The present invention relates to novel can carrier devices, and more particularly to novel can carrier or packaging clips adapted to be applied to annular beads at the periphery of cans and the like for retaining a plurality of cans in assembled relationship.

The present invention contemplates a novel clip structure adapted to be applied to end rims or beads of four or more adjacent disposed cans or the like. Previously suggested clip structures capable of engaging rims or beads of four cans have been constructed so that each can is engaged in an identical manner with the cans arranged so that the clip structure disposed therebetween is engageable with a limited peripheral extent of between areas of substantial abutment of the cans. While such previously clip structures are capable of providing satisfactory results in most instances, it is an important object of the present invention to provide a novel clip structure having improved holding power so that a more rugged package of at least four cans or the like may be provided.

A more specific object of the present invention is to provide a novel one-piece sheet material clip member adapted to be applied to at least four adjacent cans or the like in a manner so that the clip engages certain of said cans along a substantially greater circumferential extent than previously suggested clips so as to improve the holding power of the clip structure and the ruggedness of a can package provided thereby.

Another more specific object of the present invention is to provide a novel clip structure of the type mentioned above which may be readily modified for application to either four, five, six or seven adjacent disposed cans or the like.

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

Fig. 1 is a fragmentary perspective view showing a can package including a clip structure incorporating the features of the present invention and four adjacent disposed cans;

Fig. 2 is an enlarged fragmentary sectional view taken along line 2—2 in Fig. 1;

Fig. 3 is an enlarged fragmentary sectional view taken along line 3—3 in Fig. 1;

Fig. 4 is a plan view showing the novel clip structure of Fig. 1 in solid lines and further shown, in broken lines, the manner in which flanges portions of the clip structure extend laterally before they are crimped over rims or end beads of the cans;

Fig. 5 is a fragmentary perspective view showing a modified clip structure incorporating the features of the present invention applied to five cans; and

Fig. 6 is a fragmentary perspective view showing a further modified embodiment of the present invention which is adapted selectively to be applied to either six or seven cans or the like.

Referring now more specifically to the drawings where-in like parts are designated by the same numerals throughout the various figures, a clip structure 10 incorporating the features of the present invention is shown in Figs. 1—4. The clip structure is formed from a single piece of sheet material, preferably sheet metal, and is adapted to be applied to pairs of cans 12—14 and 16—18 arranged in the manner shown in Fig. 1 and having an end rim or bead 20. It is to be noted that the cans 12 and 14 are disposed in closely adjacent but slightly spaced parallel relationship while the cans 16 and 18 of the other pair are spaced substantially from each other or in other words the cans 16 and 18 are disposed at opposite sides of and closely adjacent to the cans 12 and 14.

The clip 10 is provided with an elongated central body portion 22 having opposite longitudinal side margins 24 and 26 which are adapted to project beneath the rims of the cans 12 and 14 in the manner shown best in Fig. 2 and which are curved so as to be complementary to the side surfaces of these cans. As shown in Fig. 3 opposite end margins 30 and 32 of the body portion are respectively adapted to project beneath the rims of the cans 16 and 18, and these end margins are also provided with a curvature complementary to the curvature of the sidewalls of the cans. The side margins 24 and 26 are respectively provided with reversely folded abutment portions 34 and 36 throughout their entire lengths and the end margins are provided with similar reversely folded abutment portions 38 and 40, which abutment portions are preferably folded back substantially against the body portion 22 and serve to rigidify the margins of the body portion and to engage beneath the rims of the cans. Upstanding sections or walls 42 and 44 extend from integral junctions with the abutment portions 34 and 36 and are curved for conforming with the upstanding peripheral surfaces of the rims of the cans 12 and 14, and similar upstanding walls or sections 46 and 48 extend from integral junctions with the abutment portions 38 and 40 for engagement with the peripheral surfaces of the rims of cans 16 and 18. Flanges 50, 52, 54 and 56 initially extend laterally outwardly as shown in broken lines from the upstanding walls 42, 44, 46 and 48 respectively. These flanges are adapted to overlie the rims of the cans and the cramped downwardly for engagement with the inner surfaces of the can rims in the manner shown. When the flanges are cramped around the can rims as shown best in Figs. 2 and 3, restricted throats are provided between the free edges of the flanges and the abutment sections engaging beneath the rims so that the cans cannot be removed from the package until the flanges have been flexed away from the abutment sections to open the throats sufficiently to permit the rims to pass therethrough.

It is to be particularly noted that the clip member margins 24 and 26 and the can rim engaging elements of the clip associated therewith extend continuously between the cans 12 and 14 and extend for substantially greater circumferential portions of the cans 12 and 14 than the circumferential portions of the cans 16 and 18 along which the corresponding elements of the clip at the end margins 30 and 32 extend. Thus, it will be noted that the cans 12 and 14 will be retained by the clip structure more securely than the cans 16 and 18 as a result of the greater engagement of the clip with the cans 12 and 14, and this improves the strength and ruggedness of the entire package. Apertures 58 and 60 are provided adjacent opposite ends of the body portion 22, which apertures may be utilized for receiving ends of a handle device, not shown, and preferably the margins of the apertures are reinforced by annular beads 62 and 64.

