

June 18, 1963

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CHANNEL-SHAPED CARRIER FOR CANS HAVING EXTERNAL  
BEADS AND FOR OTHER CONTAINERS HAVING  
SHOULDERS PROXIMATE THEIR ENDS

3,094,210

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4 Sheets-Sheet 1

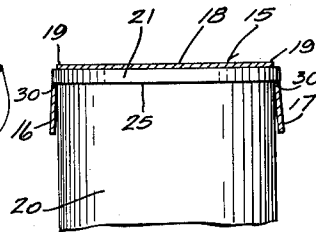
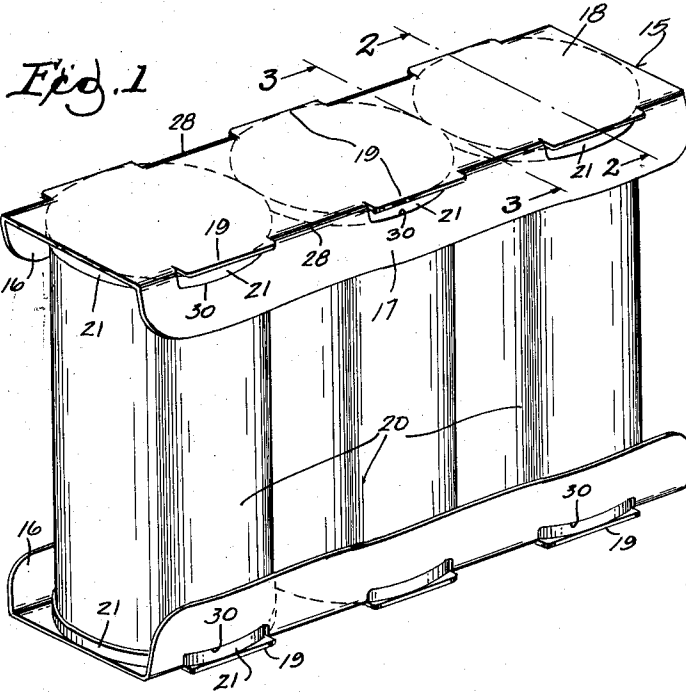


