

May 23, 1967

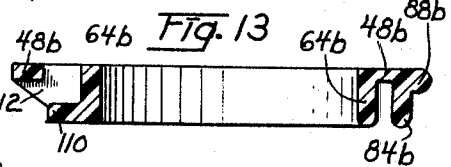
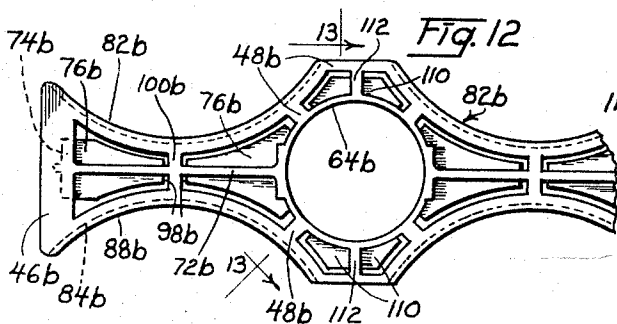
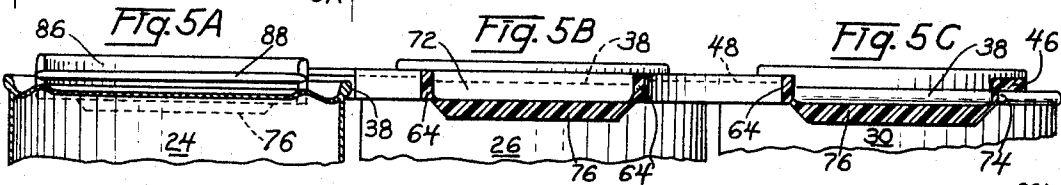
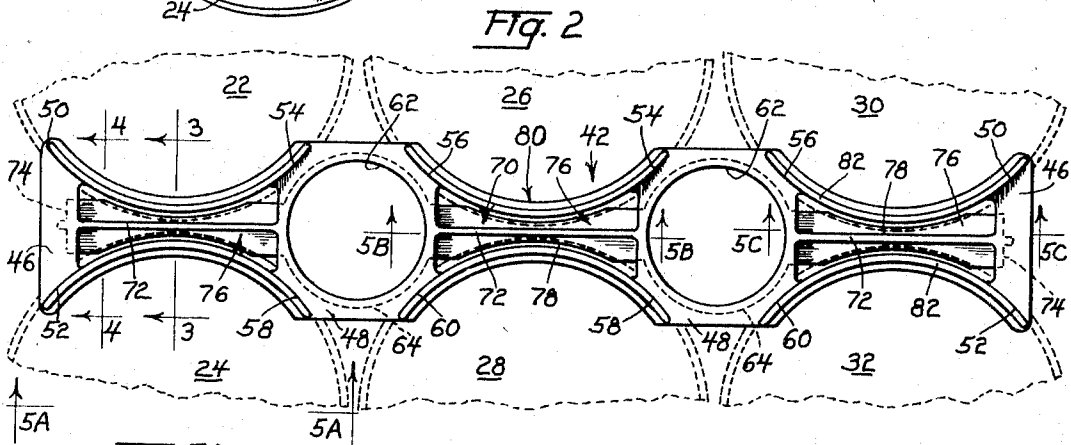
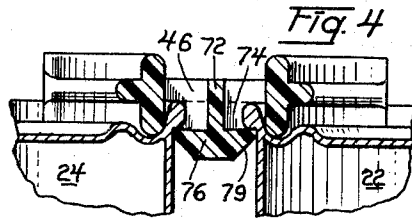
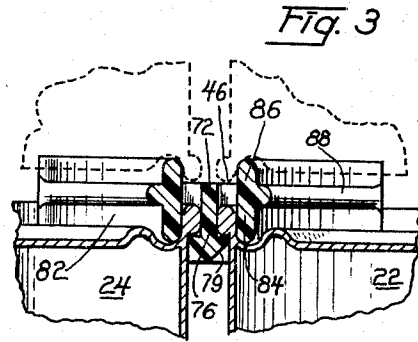
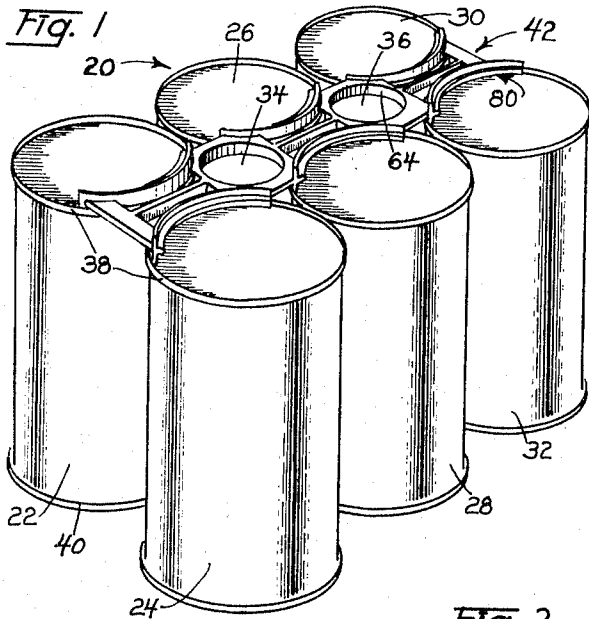
O. J. POUPITCH