In Fig. 5 there is shown a modified form of the present invention which is similar to the structure described above as indicated by the application of the identical numerals to corresponding elements. The clip structure 10a is identical to the clip structure described above except that it is provided with
an oblique extension 66 so that the clip is adapted to be applied to a fifth can 68. It will be appreciated that the extension 66 is formed by extending the margins 26 and 32 of the body portion and also the can rim engaging elements 27 and 33 and that the clip member is provided with another end margin 70 and elements corresponding to the abutment section 40, the upstanding wall 48, and the flange 56 for engaging the rim of the can 68. The numeral 72 is applied to the flange portion which corresponds with the above described flange portion 56. If desired, an additional aperture 74 is provided in the extension of the central body section. It will be appreciated that not only is this embodiment adapted for application to five cans, but also the extent of engagement with the can 14a is substantially increased for further rigidifying the entire clip structure when applied to the cans and for improving the ruggedness of the package.

Fig. 6 shows another embodiment of the present invention which is similar to the structure described above as indicated by the application of identical reference numerals with the suffix "b" added to corresponding elements. In this embodiment the clip structure is provided with additional extensions 75, 76, 77 and 78 similar to the above described extension 66 so that the resulting clip structure 105 is a continuous annular device and is adapted to be applied to two additional cans 79 and 80. In embodiments associated with these margins and that the clip member is provided with another end margin 70 and elements corresponding to the abutment section 40, the upstanding wall 48, and the flange 56 for engaging the rim of the can 68. The numeral 72 is applied to the flange portion which corresponds with the above described flange portion 56. If desired, an additional aperture 74 is provided in the extension of the central body section. It will be appreciated that not only is this embodiment adapted for application to five cans, but also the extent of engagement with the can 14a is substantially increased for further rigidifying the entire clip structure when applied to the cans and for improving the ruggedness of the package.

While the preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. A can package comprising at least four cylindrical cans, each having an end rim which projects radially beyond the side wall thereof and axially beyond a closed end thereof, said cans including a first pair of closely adjacent cans having slightly spaced apart side walls and end rims and a second pair of relatively widely spaced cans respectively disposed at opposite sides of said first pair and closely adjacent to each can of said first pair and having side walls and end rims of said cans spaced apart from the side walls and end rims of the cans of said first pair, and a one-piece sheet material clip disposed between said cans and interconnected with the rims thereof, said clip including an elongated body portion disposed axially inwardly of free axially outer edges of the said rims, opposite axially disposed side marginal portions of said body portion engaging the side walls of the cans of said first pair and having the rims thereof and opposite axially disposed and marginal portions of said body portion engaging the side walls of the cans of said second pair and the rims thereof, said clip also including laterally extending thin axially disposed outer flange portions extending upwardly from said marginal portions and over the rims and having arcuate wall portions fitted against inner sides of the rims thus locking the cans against separation and enabling the cans to be handled as a unit, the outermost portions of said clip being in substantially the same plane as the axially outer edges of the associated rims.

2. A can package, as defined in claim 1, which includes a fifth can disposed closely adjacent to one can of said first pair and also one can of said second pair, and having a side wall slightly spaced from the side walls of said last-mentioned cans of said first and second pairs said clip including an extension extending between said last mentioned cans of the first and second pairs, said extension having opposite side marginal portions and an end marginal portion engaging the side walls of said last mentioned cans of said first and second pairs and said fifth can behind the radially projecting rims thereof, said clip also including additional laterally extending outer flange portions associated with said extension extending over the rims and having arcuate wall portions fitted against inner sides of the rims of said last mentioned cans of the first and second pairs and said fifth can.

3. A can package, as defined in claim 1, which includes a plurality of additional cans closely adjacent to and arranged about one can of said first pair and having side walls slightly spaced from the side wall of said one can and including with the remaining cans to provide a ring around said one can of the first pair, said clip including a plurality of annularly arranged extensions respectively disposed between each can of said second pair and each of said additional cans, each of said extensions presenting marginal portions engaging side walls of adjacent cans behind the radially projecting rims thereof, and said clip including additional laterally extending outer flanges associated with each of said extensions and extending over the rims and having arcuate wall portions fitted against inner sides of the rims of adjacent cans.

4. A can package comprising six annularly disposed cylindrical cans having an end rim which projects radially beyond the sidewall thereof and which projects axially beyond the end thereof, adjacent side walls of adjacent cans having areas of closest proximity to each other disposed on a common circle, and a piece rigid substantially annular sheet material clip disposed between the cans and substantially entirely within said circle and interconnected with the rims of said cans, said clip having a body portion inwardly of free axially outermost edges of said rims and presenting circumferentially spaced laterally disposed reversely folded double thickness marginal portions engaging the sidewalls of each can behind the radially projecting rim thereof, said clip also including laterally extending outer flange portions extending outwardly from said marginal portions and over the rims and having arcuate wall portions fitted against inner sides of the rims and locking the cans against separation and enabling the cans to be handled as a unit, the outermost portions of said clip being in substantially the same plane as the axially faced edges of the associated rims.

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