Fig. 2

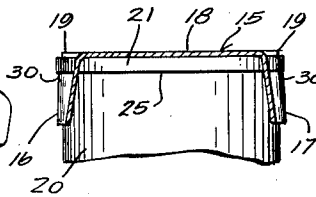


Fig. 3

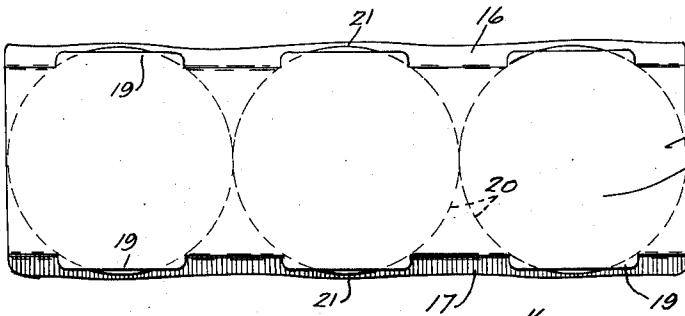


Fig. 4

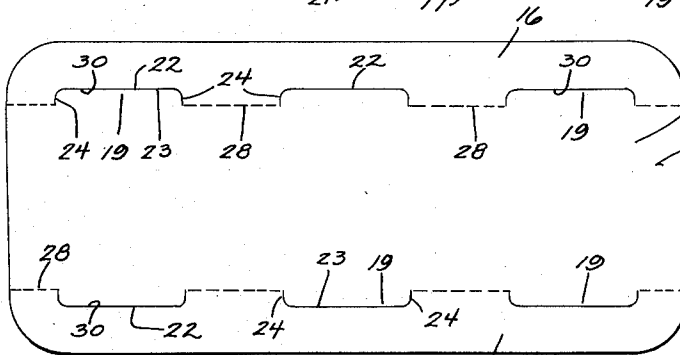


Fig. 5

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4 Sheets-Sheet 2

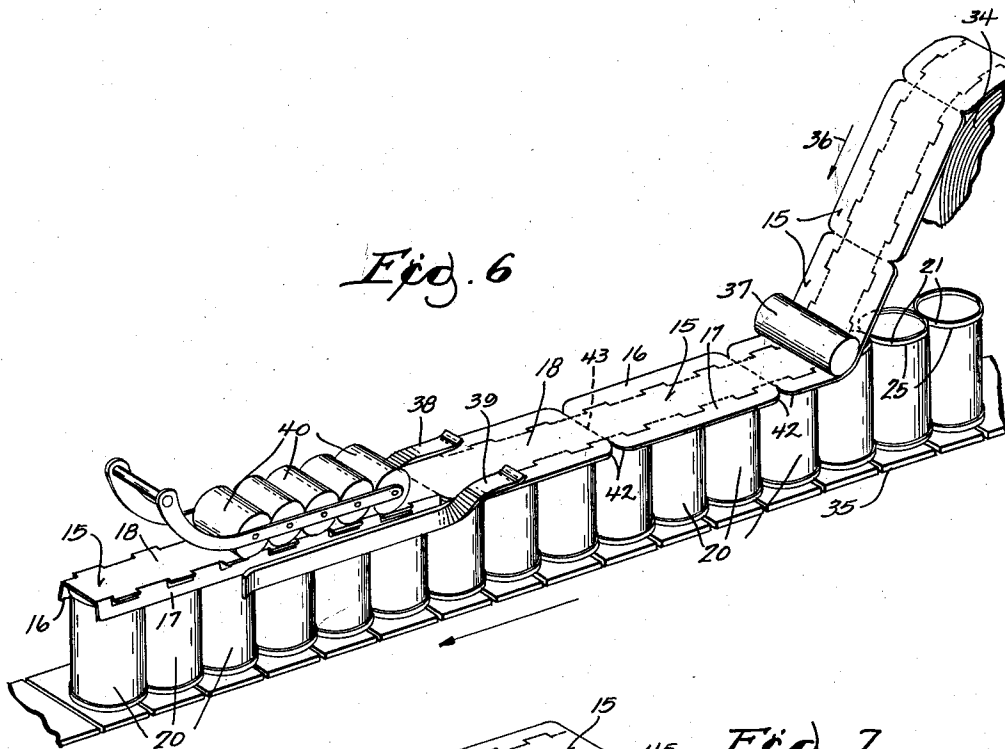


Fig. 6

