Oct. 30, 1956 G. C. CURRIE 2,768,741

CARTON FOR CYLINDRICAL OBJECTS

Filed Nov. 3, 1954 2 Sheets-Sheet 1

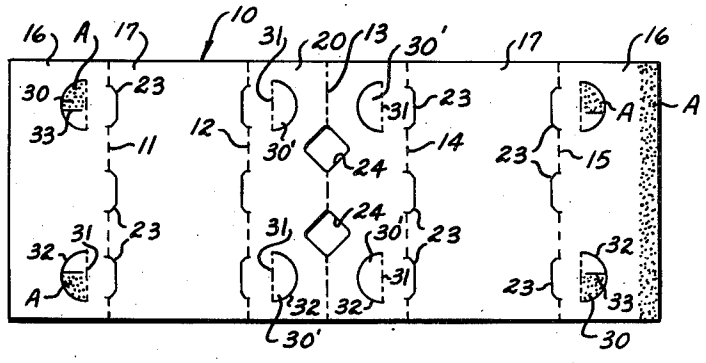


Fig. 1

Fig. 2

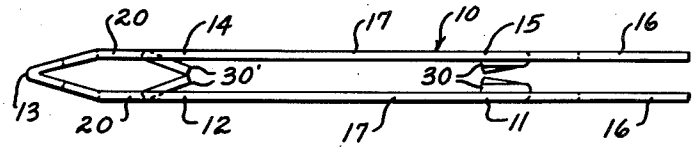
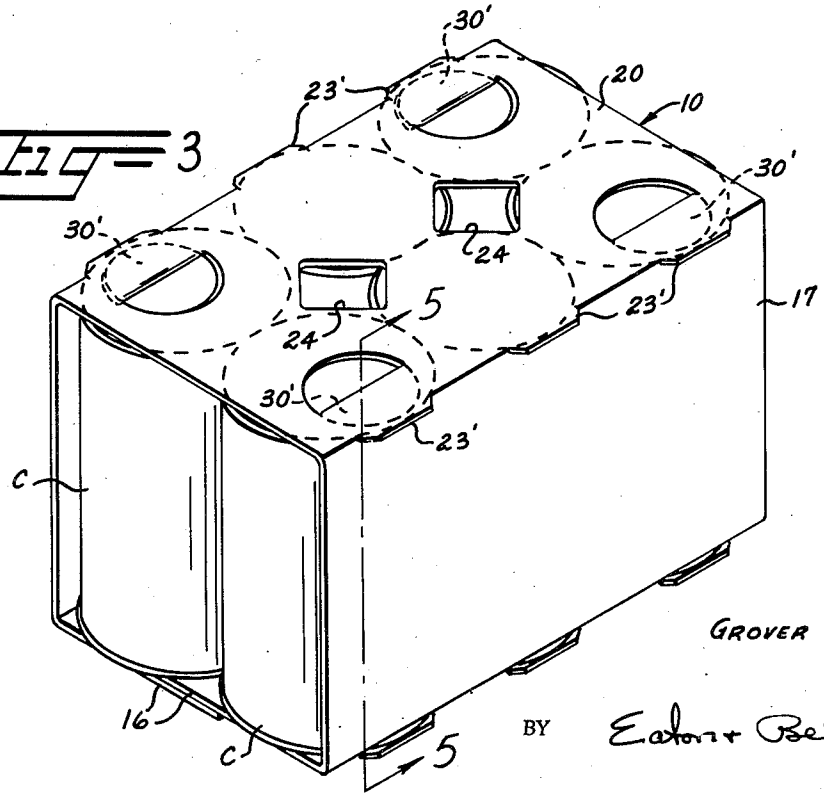


