of the C-shaped cuts 32.

In the folding of the blank 81 to form the can carrier 80, each flap 84 is folded along its fold line 92 so that the flap portion 90 thereof either underlies the top wall 29 or overlies the bottom wall 21 formed from the bottom wall forming panels 18 and 20. At the same time, the flap portion 91 of each flap 84 is disposed in opposed relation to a respective one of the side walls 30, 31. At this time, the fold line 92 of the flap 84 becomes aligned with a respective one of the fold lines 17, 19, 27 and 28.

Also, in the folding of each flap 84, due to the provision of the C-shaped cut 93, and opening 94 is formed in the flap portion 90 in alignment with a respective one of the central openings 34 (see FIGURE 11). In the formation of the opening 81, a projection 95 on the flap portion 90 is formed in alignment with a respective one of the projections 35. Thus, the flaps 84 serve to directly reinforce the can carrier 80 along the centermost ones of the openings 34 formed in the side walls thereof.

In the forming of the flap 84, the concave cuts 87 define curved edges 96 at opposite ends of the flap portion 90. The positions and curvature of the curved edges 96 correspond to the positions and curvatures of the seams S of the endmost ones of the cans C, as is best shown in FIGURE 10. Thus, each flap 84 serves to prevent the corresponding ends of the corresponding endmost ones of the cans from moving inwardly towards the center of the can carrier 80. In a like manner, the interior edges of the folded strips 82 serve as abutments for the seams of the outermost ones of the cans C. Thus the strips 82 and the flaps 84 combine to prevent relative shifting of the outermost cans C with respect to the can carrier 80 and in this manner serve to reinforce the can carrier 80 to prevent tearing along the fold lines 17, 19, 27 and 28 at the ends of the outermost ones of the openings 34.

The formation of the various forms of can carriers does not attract from the appearance of the can carriers since the materials primarily required for the reinforcing flaps are formed from the tops and bottoms of the can carriers. Further, the formation of the flaps does not remove critical material from the top and bottom walls of these can carriers and
therefore does not weaken these portions of the can carriers.

The specific examples of can carriers illustrated and described have can seam engaging projections aligned with the side wall openings. However, in other similar forms of can carriers, these projections are not provided. When can carriers of this type are modified in accordance with the present invention, the reinforcing flaps will normally correspond to the construction of the can carrier and will not be provided with the projections illustrated and described herein.

From the foregoing, it will be seen that novel and advantageous provision has been made for carrying out the desired end. However, attention is again directed to the fact that variations may be made in the example apparatus disclosed herein without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim:

1. In a papercan carrier of the type including a first wall in the form of a can end engaging wall and a second wall in the form of a can body engaging wall with said first and second walls being joined together along a fold line and wherein said second wall has openings therein spaced along said fold line for the reception of can seams; reinforcing means on said can carrier for preventing the tearing of said can carrier along said fold line at said openings, said reinforcing means being in the form of a flap struck from one of said walls and folded to overlie said fold line at the ends of one of said openings and portions of said second wall.

2. The can carrier of claim 1 wherein said flap is divided into first and second flap portions by a fold line extending coextensive along said fold line between said first and second walls, and said first flap portion directly overlying said first wall and said second flap portion directly opposes said second wall.

3. The can carrier of claim 1 wherein said flap is divided into first and second flap portions by a fold line extending coextensive along said fold line between said first and second walls, and said first flap portion directly overlying said first wall and said second flap portion directly opposes said second wall, said second flap portion having an opening therein generally aligned with the associated one of said second wall openings.

4. The can carrier of claim 1 wherein said flap has an opening therein generally aligned with the associated one of said second wall openings, and an edge portion terminating remote from its associated one of said openings and adjacent a next adjacent one of said openings, said flap edge portion being positioned for engagement with a seam of a can aligned with said next adjacent opening to resist movement of such can towards said one opening.

5. The can carrier of claim 1 wherein said flap has an opening therein generally aligned with the associated one of said second wall openings, and two edge portions each terminating remote from its associated one of said openings and adjacent a next adjacent one of said openings, said flap edge portion being positioned for engagement with a seam of a can aligned with said next adjacent opening to resist movement of such can towards said one opening.

6. The can carrier of claim 4 wherein said edge portion is on that portion of said flap which overlies said first wall and is curved in accordance with the curvature of a can seam.

7. The can carrier of claim 1 wherein there is one flap for each opening.

8. The can carrier of claim 1 wherein said openings are three in number and said flap is aligned with the central one of said openings.

9. The can carrier of claim 8 wherein said flap has an opening therein generally aligned with the associated one of said second wall openings, and two edge portions each terminating remote from its associated one of said openings and adjacent a next adjacent one of said openings, said flap edge portion being positioned for engagement with a seam of a can aligned with said next adjacent opening to resist movement of such can towards said one opening.

10. The can carrier of claim 8 wherein said fold line is additionally reinforced at the ends thereof by flaps folded inwardly from the ends of said first and second walls.

11. The can carrier of claim 1 wherein there is a flap for each endmost one of said openings.

12. The can carrier of claim 11 wherein each flap has an opening therein generally aligned with the associated one of said second wall openings, and an edge portion terminating remote from its associated one of said openings, said flap edge portion being positioned for engagement with a seam of a can aligned with said next adjacent opening to resist movement of such can towards said one opening.