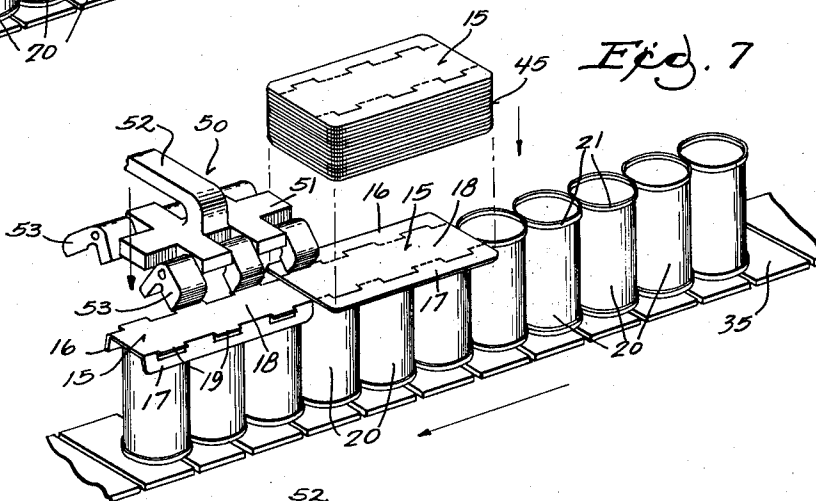


Fig. 7

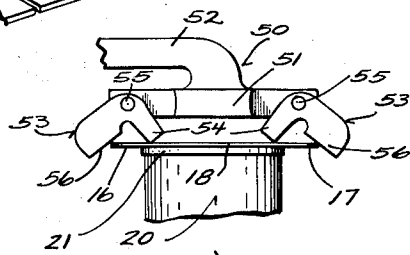


Fig. 8

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Fig. 9

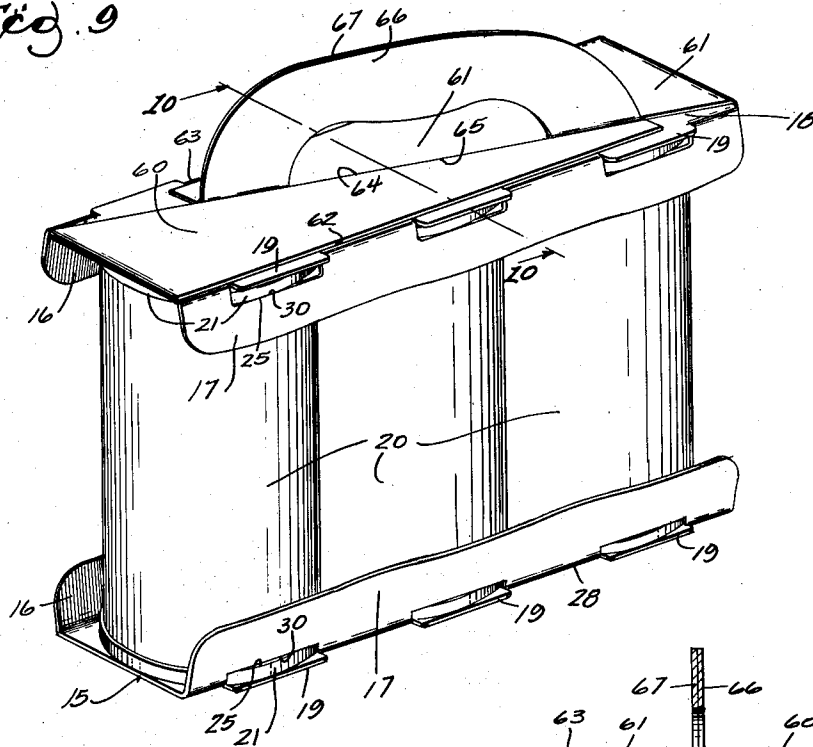


Fig. 10

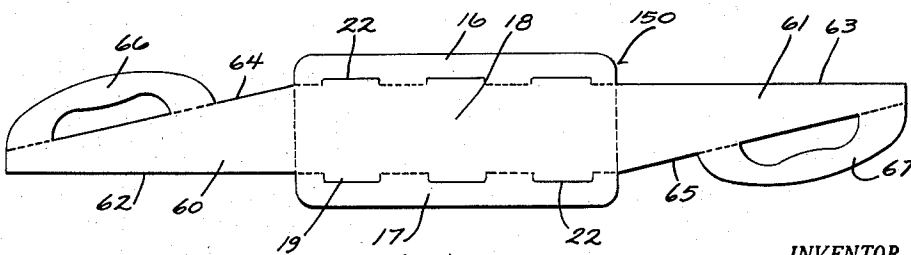
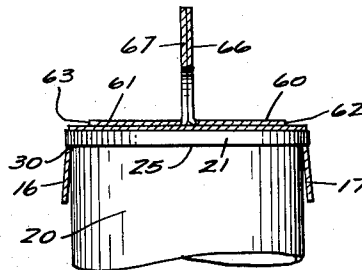