Fig. 3



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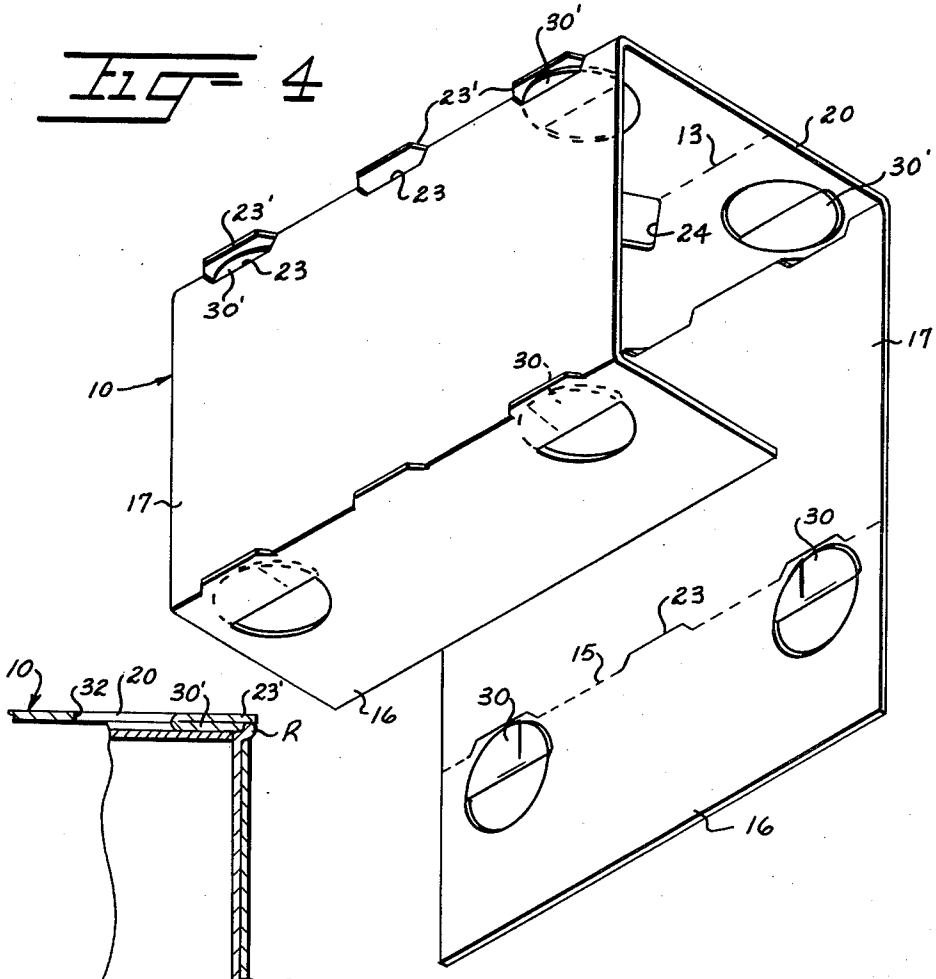
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CARTON FOR CYLINDRICAL OBJECTS

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Fig. 4



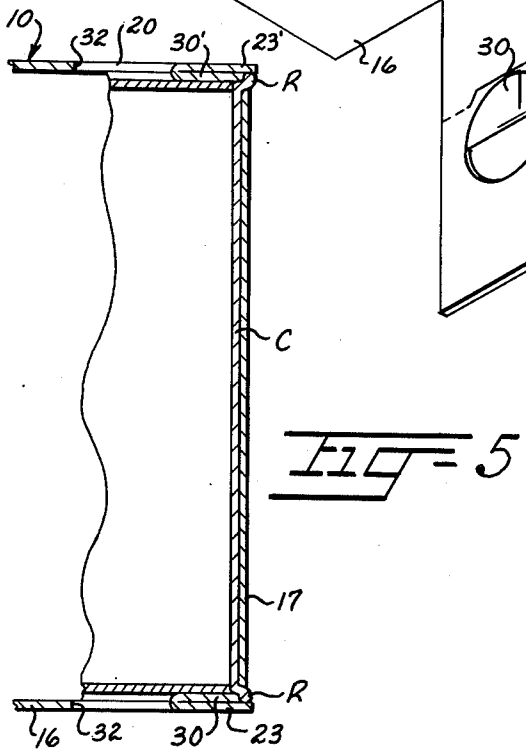


Fig. 5

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CARTON FOR CYLINDRICAL OBJECTS

Grover C. Currie, Charlotte, N. C., assignor to Dacam Corporation, Charlotte, N. C., a corporation of North Carolina

Application November 3, 1954, Serial No. 466,514

13 Claims. (Cl. 206—65)

This invention relates to containers and more particularly to a portable carton for flat-ended cylindrical objects such as cans of soup, beer and fruit juice, which cans are customarily provided with a bead or rim at each end.

It is an object of this invention to provide a carton or container for the transportation of a plurality of flat-ended cans wherein improved means are provided for preventing undesirable movement of the cans within the container.

It is another object of this invention to provide an open-ended tubular carton for flat-ended cylindrical objects wherein means are provided which are engageable with the upper and lower surfaces of the outermost of said cylindrical objects for preventing endwise movement of the cylindrical objects relative to the carton.

It is another object of this invention to provide a carton of the type described wherein articulated tab members are formed integral with the upper and lower surfaces of the carton, and generally arcuate cut-outs are formed adjacent the juncture of the side walls with the top and bottom walls. The cut outs are formed and function in the manner disclosed in my prior Patent No. 2,559,948, and the articulated tabs which comprise the present invention combine therewith to confine the cylindrical objects within the carton in a novel and highly effective manner.