3,321,076

CONTAINER CARRIER

Filed Dec. 23, 1963

2 Sheets-Sheet 1



INVENTOR  
Ougljesa Jules Poupitch

BY *Jack R. Helverson*

His Att'y

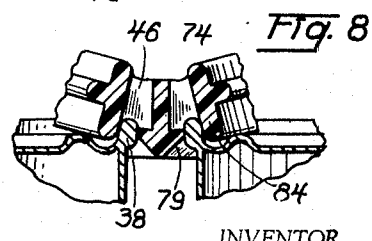
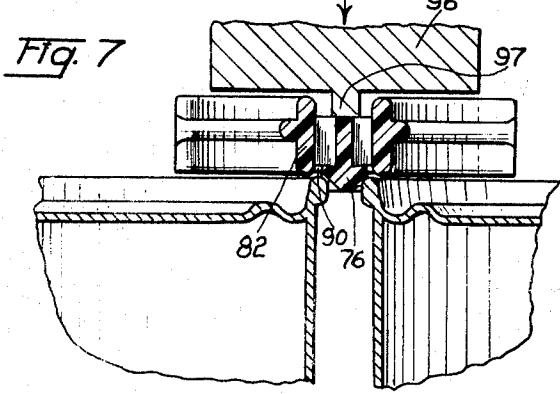
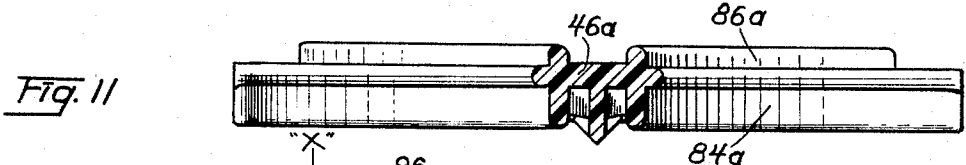
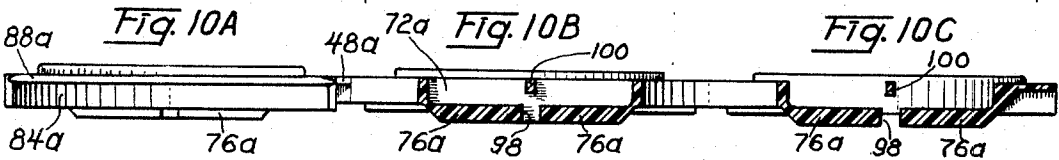
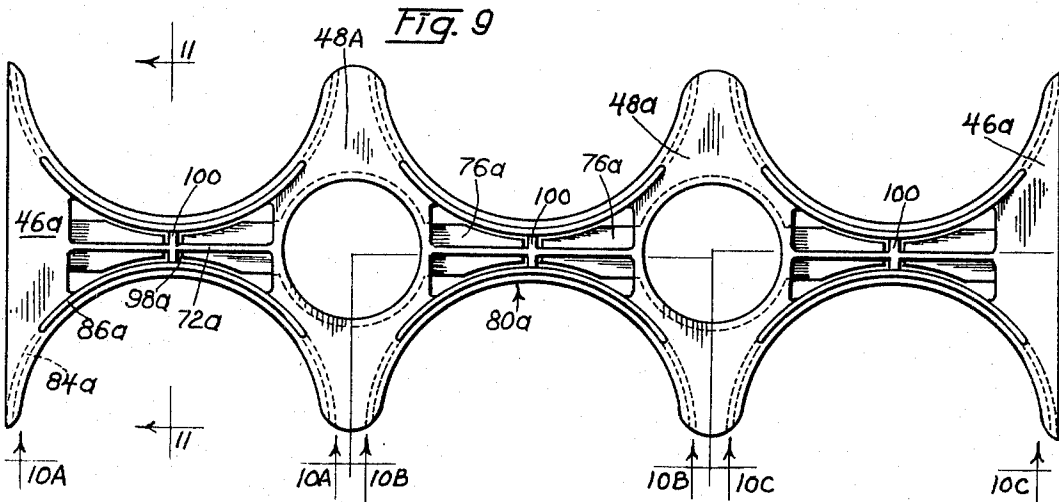
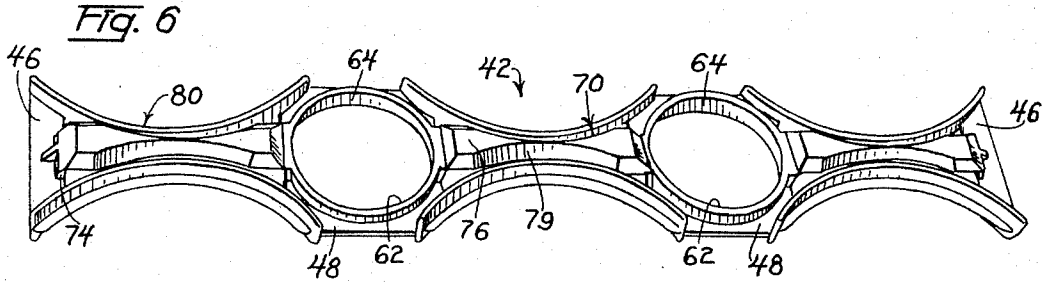
May 23, 1967

O. J. POUPITCH  
CONTAINER CARRIER

3,321,076

Filed Dec. 23, 1963

2 Sheets-Sheet 2



INVENTOR.  
Ougjesa Jules Poupitch  
BY *Jack R. Johnson*  
His Att'y

1

3,321,076

## CONTAINER CARRIER

Oughjesa Jules Poupitch, Itasca, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware

Filed Dec. 23, 1963, Ser. No. 332,730  
16 Claims. (Cl. 206-65)

The present invention relates to a novel carrier for containers and the like, and more particularly, to novel carriers adapted to be applied to end beads or rims of cans such as those commonly used for beverages, food stuffs and the like for retaining the cans in compact, rugged package.

An important object of the present invention is to provide a novel can or container carrier for retaining a plurality of such products in a rugged package adapted to be easily handled or carried. The carrier is a novel clip structure adapted to be easily and economically produced by molding, as for example, from plastic or metallic materials, and adapted to be readily and securely applied to adjacent end rims or beads of a plurality of containers or cans disposed in side by side parallel and substantially abutting relationship.

A more specific object of the present invention is to provide a simple one piece clip having a novel construction so that it is adapted to be connected to adjacent bead or rim portions of a plurality of substantially abutting parallel containers in such a manner that relatively broad portions of the clip securely engage the can rims over large circumferentially positioned areas of the cans, which clip is also constructed so that portions thereof must be temporarily deflected for securely connecting the clip to the cans. Likewise, portions of the clip must be subsequently deflected to permit removal of the cans from the clip.