13. In a papercan carrier of the type including a first wall in the form of a can end engaging wall and a second wall in the form of a can body engaging wall with said first and second walls being joined together along a fold line and wherein said second wall has openings therein spaced along said fold line for the reception of said can seams and said first wall has can seam engaging projections extending outwardly of said second wall in alignment with said openings to prevent displacement of cans within said can carrier; reinforcing means on said can carrier for preventing the tearing of said can carrier along said fold line starting at said openings, said reinforcing means being in the form of a flap struck from one of said walls and folded to overlie said fold line at the ends of one of said openings, said flap having an opening generally corresponding to the associated one of said second wall openings, and a projection on said flap overlying an associated one of said can carrier projections.

14. In a papercan carrier of the type including a first wall in the form of a can end engaging wall and a second wall in the form of a can body engaging wall with said first and second walls being joined together along a fold line and wherein said second wall has openings therein spaced along said fold line for the reception of said can seams and said first wall has can seam engaging projections extending outwardly of said second wall in alignment with said openings to prevent displacement of cans within said can carrier; reinforcing means on said can carrier for preventing the tearing of said can carrier along said fold line starting at said openings, said reinforcing means being in the form of a flap struck from one of said walls and folded to overlie said fold line at the ends of one of said openings, said flap being divided into first and second flap portions by a fold line extending coextensive along said fold line between said first and second walls, and said first flap portion directly opposes said second wall, said second flap portion having an opening therein generally aligned with the associated one of said second wall openings.

15. In a papercan carrier of the type including a first wall in the form of a can end engaging wall and a second wall in the form of a can body engaging wall with said first and second walls being joined together along a fold line and wherein said second wall has openings therein spaced along said fold line for the reception of said can seams and said first wall has can seam engaging projections extending outwardly of said second wall in alignment with said openings to prevent displacement of cans within said can carrier; reinforcing means on said can carrier for preventing the tearing of said can carrier along said fold line starting at said openings, said reinforcing means being in the form of a flap struck from one of said walls and folded to overlie said fold line at the ends of one of said openings, said flap being divided into first and second flap portions by a fold line extending coextensive along said fold line between said first and second walls, and said first flap portion directly opposes said second wall, said second flap portion having an opening generally corresponding to the associated one of said second wall openings and said first flap portions having a projection overlying an associated one of said can carrier projections.
of said walls and folded to a position generally aligned with one of said openings and overlying said fold line at the ends of said opening, said flap having an opening therein generally corresponding to said one opening.

16. A can carrier of the wrap-around paperboard type comprising a top wall, a bottom wall, and side walls connected to said top and bottom walls along fold lines; said side walls having openings therein spaced along each of said fold lines for the reception of can seams; and reinforcing means integral with said can carrier for preventing the tearing of said can carrier along said fold lines starting at said openings, said reinforcing means being in the form of flaps struck from the material of said top and bottom walls and folded to overlie at least certain of said openings and portions of said side walls for engaging seams of cans and thereby assist in preventing the can carrier rupturing movement of cans within said can carrier, said flaps having openings aligned with said certain openings.

17. A can carrier of the wrap-around paperboard type comprising a top wall, a bottom wall, and side walls connected to said top and bottom walls along fold lines; said side walls having openings therein spaced along each of said fold lines for the reception of can seams, and said top and bottom walls having can seam engaging projections aligned with said openings; and reinforcing means integral with said can carrier for preventing the tearing of said can carrier along said fold lines starting at said openings, said reinforcing means being in the form of flaps struck from the material of said top and bottom walls and folded to positions aligned with at least certain of said openings for engaging seams of cans and thereby assist in preventing the can carrier rupturing movement of cans within said can carrier, said flaps having openings aligned with said certain openings and can seam engaging projections opposing said can seam engaging projections of said top and bottom walls.

18. A blank for a can carrier of the wrap-around type, said blank being of an elongated rectangular outline and being divided into panels by transverse fold lines, said panels including terminal bottom forming panels, side wall panels and a central top wall panel, cooperating tabs and slots on said bottom forming panels, each of said fold lines being interrupted by a plurality of opening defining cuts in a respective one of said side wall panels to define can receiving openings in said side wall panels, and cut and fold lines on each of said top wall panel and bottom forming panels in alignment with at least certain of said opening defining cuts defining flaps foldable to positions surrounding said side wall openings defined by said certain opening defining cuts to reinforce the erected can carrier along said fold lines.

19. A blank for a can carrier of the wrap-around type, said blank being of an elongated rectangular outline and being divided into panels by transverse fold lines, said panels including terminal bottom forming panels, side wall panels and a central top wall panel, cooperating tabs and slots on said bottom forming panels, each of said fold lines being interrupted by a plurality of opening defining cuts in a respective one of said side wall panels to define can receiving openings in said side wall panels, and cut and fold lines on each of said top wall panel and bottom forming panels in alignment with at least certain of said opening defining cuts defining flaps foldable to positions surrounding said side wall openings defined by said certain opening defining cuts to reinforce the erected can carrier along said fold lines.

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