Some of the objects of the invention have been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of the blank from which the present carton is formed;

Figure 2 is an enlarged elevation of the blank shown in Figure 1 in partially erected position;

Figure 3 is an enlarged isometric view of the assembled blank with cylindrical objects positioned therein;

Figure 4 is an enlarged isometric view of the carton similar to Figure 3 but omitting the cylindrical objects and looking up at the unsealed bottom;

Figure 5 is a vertical sectional view taken along the line 5—5 in Figure 3.

Referring more specifically to the drawings, there will be observed a carton 10 formed from a blank provided with a plurality of transverse score lines 11, 12, 13, 14 and 15. The score lines 11 and 15 define the junctures of a bottom section or bottom flaps 16 with side walls 17 while the score lines 12 and 14 define the junctures of the side walls 17 with a top wall or section 20. One of the bottom flaps 16 may be provided with adhesive A for fastening the bottom flaps together upon the carton being erected and filled. If desired, any other suitable fastening means such as staples may be employed.

Cut-out portions or openings 23 are spaced along each of the score lines 11, 12, 14 and 15, said cut-out portions defining projections or lips 23′ on the top 20 and bottom flaps 16 when the carton 10 is erected to the position shown in Figures 3 and 4. The configuration

of the cut-outs or openings 23 may vary and may be of the type shown in my prior Patent No. 2,559,948. These cut-outs are provided to accommodate a portion of the end edges of cylindrical objects C disposed within the carton 10 in order to restrict end-wise movement of the cylindrical objects C relative to the carton 10.

The transverse score line 13 which bisects the top 20 is provided to facilitate packaging of the carton by the use of automatic machinery such as disclosed in my prior Patent No. 2,603,924, and finger holes 24 are preferably spaced along the score line 13 in such a manner as to coincide with the spaces between adjacent cylindrical objects within the carton. The carton may be provided with a suitable handle if desired.

The structure thus far described is substantially as disclosed in my said prior Patent No. 2,559,948, and it is with this type of carton that the present invention is adapted to be associated. It has been found that although the article retaining apertures disclosed in said Patent No. 2,559,948 are sufficient to confine the contents of the carton under normal conditions, they tend to become ineffective when the carton becomes damp or otherwise misshapen or subjected to excessive stress in such a manner as to dislodge the cylindrical objects C from the openings 23.

To overcome this tendency the present invention provides a plurality of articulated tabs 30 and 30′ which are formed adjacent each of the outermost cut-out portions 23 in the bottom flaps 16 and in the top 20, respectively. The articulated retaining tabs 30 and 30′ are defined at their edges adjacent the cut-out portions 23 by score lines 31, the remainder of each tab being defined by a generally arcuate line of cut 32.

Each of the retaining tabs 30 are adapted to be folded inwardly along the score line 31 to juxtaposed relation with the inner surface of its respective bottom flap 16, while the tabs 30′ are adapted to be positioned in a similar manner adjacent the inner surface of the top 20. The tabs 30 and 30′ are so positioned relative to the endmost cut-outs 23 that when folded in the manner described they will project partially through said cut-outs 23 as clearly shown in Figure 4. Thus, upon the carton 10 subsequently being filled with cylindrical objects C, having a chime, rim or bead R thereon, the tabs 30 and 30′ will engage the rim R of the outermost cylindrical objects C to force the same to protrude slightly through the corresponding aperture 23, thereby tightly wedging or binding the cylindrical objects C within the carton 10.

This wedging or binding action is achieved by means of the free edges of the tabs 30 and 30′ engaging the inner surface of the rims R and constantly urging said rims R outwardly through the openings 23 so that the outer surface of the rims R remain confined within the cut-outs 23 even though the carton is subjected to strains and forces under certain conditions which would otherwise dislodge the rims R from the openings 23.

It has been found that the purpose of the present invention may be achieved by providing retaining tabs on the bottom flaps alone or on the top alone, it not being desirable under all conditions to provide both the tabs 30 and the tabs 30′. Although the article retaining tabs 30 and 30′ which comprise the present invention may be used in combination with apertures of varying configuration from that disclosed at 23, it has been found that the particular configuration of the apertures 23 as disclosed herein is particularly adaptable for use with the tabs 30 and 30′. This is so because the wall or edge of the opening 23 remote from the projection 23′ fits snugly under the chime R and limits vertical movement of the cylindrical article C away from the corresponding tab 30 or 30′.