More specific objects of the present invention are to provide novel clip structures of the above described type which may be readily applied to a plurality of cans disposed in adjacent parallel relationship without substantially disturbing the parallel relationship of the cans and which clips when fully applied to a plurality of cans or the like retain the cans securely in a manner which resists any tendency of the cans to turn or twist relatively to each other or to the clip.

Another object of the present invention is to provide a package including a plurality of cans or the like which are retained together securely only by a clip of the above described type so that the package may be easily handled or carried, transported and stacked with other similar packages without the cans coming apart in an unauthorized manner.

A further object of the present invention is to provide a carrier for the cans including a clip of the above described type which is adapted to be grasped directly by a person desiring to carry cans retained by the clips or adapted to interengage with a separate handle member to be used for carrying the cans.

Yet another object of the present invention is to provide a novel carrier structure including a clip of the above described type which is adapted to facilitate stacking of a plurality of can packages which have been connected by said new clip, the clip having features directed to cooperate with the stacked packages.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawing wherein:

FIG. 1 is a perspective view of a package of cans incorporating a clip of the type contemplated by the present invention;

FIG. 2 is a fragmentary plan view of a package formed in accordance with the present invention wherein a clip is applied to the rims of a plurality of pairs of abutting cans,

2

the cans being shown in phantom so as not to detract from the dip;

FIG. 3 is an enlarged fragmentary sectional view taken along line 3-3 in FIG. 2 and further shows in broken lines the position assumed by a second package of cans when stacked atop the first package;

FIG. 4 is a fragmentary sectional view taken along line 4-4 of FIG. 2;

FIGS. 5A, 5B and 5C are fragmentary elevational views of a single dip, the latter two views being in section, taken along lines 5A-5A, 5B-5B and 5C-5C, respectively, in FIG. 2;

FIG. 6 is a perspective view of the bottom side of a clip of the type contemplated in the present invention;

FIG. 7 is a fragmentary sectional view similar to FIG. 3 showing the clip contemplated by the present invention just prior to assembly with a plurality of cans;

FIG. 8 is a fragmentary sectional view similar to FIG. 7 showing the assembly of the clip contemplated by the present invention with a pair of cans at an intermediate point during the assembly operation;

FIG. 9 is a plan view of a modified form of clip contemplated by the present invention;

FIGS. 10A, 10B and 10C are fragmentary elevational views, the latter two views being in partial section, taken along lines 10A-10A, 10B-10B and 10C-10C, respectively, in FIG. 9;

FIG. 11 is a fragmentary sectional view taken along line 11-11 of FIG. 9;

FIG. 12 is a fragmentary plan view of a further modification of the invention; and

FIG. 13 is a fragmentary section taken along bent line 13-13 of FIG. 12.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a package 20 incorporating features of the present invention is shown in FIG. 1. In the embodiment shown for the purpose of illustrating the present invention, the package includes three pairs of containers 22-24, 26-28 and 30-32, in the instant situation being cans which are disposed in substantially abutting parallel relationship so that the cans 22-24 and 26-28 define a space 34 therebetween and the cans 26-28 and 30-32 define another space 36 therebetween. It will be appreciated that the cans defining these spaces within their areas of substantial abutment are positioned uniformly around central points of the spaces. The containers, if cans, may be of any known construction providing annular upper end rims or beads, all of which are designated by numeral 38, and which project axially and radially beyond the end of the can. Said cans may also be provided with similar annular lower end rims all of which are generally designated by the numeral 40. A carrier or clip member 42 constructed in accordance with the present invention and described fully hereinbelow is applied to the upper end of the cans 22 through 32 for retaining the cans together in a compact rugged package. Referring particularly to FIGS. 106, it is seen that the one piece clip 42 is preferably formed or molded from materials which provide varying characteristics of rigidity of flexibility dependent upon the specific configuration at any given point of the clip in question. The preferred material for a clip of this type is commonly known in the trade as nylon and permits the manufacture of a clip of this type by injection molding. Other materials will be apparent to those skilled in the art.