Fig. 11

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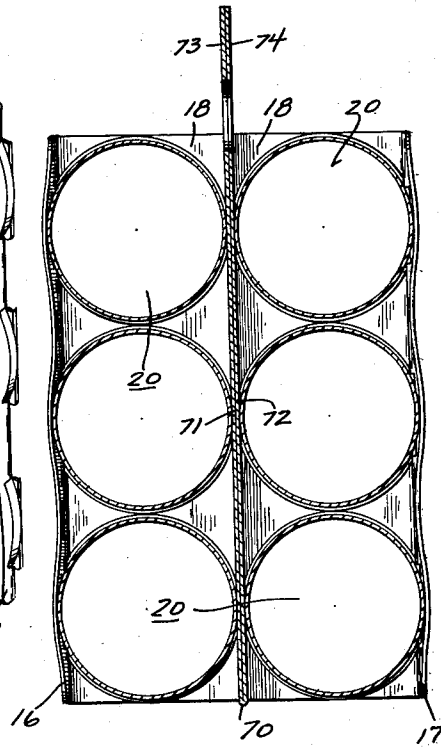
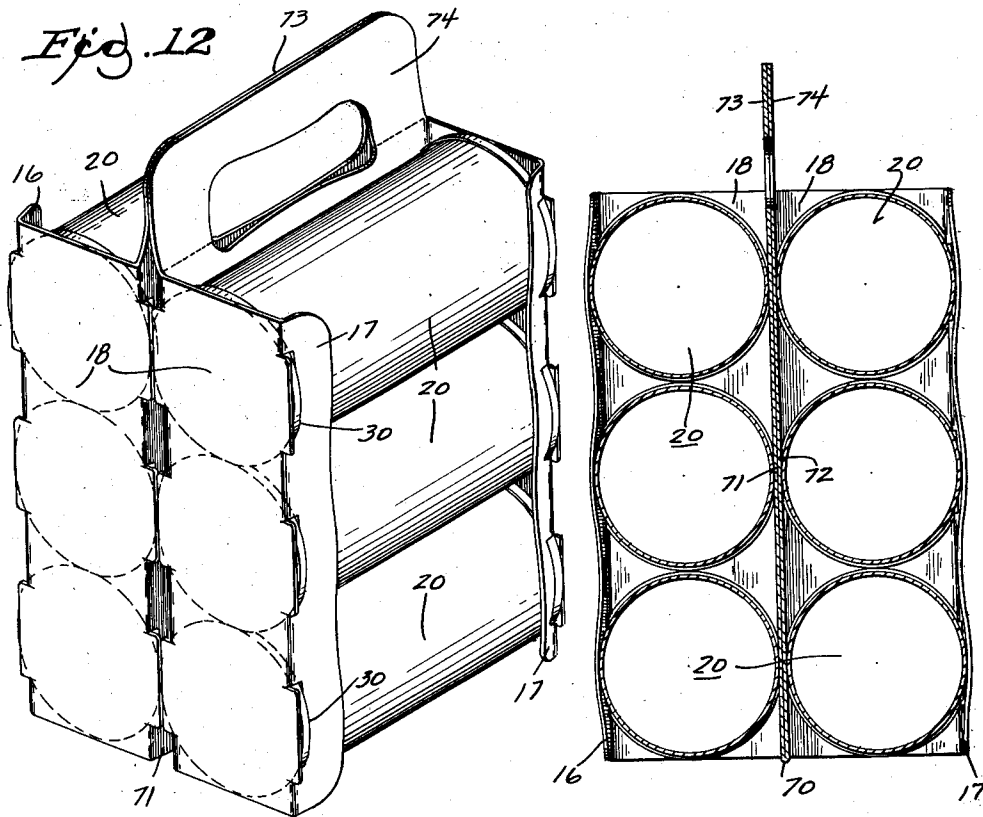
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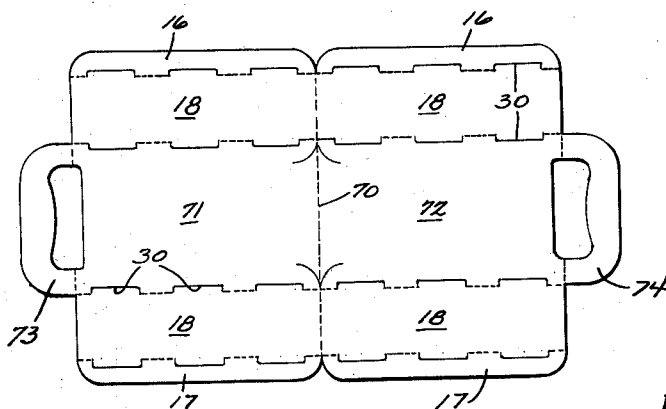
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*Fig. 13*



*Fig. 14*

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**CHANNEL-SHAPED CARRIER FOR CANS HAVING EXTERNAL BEADS AND FOR OTHER CONTAINERS HAVING SHOULDERS PROXIMATE THEIR ENDS**

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6 Claims. (Cl. 206—65)

This invention relates to a channel-shaped carrier for cans having external beads, and for other containers having shoulders proximate their ends.