In order to render the present invention adaptable for use with automatic packaging machinery of the type disclosed in my prior Patent No. 2,603,924, the tabs **30** in the bottom flaps **16** are cut as at **33**, said line of cut **33** extending from the free edge of each tab **30** toward the score line **31**, and terminating in spaced relation therefrom. In this manner the tabs **30** are formed in two sections, one of which is adapted to be fixed to the inner surface of the corresponding bottom flap **16** as by adhesive A thereby tending to keep the tabs **30** in closely spaced relation to the corresponding bottom flaps **16** to prevent the tabs **30** from interfering with the cylindrical objects C as they are positioned within the carton by the use of automatic machinery.

After the carton has been cut and scored to form a blank as shown in Figure 1, the blank may be partially erected into shipping position by first folding the tabs **30** and **30'** inwardly in the manner described and then folding the blank along the transverse score line **13** to the position shown in Figure 2, it being understood that one section on each of the tabs **30** is first secured to its corresponding bottom flap **16**.

When it is subsequently desired to fill the carton, the same is erected into a hood-like attitude as shown in Figure 4 and the cylindrical objects C are pushed upwardly from beneath in such a manner that the beads or rims R thereon extend through the openings **23** and override the tabs **30** and **30'** on the bottom flaps **16** and the top **20** in the manner shown in Figures 3 and 5. The bottom flaps **16** are then closed and secured together as by adhesive A.

There is thus provided a carton for cylindrical articles wherein the article retaining tabs combine with the article receiving apertures to provide an economical and highly effective carton.

In the drawings and specification, there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only, and not for purpose of limitation, the scope of the invention being defined in the claims.

I claim:

1. In an open-ended carton having side, top and bottom walls adapted to receive a plurality of cylindrical articles having a rim on each end edge and said side walls having a plurality of article receiving cut-outs therein adjacent their respective junctures with the top and bottom walls, each of said cut-outs being of a sufficient size to receive at least a portion of a rim of a cylindrical article, the combination of a plurality of retaining tabs each positioned adjacent one of said cut-outs, some of said retaining tabs being hingedly connected to said top wall and some of said retaining tabs being hingedly connected to said bottom wall, each of said tabs being folded inwardly within said carton, and each of said tabs at least partially penetrating said adjacent cut-outs for engagement with the inner side edge of a rim portion of a cylindrical article positioned within said cut-out.

2. In an open-ended carton for carrying a plurality of cylindrical articles each having a rim on each end, said carton having side walls, a top wall and bottom flaps and said side walls having a plurality of cut-outs therein adjacent their junctures with the top wall and respective bottom flaps, each of said cut-outs being of a sufficient size to receive at least a rim portion of a cylindrical article, the combination of a plurality of article retaining tabs hingedly connected to each of said bottom flaps and to said top wall, each of said tabs being positioned adjacent one of said cut-outs and each of said retaining tabs being folded inwardly within said carton, and each of said tabs partially penetrating said adjacent cut-out for engagement with the inner side edge of a rim of a cylindrical article inserted in the cut-out.

3. A structure according to claim 1 wherein the tabs connected to each of said bottom flaps are bifurcated to define two portions on each of said tabs, and one of said portions being secured to the inner surface of its respective bottom flap.

4. In an open-ended carton for carrying a plurality of cylindrical articles having a rim on each end, said carton having side walls, a top wall and bottom flaps, said side walls having spaced cut-outs along their juncture with said top wall and bottom flaps for receiving rim portions of cylindrical articles, the combination of article retaining tabs formed integral with said top wall and with said bottom flaps adjacent some of said cut-outs, said tabs being formed by lines of cut and score lines in said top wall and said bottom flaps, said score lines extending in parallel relation to the side edges of said top wall and bottom flaps and defining one edge of said tabs, the remaining edges of said tabs being defined by lines of cut extending inwardly within said carton relative to said score lines, said tabs being folded inwardly within said carton and portions of the free edges of said tabs at least partially penetrating adjacent cut-outs in said side walls for engagement with the inner side edge of a rim of a cylindrical article to prevent displacement of the article from the carton.