The clip 42 includes a plurality of web or body means designated 46 and 48 which in the present embodiment are substantially continuous means extending between opposite pairs of cans and adapted to rest atop the rims of said cans but not to project inwardly beyond the radial

3

inner margins of the rims 38. The webs 46 disposed at opposite ends of the clip 42 are generally flat flexible members formed with arcuate margins 50 and 52 having a curvature complementary to the curvature of the can rims and adapted to be positioned in close association with adjacent can rims when the clip is applied to the cans. The central web portions 48 are similarly generally flat flexible members having arcuately disposed margins at what would normally be the corners of the web and generally designated 54-56-58-60, said arcuate margins having a curvature complementary to the curvature of the can rims and adapted to be positioned in close association with adjacent can rims when the clip is applied to the cans. In the present embodiment the webs 48 are provided with apertures 62 and with a depending cylindrical flange 64 which surrounds aperture 62 and reinforces web 48, for purposes best set forth hereinafter.

The clip is further provided with first locking means 70 for underlying the rims 38 and second locking means 80 for embracing the rim and maintaining same in close association with the first locking means. In the present embodiment the first locking means 70 includes vertically disposed ribs 72 which extend between adjacent web means 46-48, 48-48 and 48-46. The ribs 72 are respectively integral with and supported by flanges 64, at the point the ribs join webs 48, and integral with and supported by depending flanges 74 extending downwardly from webs 46. Extending outwardly from opposite sides of each rib 72 are support or shoulder means 76. Each of said shoulders 76 have an arcuate cut-out with a radius of curvature complementary to the curvature of the can rim and the adjoining body of the can, whereby, the shoulder means 76 will underlie the can rim when the clip is applied to the can, and will embrace the rim and adjacent body portion of the can. The under surface of the shoulder means 76 is tapered upwardly and outwardly as at 79 from its lowest point adjacent the longitudinal axis of the shoulder means to assist in the assembly of the cans to the clip, as set forth hereinafter.

The second locking means 80 includes a plurality of strap or beam-like elements 82 which are substantially continuous and curvilinear throughout their extent with a curvature complementary to the curvature of the can rims and adapted to be positioned in close association with the adjacent can rim when the clip is applied to the can. Each of the strap elements 82 extend from integral junctions with the arcuate margins of the web means 46 or 48 respectively. The strap elements include a lower portion 84 which depends from its juncture with the web means and the upper portion 86 which extends upwardly from the juncture with the webs means. A longitudinally extending flange 88 projects from the strap element 82 in a direction away from the juncture with the web means and serves to rigidify and strengthen the strap element by forming in cross section, a beam-like structure.

As can be best seen in FIG. 7, the throat or spacing, generally designated 90, between the shoulder means 76 and the opposing inner surface of strap element 82 is controlled so that it is initially equal to or slightly less than the thickness of the combined lid and wall of the can immediately below the rim 38. Similarly, the lower portion 84 of the strap like member 82 terminates in a plane slightly below the plane passing through shoulder means 76 at its upper surface.

To apply a clip 42 to a plurality of pairs of cans the cans are preferably fed sequentially in pairs into position whereby a clip can be positioned over the cans and an axial force, designated X in FIG. 7, applied through suitable tooling 96, having a centrally located rib or protuberance 97, to force the clip into assembled relationship with the cans. The rims 38 of the cans ride up the tapered or cammed surface 79 until engagement is made with the lower portion 84 of the strap like member 82. At this point the strap elements 82 are moved laterally

4

by the rims causing a flexing of the web elements 46-48, as shown in FIG. 8, until the shoulder means 76 underlies the rim, as shown in FIGS. 3 and 4. At this point the strap elements 82 spring back to their initial position and bring the cans into closer parallel relationship. As best seen in FIGS. 1 and 2, the strap members 82 engage a substantial circumferential extent of the can rims on one side and the shoulder means 76 with their curvilinear cut outs 78 provide a substantial extent of engagement with the under surface of the rim. Thus, a compact rigid package is formed by the association of clip 42 with the cans.