The invention seeks to provide secure connection and support for a plurality of shouldered containers with a minimum expense for paperboard and for assembly of the containers and carrier. In all of the various embodiments illustrated, a strip of stock such as plastic or paperboard is die cut or otherwise slit, without removal of any stock, to provide two opposed C-shaped slits for each container, the slits accommodating the beads or shoulders at the top or bottom of the container, as the case may be. The portions of the strip in which the slits are formed have score lines spaced at a distance which is less than the diameter of the container top or bottom and are adapted to be folded downwardly to constitute flanges having margins at the respective slits which are bowed outwardly by the greater width of the container and are marginally rectilinear and held by the resilience of the material with their cut margins engaged with the container shoulder. Hereby the end of the container is clamped to the web portion of the strip which engages the ends of the containers between the flanges.

In the case of a can of the type for which the invention is adapted, such shoulders are provided at the top and bottom by the beads, and the transverse or arm portions of the C-shaped slits correspond substantially in length to the thickness of the beads so that the portion of the paperboard strip intermediate the slits lies against the top or bottom of the can, being held firmly thereto by the snapped engagement of the free margin of the flange at the opposite side of the bead.

The invention also contemplates special means for applying strips of the character above referred to to the containers, one arrangement involving folding devices of the type known to the industry as "plows" for folding down the margins of the strip to provide the shoulders which engage the beads, at the same time holding the central portion of the slit firmly to the ends of the containers. According to this method, the containers are moving in continuous series and the blank comprises a continuous strip from which units can subsequently be severed after the strip has been applied to the container. In another method, the strips are pre-cut blanks, each of which is applied individually to a series of containers. In this instance, also, the containers may be moving in endless series but will preferably have a dwell to permit the application of the blanks unless the blank applying means is operated with a shuttle-like movement such that it moves with the advance of the containers at the same time that it moves toward the containers to connect the successive strips thereto.

In other embodiments of the mechanical structure, I disclose blanks and carriers which are provided with handles, one such arrangement having carrier means which is duplex, including the handle, the various sections being severable into smaller units, each provided with its own end.

In the drawings:

FIG. 1 is a view in perspective showing an assemblage of containers provided at both top and bottom with connecting and carrying strips embodying the invention, it being understood that only one such strip is required.

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FIG. 2 is a fragmentary detail view taken in section on the line 2—2 of FIG. 1.

FIG. 3 is a fragmentary detail view taken in section on the line 3—3 of FIG. 1.

FIG. 4 is a view in plan of the assemblage shown in FIG. 1.

FIG. 5 is a plan view of the blank used with the carrier of FIGS. 1 to 4.

FIG. 6 is a view diagrammatically illustrating the method and apparatus for applying to a continuous row of containers a continuous carrier strip which may subsequently be subdivided into units, each comprising a plurality of containers.

FIG. 7 is a view diagrammatically illustrating the method and apparatus for applying pre-cut carrier strips individually, each such set being applied to a plurality of successive containers.

FIG. 8 is a detail view in front elevation of the pressure applying head shown in FIG. 7, a can and carrier strip being fragmentarily illustrated.

FIG. 9 is an enlarged view in perspective of a modified embodiment of the invention.

FIG. 10 is a fragmentary detail view taken in section on the line 10—10 of FIG. 9.

FIG. 11 is a plan view of the blank from which the top carrier shown in FIG. 9 is made.

FIG. 12 is a view in perspective showing a pack comprising a modified carrier embodiment.

FIG. 13 is a view taken in transverse section through the pack shown in FIG. 12.

FIG. 14 is a plan view on a reduced scale showing the blank used in the pack of FIG. 12 and FIG. 13.