5. A carton for snugly packaging and for carrying in row formation, a plurality of cans or the like having closed tops and bottoms and outturned beaded edges on the top and bottom ends thereof, said carton comprising a continuous strip of foldable sheet material having as integral portions thereof top and bottom sections and side walls connecting said top and bottom sections and extending perpendicular thereto, said side walls extending between transverse fold lines in said continuous strip at top and bottom portions of said carton, said side walls each having a series of similarly spaced slits at their connections with said top and bottom sections, said slits extending transversely of said continuous strip with their ends terminating substantially at said fold lines and extending inwardly short distances from the related fold lines into said side walls at the top and bottom portions thereof, said slits because of the perpendicular folding of said sections and walls along the fold lines forming apertures for receiving a portion of the beaded edges of the cans, said slits also forming carton projecting lips in the continuous portions of the top and bottom section for engagement with the beaded ends of the tops and bottoms of the cans which protrude through said apertures, a plurality of retaining tabs in at least one of said sections and each positioned adjacent one of said apertures and each of said tabs being folded inwardly within said carton and said tabs at least partially penetrating the corresponding apertures for engagement with the inner side edges of the beaded can portions positioned within said apertures to tightly lock the cans therein.

6. A carton according to claim 5 wherein said retaining tabs are positioned to engage only alternate cans.

7. A carton according to claim 5 wherein said retaining tabs are positioned only adjacent the ends of the carton to engage the outermost cans therein.

8. A carton for snugly packaging and for carrying in row formation, a plurality of cans or the like having closed tops and bottoms and outturned beaded edges on the top and bottom ends thereof, said carton comprising a continuous strip of foldable sheet material having as integral portions thereof top and bottom sections and side walls connecting said top and bottom sections and extending perpendicular thereto, said side walls extending between transverse fold lines in said continuous strip at top and bottom portions of said carton, said side walls each having a series of similarly spaced slits at their connections with said top and bottom sections, said slits extending transversely of said continuous strip with their ends terminating substantially at said fold lines and extending inwardly short distances from the related fold

lines into said side walls at the top and bottom portions thereof, said slits because of the perpendicular folding of said sections and walls along the fold lines forming apertures for receiving a portion of the beaded edges of the cans, said slits also forming carton projecting lips in the continuous portions of the top and bottom section for engagement with the beaded ends of the tops and bottoms of the cans which protrude through said apertures, a plurality of retaining tabs in both of said sections and each positioned adjacent one of said apertures, and each of said tabs being folded inwardly within said carton, said tabs partially penetrating the corresponding apertures for engagement with the inner side edges of the beaded can portions positioned within said apertures to tightly lock the cans therein.

9. A carton for snugly packaging and for carrying in row formation, a plurality of cans or the like having closed tops and bottoms and outturned beaded edges on the top and bottom ends thereof, said carton comprising a continuous strip of foldable sheet material having as integral portions thereof top and bottom sections and side walls connecting said top and bottom sections and extending perpendicular thereto, said side walls extending between transverse fold lines in said continuous strip at top and bottom portions of said carton, said side walls each having a series of similarly spaced slits at their connections with said top and bottom sections, said slits extending transversely of said continuous strip with their ends terminating substantially at said fold lines and extending inwardly short distances from the related fold lines into said side walls at the top and bottom portions thereof, said slits because of the perpendicular folding of said sections and walls along the fold lines forming apertures for receiving a portion of the beaded edges of the cans, said slits also forming carton projecting lips in the continuous portions of the top and bottom section for engagement with the beaded ends of the tops and bottoms of the cans which protrude through said apertures, a plurality of retaining tabs in both of said sections and each positioned adjacent the ends of the carton and adjacent one of said apertures and each of said tabs being folded inwardly within said carton, said tabs partially penetrating the corresponding apertures for engagement with the inner side edges of the beaded can portions positioned within said apertures to tightly lock the cans therein.

10. In an open-ended carton having side walls, a top section and a bottom section, said side walls having a plurality of cut-outs therein adjacent their respective junctures with the top and bottom sections, each of said cut-outs being of sufficient size to receive an end portion of a cylindrical article, the combination of a plurality of article retaining tabs hingedly connected to at least one of said sections, each of said tabs being positioned substantially parallel to and lying adjacent the inner surface of said section, each tab having a free end extending at least to the juncture of said section and one of its corresponding side walls and being positioned adjacent and transverse to one of said cut-outs for engagement with an end portion of a cylindrical article positioned within said cut-out.

11. A structure according to claim 10 wherein said article retaining tabs are in said top section.

12. A structure according to claim 10 wherein said article retaining tabs are in said bottom section.

13. In a carton having side walls, a top section and a bottom section, said side walls having a plurality of cut-outs therein adjacent their respective junctures with the top and bottom sections, each of said cut-outs being of a sufficient size to receive end portions of cylindrical articles positioned in the carton, the combination of a plurality of article retaining tabs in at least one of said sections, each tab having a free end adjacent one of said cut-outs for engagement with an end of one of a plurality of cylindrical articles inserted in the carton and the free end of each tab terminating substantially at the juncture of its section with the corresponding side wall.

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