Apertures 62, provide economy of material and also provide means whereby the entire package can be grasped by the ultimate user and carried. Hence, apertures 62 serve, in the present embodiment, as carrying means. It is also possible, although it is not shown, to provide smaller apertures suitably configured for the acceptance of handle means which would extend parallel to but spaced from the clip 42 for use in carrying the package. Handle means of this type are not shown since they are well known in the art.

As was previously indicated the strap element 82 is provided with an upper portion 86 extending above the web means 46-48. As best seen in FIG. 3, the upper portions 86, besides adding to the strength of strap element 82, each serve to engage the inside edge of a rim 40 of a can in a package of cans stacked on top of the original package. Engagement by portions 86 of the rims prevents lateral displacement of the lower ends of the cans and hence, rigidifies the stack.

A modification of the present invention is shown in FIGS. 9-11, wherein similar numerals are utilized to designate similar parts with the addition of the suffix *a*. In this embodiment of the webs 46*a* and 48*a* are increased in size to engage and overlie a greater circumferential extent of the cans. Similarly, the lower portion 84*a* of the strap element 82*a* extends over a greater circumferential portion of the can. The rib 72*a* of the first locking means is continuous throughout its extent between connections to adjacent but opposing web means, but the shoulder means 76*a* is split into two portions by a slot intermediate its extremities. Said slot is generally designated 98, as best seen in FIGS. 10*b* and 10*c*. Directly above slot 98 there is positioned a transverse rib or gusset 100 which interconnects and is integral with adjacent opposed strap means 82*a*. It will be noted that the upper portion 86*a* of strap element 82*a* does not have the same circumferential extent as the lower portion 84*a*. The lower rim of any cans which may be stacked atop a package made of this clip will rest on the web means 46*a*-48*a* and will be engaged by the upper portion 86*a*. Since the sole function of the upper portion 86*a* is to prevent lateral motion of the upper portion of cans, it is not necessary for it to extend completely around webs 48*a*-46*a*. If it should be desired, however, there is no deleterious effect from having these ribs extend outwardly, but, to conserve material, it will function properly in the abbreviated form shown. The operation of this device is substantially identical to the first embodiment disclosed in that the clip is vertically associated with the cans by application of a suitable pressure and a relative movement between the first and second locking means develops the assembly of the clip with a group of cans into a package. Gussets 100 will flex in the same fashion as the web means do during the assembly and disassembly of the cans from the clip and serve to increase the strength of strap means 82 by maintaining the throat or spacing between first and second locking means thereby assisting in retaining pairs of cans in adjacent parallel assembled relationship. The increased area of the web means 46*a* and 48*a* similarly increase the lateral stability of the clip when assembled with cans to form a package.

A third embodiment of the invention is seen in FIGS.

5

12 and 13 wherein the same numerals will be used to designate similar parts with the addition of the suffix *b*. In this embodiment the web 48*b* which covers the void 34*b* between adjacent pairs of cans, has been partially removed to facilitate the molding of auxiliary shoulder means 110. In this instance the backbone of the clip is provided by the annular rings or flanges 64*b* combined and integral with ribs 72*b* plus end webs 46*b*.

The auxiliary shoulder means 110 are coplanar with shoulder means 76*b* and extend laterally out from the outer periphery of flange 64*b*. For additional support to shoulders 110 integral lateral vertical wing walls 112 extend outwardly from flanges 64*b* into engagement with the remnants of web 48*b* as well as to engage and support adjoining margins of adjacent shoulders 110.

This clip is similar to the other two embodiments in that there are webs 46*b* at opposite ends. The shoulder means 76*b* which extend laterally from the rib 72*b* are split intermediate their ends by a slot 98*b* and a small gusset 100*b* is provided intermediate the extremities of adjacent strap means 82*b* for added strength to give positive securement of the cans in assembly with the clip.