All that is required to provide connection as well as support for a plurality of containers such as beaded cans or other containers having the requisite shoulder is a single carrier strip of the type shown at 15 in FIGS. 1 to 8. This strip may be made of paperboard or plastic or even of metal but the preferred material is paperboard. FIG. 5 shows the carrier 15 with its side flanges 16 and 17 in the plane of the central panel 18, this view representing the blank prior to its application to the container 20. The central panel is of sufficient length to extend across the ends of the containers which are to be connected or supported. At appropriate intervals to engage diametrically opposite side portions of the container beads 21, the carrier strip 15 is provided with slits 22 which are opposed and may be characterized as C-shaped. Each such slit includes a generally rectilinear portion 23 merging curvilinearly with two short arm portions 24. The slits 22 are so elongated that the tabs 19 do not engage within the chimes of the cans but lie across them, it being immaterial, therefore, whether or not the cans have chimes, as long as they have the necessary shoulders. The length of the arm portions desirably corresponds substantially with the distance between the shoulder 25 and the end of the can or other container, the shoulder being, in this case, the lower margin of the bead 21.

The carrier strip 15 is provided with substantially parallel fold lines 28 represented by the scoring best shown in FIG. 5. These fold lines are interrupted by the C-shaped slits, the slits being disposed almost entirely outside of the fold lines 28, with the ends of their short arm portions 24 terminating at or immediately adjacent the fold lines. In order to require that the cut margins outside of slits 22 will snap beneath the container bead or shoulder and maintain the flanges under considerable tension, the spacing between the fold lines is slightly less than the diameter of the container.

As a result of the construction described, the carrier 15 may be applied in the following manner: When the blank is superimposed on the row of containers 20, its

central panel 18 will lie across the registering tops of the containers and the flanges 16 and 17 will project laterally. When the flanges are now folded downwardly at opposite sides of the container to the position shown in FIGS. 1, 2 and 3, the slit margins 30 formed by the rectilinear portions 23 of the slit 22 will snap beneath the beads 21 to engage the shoulder 25, thereby holding the panel portion 18 securely to the end of the container. Intimate engagement of the margins 30 with the shoulder 25 is assured by reason of the fact that the width of the container exceeds the spacing between the fold lines 28, thus causing a portion of each of the flanges 16 and 17 beneath the cut margin 30 to bulge outwardly in the manner clearly illustrated in FIGS. 1 and 3. Between containers, the fold lines 28 hold the flanges 16 and 17 at a spacing which is less than the overall width of the end of the containers.

Provided the cut margins 30 are substantially rectilinear and the offset thereof from fold lines 28 represents quite accurately the thickness of the bead of the container of the shoulder 25 of the container end, a surprisingly secure connection is effected simply by holding the strip to the tops of the row of containers and folding downwardly the flanges 16 and 17 to make the channeled carrier as disclosed.

In FIG. 6 I have illustrated a conveyor 35 upon which containers 20 are moving continuously in "endless" series. From a suitable source 34 an "endless" series of joined strips 15 is being fed downwardly as indicated by the arrow 36. A roller 37 guides the series of connected carrier strips into position across the tops of the row of containers so that they move in register with the containers parallel to the conveyor 35.

In the course of such movement, the margins 16 and 17 are engaged by "plows" 38, 39 which fold the flanges downwardly to engage their slit edges 30 with the shoulders 25 provided by the beads 21 as already described. At the same time, the panel portions 18 are desirably held snugly to the ends of the containers by a series of rollers 40.

By way of exemplifying the preferred arrangement, and without limitation, the connected carrier strips 15 are shown die cut or scored to provide corner portions 42 and an intervening row of perforations 43 upon which the several sections between such corner portions can be separated to make multi-container units such as those shown in FIG. 1.

FIG. 7 shows a similar conveyor 35 supporting an "endless" series of beaded containers 20. However, in this instance, the carrier strips 15 are pre-cut and assembled in a stack such as that shown at 45. As the cans or other containers 20 are advanced with the conveyor 35, an exposed carrier strip of the pack 45 will be deposited upon successive groups of containers 20 and will be fastened in place by folding their flanges down as already described. This can be done manually or it can be done with various types of pressure-applying and folding heads such as the one illustrated at 50 in FIGS. 7 and 8. If the conveyor 35 is in continuous movement, it will be necessary that the head move with it during the interval in which the head is conducting the folding operation. In that event, the head will return upwardly away from the conveyor and rearwardly to its original position following each operation. If the conveyor 35 operates intermittently, the head can reciprocate vertically to engage one of the carrier strips with a row of containers in each dwell of the conveyor.