In this embodiment, the upper portion 86 has been eliminated from the strap member 82*b* for conservation of materials. The operation of this embodiment is similar to the other embodiments but provides the additional feature of added circumferential engagement with the cans in the package below the rims 38 and the reinforcing of the central web means by lateral wing walls 112.

From the foregoing description, it can be seen that the invention disclosed covers molded plastic clips of an economical one piece nature which when associated with a plurality of cans will form an integrated carryable package that can be toted by the ultimate consumer with a maximum of assurance that the package is not going to become disassembled unintentionally.

The cans, in a given package, can be assembled from the clip by a lateral movement of the base of the can relative to the clip which will torsionally swing out the strap member 82 to open up the throat between the strap member 82 and the shoulder 76 and release the rim from the locking means. Thus, the first and second locking means when properly seated about the rim of a can, fulfill the objects of this invention.

While only three embodiments have been shown to describe this invention it is felt that other embodiments will become apparent to those skilled in the art and it is my intent that I be limited only by the appended claims.

I claim:

1. A one piece molded clip for securely connecting at least a pair of generally cylindrical cans or the like having annular end rims which radially and axially project beyond the can and which have a predetermined thickness and height, said clip including flexible web means projecting between and overlying the rims of adjacent cans but terminating substantially at the inner radial measurement of said rims, first locking means integral with said web means and disposed between said cans and engaging beneath the rims of said cans, and a plurality of second locking means which cooperate with said first locking means and are integral with said web and engage inner surfaces of said can rims, each of said second locking means being curvilinear throughout their extent and adapted to engage a circular inner surface of a can rim with broad surface contact and adapted to extend for substantially the full depth of said can rim, each cooperable pair of said first and second locking means having margins spaced apart and defining a throat narrower than said can rim thickness for grippingly engaging and removably locking cans with respect to said clip.

2. A clip of the type claimed in claim 1 wherein said web means is apertured to provide carrying means so that the clip can be grasped after association with cans to facilitate its use as a carrier device.

3. A clip of the type claimed in claim 1 wherein said

6

first locking means is provided with an arcuate outside surface for embracing the can body and its associated rim and said second locking means being substantially continuous through its extent and of greater arcuate extent than said first locking means.

4. A clip of the type claimed in claim 1 wherein said web means is flexible and said second locking means is substantially rigid in the form of a beam with said web being flexible adjacent its juncture with said second locking means to permit movement of said second locking means relative to said first locking means for assembly or disassembly of the can rims relative to the clip.

5. A package comprising a plurality of pairs of cylindrical cans arranged in two rows in substantially parallel abutting relationship and having radially and axially projecting end rims of circular configuration and of predetermined thickness and height, and a one piece clip applied to said end rims and retaining said cans in the package, said clip including a plurality of web members extending between adjacent pair of cans and substantially traversing spaces between said cans on opposite sides of an area of substantial abutment of the cans and overlying the rims of adjacent cans but terminating substantially at the inner radial measurement of said rims, a plurality of first locking means integral with said webs and disposed between said cans and engaging beneath the rims of said cans, and a plurality of second locking means each being integrally attached at their opposite ends with said webs and engaging inner surfaces of said can rims and respectively cooperating with said first locking means, each of said second locking means being substantially continuous and curvilinear throughout their extent and adapted to engage a circular inner surface of a can rim with broad surface contact and adapted to extend for substantially the full depth of the can rims, each cooperable pair of said first and second locking means having margins spaced apart and defining a throat narrower than said can rim thickness for positively engaging and locking the cans with respect to said clip, each pair of said cooperable first and second locking means being of sufficient arcuate extent so as to substantially continuously engage large segments of the rim for resisting twisting of the cans relative to each other and to the clip.

6. A package of the type claimed in claim 5 wherein carrying means are provided in the web portion of the clip.

7. A package of the type claimed in claim 5 wherein said first locking means includes a vertically disposed rigid rib element with shoulder means laterally projecting in opposite directions from said rib at its lower extremity, said shoulder means being tapered on its under surface to facilitate the guidance of the cans when assembled with the clip.

8. A package of the type claimed in claim 7 wherein each of said second locking means is a substantially rigid beam type member capable of being displaced from its initial position forming the throat with the first locking means by flexing of the resilient web to which it is connected.

9. A device of the type claimed in claim 8 wherein said rigid beam type members each are strap-like elements convex toward one another and having a vertically disposed thin transverse section, a longitudinally disposed reinforcing rib extending outwardly from each strap-like element away from the first locking means, said strap-like elements being connected to said webs at substantially the same plane which contains said ribs whereby said strap-like elements flex about their connection to said webs to permit assembly of the carrier with the containers.

10. A package of the type claimed in claim 7 wherein a plurality of said webs are provided with central apertures and a depending flange surrounding said aperture and reinforcing said web in the vicinity of said aperture.

11. A device of the type claimed in claim 10 wherein said webs include a plurality of means radially extending

in a circumferentially spaced manner from their integral juncture with said depending flange, said second locking means integral with and extending between said last mentioned means on adjacent web means.

12. A device of the type claimed in claim 11 including supplemental shoulder means extending outwardly from said flange and arcuately spaced from said first locking means, wing walls extending outwardly from said flange and supporting said supplemental shoulder means, said first locking means being circumferentially interrupted to provide two or more shoulder segments on each side of said rib and gusset means extending between adjacent second locking means intermediate their extremities.

13. A package comprising at least a pair of cylindrical containers disposed in side-by-side substantially abutting and parallel relationship and having circular radially and axially projecting end rims of predetermined thickness and height, and a one piece clip applied only to said end rims and retaining said containers in the package, said clip including a first locking means disposed between said containers and engaging beneath the rims of said containers and a plurality of second locking means of substantial extent engaging the inner surfaces of said container rims, said first locking means including a vertically disposed rib element and laterally disposed shoulder means having arcuate cut-outs in the shoulder means to accept the cylindrical configuration of the containers, web means traversing the rims of said containers and integrally interconnecting said first and second locking means, said web means extending laterally from said vertically disposed rib element so as to overlie the rims of adjacent containers but not to project further radially inwardly than substantially the limits of the rims, each of said second locking means being curvilinear throughout its extent and engaging a circular inner surface of a container rim with broad surface contact which extends for substantially the full depth of the container rims, said first locking means being provided with curvilinear sur-

faces on opposite sides for engaging the rim of the containers in intimate extensive contact, each cooperable pair of said first and second locking means having margins spaced about and defining a throat narrower than said container rim thickness for positively locking the container with respect to said clip and preventing inadvertent detachment of the containers, said first and second locking means being of sufficient arcuate extent so as to engage substantial portions of each rim for resisting twisting of the containers relative to each other and to the clip.

14. A package as defined in claim 13 wherein each of said second locking means is a curvilinear beam element attached at opposite ends to said web and defining a greater segment of arc than said first locking means, said web being sufficiently flexible to permit movement of said second locking means relative to said first locking means during assembly of the containers into mounted relation in the clip.

15. A package of the type claimed in claim 13 wherein the under surface of said shoulder means is cammed to facilitate assembly of the carrier with the containers.

16. A package of the type claimed in claim 13 wherein said second means are a pair of curvilinear strap-like members each being contoured to cooperate substantially throughout its length with the inner surface of an adjacent container rim.

#### References Cited by the Examiner

##### UNITED STATES PATENTS

2,815,855	12/1957	Fisher	206—65
3,022,888	2/1962	Brunsing	206—65
3,134,485	5/1964	Bonkowski et al.	206—65
3,184,260	5/1965	Horvath	206—65
3,206,019	9/1965	Curry et al.	206—65

THERON E. CONDON, *Primary Examiner*.

MARTHA L. RICE, *Examiner*.