As shown, the head 50 comprises a pressure-applying plate 51 supported on arm 52 and provided along its opposite margins with pivoted dogs 53 engageable with the projecting flanges 16 and 17 at diametrically opposite points beside each of the containers 20. As the head descends over the containers, the arms 54 of the respective dogs will engage the central panel 18 of the carrier 50. This will cause the dogs to pivot about their

respective fulcrums 55, whereby the ends 56 of the dog will engage the flanges 16 and 17 to force these downwardly beside the containers thereby snapping the die cut margins 30 of the side flanges into engagement beneath the shoulders of the containers.

The application of the carrier strip has been described with reference to but one end of each of a row of containers. A single such carrier strip is entirely adequate not only to hold the containers securely together in a connected row but also to provide support. Even if the user grasps only one such carrier strip, he can use this as a means of carrying the supported containers and there will be no danger whatever of their being dislodged to fall from the grasp of the carrier.

However, the lower ends of the containers may be separated due to the flexibility of the carrier strip and if it be desired that the containers be held rigidly against pivotal movement, as well as being supported for carrying, the application of the strip as above described may be duplicated across the lower ends of the containers, assuming that these also are beaded, as is the case in a conventional can.

The carrier may also be designed to be applied with equal success to the shoulders formed by lids or caps of jars or bottles. In all cases the horizontal edge formed by the slit should engage the shoulder at a level such that the top or bottom beyond the shoulder is clamped against the central web of the carrier.

In the construction shown in FIGS. 9 to 11, the carrier strip 150 is identical with that already described so far as its container-engaging panel 18 and die cut and scored flanges 16 and 17 are concerned. However, to facilitate carrying, the central panel 18 has complementary extensions 60 and 61 from its opposite ends. These have their opposite side margins 62 and 63 substantially parallel and spaced by the width of the panel 18. Their other margins 64, 65 extend diagonally across the top of panel 18 when the extensions 60 and 61 are folded upon the panel 18 as shown in FIG. 9 and secured to the panel by any desired means such as gluing or stapling. From these angular margins 64 and 65 project handles 66 and 67 which register with each other to provide a composite diagonal handle when the parts are folded into position as shown in FIG. 9 and FIG. 10.

The strip 15 which optionally is used to connect the lower ends of the container 20 is identical to that previously described.

FIGS. 12 to 14 show another embodiment in which four carriers are made in unitary connection. Each of the four carriers comprises panels 18 as already described. The panels 18 are integrally connected end to end in two pairs joined upon a common fold line 70 which also joins the panels 71 and 72. Panels 71 and 72 connect pairs of panels 18 in lieu of the side flanges 16 of the carriers of one pair and the side flanges 17 of the carriers of the other pair. The panels 71, 72 not only provide the side flanges but also provide a center partition between two tiers of containers 20. They have handle extensions 73, 74 which register when the panels 71, 72 are in face contact as shown in FIGS. 12 and 13.

As illustrated, by way of exemplification and not by way of limitation, the assembly comprises a total of six cans, three in each tier. The handles 73 and 74 may be grasped concurrently to carry the six cans. However, it will be observed that it is only necessary to unfold and sever the two sections upon the fold line 70 to produce two carriers, each having three cans, and each having its own handle. In this particular embodiment, the cans are carried on their sides instead of being supported vertically from their tops. However, the connection of the cans with the carriers is equally rigid in spite of the fact that the slit margins 30 in the embodiment shown in FIGS. 12 and 13 do not carry the weight of the cans but merely lock the shoulder bead securely against the panel 18.

While the devices illustrated show my carrier as constituting means for connecting and carrying containers in multiples of three, it is to be understood that carriers are equally applicable to containers in any appropriate number. I have successfully demonstrated the carrier for two cans, three cans, four cans, six cans and more.

I claim:

1. A device for connecting and carrying containers disposed side by side in a row and provided with shoulders spaced from their ends, said device comprising a panel portion engageable with the ends of the several containers, and flange portions having free margins remote from said panel portion, said flange portions being laterally engageable with the sides of the several containers and foldably connected with the panel portion upon fold lines which are generally parallel and spaced by a distance less than the width of the ends of the containers, the said device having generally C-shaped slits interrupting the fold lines in pairs and opposed to each other across the locations at which the panel portion will rest upon the tops of the containers, each of said slits separating from the flange portions aforesaid tabs in the plane of the panel portion and projecting oppositely therefrom, each of said slits further defining on its respective flange portion a cut edge which is substantially rectilinear and offset from the respective fold line by a distance substantially equalling the spacing between the shoulder and the end of a container with which the device is to be used, whereby, when said device is applied to the containers of such a row, the panel will be substantially continuous across the ends of the containers, with the tabs projecting laterally across the sides of said containers, said cut edges having confining engagement with the shoulders of the respective containers when the flange portions are folded downwardly to positions approximately at right angles to the panel portion, the respective flange portions being stiff and free of fold lines from the fold lines first mentioned outwardly to the free margins of the flange portions, said flange portions being adapted to be deformed curvilinearly outwardly around side portions of the respective containers and be stiffened by such curvilinear deformation and held in supporting relation to said shoulders.

2. The device of claim 1 in which the panel portion is of a width corresponding to the width of the container with which it is used whereby to be adapted to span a single row of containers.

3. The device of claim 1 in which said panel is provided with complementary extensions from its ends having generally diagonal margins provided with handles, said extensions having folded integral connection with the panel and being superimposed thereon with their said handles in registry diagonally of the panel.

4. A can carrier pack comprising a row of cans provided with shoulders spaced from their ends and a carrier for confining and supporting said cans, said carrier comprising a panel portion extending substantially completely across the ends of the cans in pressure engagement therewith, and flange portions integral with the panel portion and having free margins remote from said panel portion and folded downwardly therefrom upon fold lines which are generally parallel and spaced by a distance less than the width of the ends of the cans, said fold lines being interrupted by C-shaped slits with which the carrier is provided, said slits being disposed in pairs centered with respect to the respective cans and forming tabs which project laterally across the ends of respective cans, said slits defining on adjacent respective portions of said flanges cut edges which are substantially rectilinear and offset

from the adjacent fold lines by a distance substantially equal to the spacing between the shoulder and the end of the respective can, the flange portions being stiff and free of fold lines outwardly from the fold lines first mentioned to the free margins of said flange portions and the cut edges being held by the stiffness of said flange portions in tight clamping engagement with the shoulders of the cans irrespective of inward pressure on said flanges, said flanges having arcuately deformed portions in pressure engagement with the sides of the respective cans beneath their said shoulders, portions of said flanges between the cans of said row being at a spacing less than the width of the cans.

5. The can pack set forth in claim 4 in further combination with a like carrier connected with the opposite ends of the respective cans, the combined action of said carriers maintaining the cans in parallelism.

6. A can carrier pack comprising two adjacent rows of cans all provided with shoulders spaced from their ends and a carrier for confining and supporting said cans, said carrier comprising panel portions extending substantially completely across the ends of cans in their respective rows and in pressure engagement therewith, a web folded upon itself between the ends of said rows and disposed between the rows of cans and having handle portions projecting beyond said rows, said web including lateral portions integral with the sides of the four separate panel portions aforesaid and constituting flanges of the said panel portions, the panel portions having free-margined flange portions outside of the rows of cans and remote from the folded web, said flange portions and lateral web portions being folded against opposite sides of the cans of the respective rows upon fold lines connecting them with said panel portions and which fold lines are generally parallel to each other and spaced by a distance less than the width of the ends of the cans and interrupted by C-shaped slits with which the carrier is provided, said slits being disposed in pairs centered with respect to the respective cans and forming tabs which project laterally across the ends of the respective cans, the slits defining cut edges which are substantially rectilinear and offset from the adjacent fold lines by a distance substantially equal to the spacing between the shoulder and the end of the respective can, the flange portions and lateral web portions aforesaid being stiff and free of fold lines in areas thereof disposed outwardly from the fold lines first mentioned, and said cut edges being held by the stiffness of the material in tight clamping engagement with the shoulders of the cans irrespective of inward pressure on said flanges, said flanges having arcuately deformed portions in pressure engagement with the sides of the respective cans beneath their said shoulder portions, the opposing portions of said flanges and web portions between the cans of each row being at a spacing less than the width of respective cans in said row.

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