

SPECIFICATION

Improvements in or relating to a carrier

5 THIS INVENTION relates to a carrier and more particularly to a carrier for a container.

The prior art is replete with devices which facilitate the manual lifting and carrying of open containers, closed boxes and similar

10 articles. The devices usually include a hand grip section borne by a support element which is affixed to the article. Support elements, which are either rigid or flexible, are attached to articles by various rigid, movable or detach-
15 able connection means.

An example of a permanently fixed lifting and carrying means is the handle structure rigidly cantilevered from the side of a common domestic cooking utensil. An example of
20 a movable handle structure is the common type of handle which is pivotally connected to a bucket or milk pail. The ends of the handle, usually a relatively thin rigid member, are pivotally connected to the container at diamet-
25 rically opposed positions. For the comfort of the user, a hand grip is often located near the middle of the handle.

Detachable lifting and carrying means, which may be more generally classified as
30 carriers, are also familiar. One proposed type of detachable carrier utilises an endless member as the support element. The endless member engages the container and is restrained from upward movement either by the diver-
35 gent side walls of the container or some type of abutment means. A flexible member extends over the top of the container and is attached at the ends thereof to the endless member. Rigid endless members and rigid
40 clamp type members are also used to support a hand grip extending from one side of the container. Carriers have also been proposed in which a pair of loops encircle a container in
45 spaced vertical relationship. A strap or other hand grip element extends between the loops.

The advantages of a detachable carrier over a permanently attached lifting device are many and obvious. A detachable carrier is
50 usable with a number of containers or other articles. A flexible endless member can accommodate articles that are variously shaped within predetermined limits. The removability of the carrier facilitates storage of the container since surface irregularities and overall
55 dimensions are reduced.

Detachable carriers however, are not without certain inherent limitations. While adequately providing for the lifting and carrying
60 of the container, the carrier frequently interferes with proper access to the container and accordingly must be removed when access to the container is desired, and then replaced. This is often the case with carriers used for
65 containers or boxes provided with lids or other closure members. Also, the common relatively

thin band-like handles can result in laceration or other injury or discomfort to the hands, especially when a relatively heavy load is carried.

70 Carriers which have been heretofore proposed do not generally provide adequate stability. This is especially true in the case of flat bottomed containers carrying a solid load of non-uniform density or a load which can shift
75 positions within the container. Further, the prior proposed carriers are not satisfactorily compatible with certain types of containers, such as those moulded or formed of resilient and yieldable plastics materials and having
80 common domestic application for the preparation, storage and transportation of foodstuffs for example. The relatively rigid support members create distortion and strain in the natu-
85 rally yieldable walls of the container and relatively thin support members have the exceedingly deleterious effect of cracking or cutting the walls.

It is an object of the invention to provide a carrier which may readily and conveniently be
90 attached to or removed from a selected article and in which the above mentioned disadvantages are reduced or obviated.

According to the invention there is provided a carrier for carrying a container, and compris-
95 ing an endless support band shaped to encircle a container, a first flexible strap means extending from a first portion of said support band, a second flexible strap means extending from a second portion of said support band
100 opposed to said first portion, said first and second strap means having strap-joining means whereby said first and second strap means can be joined to form a composite connecting member extending between said
105 first and second portions, said strap joining means including a first connection means provided on said first strap means and a first mating connection means provided on second strap means, said first connection means and
110 said first mating connection means being so inter-engageable as to resist separation of said first and second strap means under a force in said composite connecting member tending to extend the composite connecting member,
115 said strap joining means also including a second connection means provided on said second strap means and spaced from said first mating connection means and second mating connection means provided on said first strap
120 means and spaced from said first connection means, said second connection means and said second mating connection means being so interengageable as to resist separation of said first and second strap means under a
125 force tending to extend the composite connecting member, the arrangement being such that the first and second connection means are both engaged with their respective mating connection means when the first and second
130 strap means are joined by the strap joining

means, said connection means and the respective mating connection means being readily disengageable from one another to allow separation of said first and second strap means.

In order that the invention may be more readily understood and so that further features may be appreciated, the invention will now be described by way of example and with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of a carrier in accordance with the present invention as it would appear when engaged with a container, the container being shown in dashed outline;

Figure 2 is an end elevation view of the carrier and container of Fig. 1;

Figure 3 is a top plan view of the carrier of Fig. 1;

Figure 4 is a plan view of the carrier shown in Fig. 1 as it would appear when in an unstressed position;

Figure 5 is a side view of the carrier as shown in Fig. 4;

Figure 6 is a part cut-away vertical sectional view of the carrier as shown in Fig. 4 taken along the line 6-6;

Figure 7 is a view generally corresponding to the view of Fig. 5 but showing the carrier in a partially stressed position;

Figure 8 is an enlarged part cut-away vertical sectional view of the carrier taken along the line 8-8 of Fig. 3;

Figure 9 is an enlarged vertical sectional view taken along the line 9-9 of Fig. 7, illustrating the handle structure of the carrier;

Figure 10 is a part cut-away plan view of the handle structure as illustrated in Fig. 9;

Figure 11 is an enlarged vertical sectional view of part of the handle structure taken along the line 11-11 of Fig. 10; and

Figure 12 is a vertical sectional view of a strap of the carrier taken along the line 12-12 of Fig. 8.

Referring to the drawings a container 20 (shown in broken outline in Figs. 1 and 2) includes a bottom 22, and a side wall 21 defining a top opening. The side wall 21 extends upwardly and slightly outwardly from the periphery of the bottom 22 and is provided at its upper edge with a peripheral flange 26 which extends outwardly from the container 20 and has an under surface 27. A closure member 23 fits over the open top of the container 20.

A carrier 30 is detachably combined with the container 20 to form a tote kit whereby as may be seen from Figs. 1 and 2, the carrier 30 is arranged for lifting and carrying the container 20.

Referring more specifically to Figs. 3 and 4, it may be seen that the carrier 30 comprises a support band 31 which is sized and shaped to encircle the container 20 below flange 26.

The support band 31 is circular in cross

section and includes four distinct portions, namely side portions 32 and 33 and transverse portions 34 and 35. The portions 32, 33, 34 and 35 define a generally rectangular shape which corresponds with the shape of the container 20.

It will of course be appreciated that containers of many shapes and sizes may be provided with carriers in accordance with the invention and it will thus be apparent that, depending on the type of container to be carried the support band 31 may assume one of many alternative shapes, such as circular, square or triangular.

Various cross section configurations of the support band 31 are contemplated. The circular cross section as illustrated, however, is considered to be compatible with containers fabricated from plastics compositions or other materials which are susceptible to cutting, chipping or abrasion.

A first strap means comprises a pair of spaced apart parallel flexible straps 38 and 39 which extend from the side portion 32 of the support band 30. The straps 38 and 39, respectively, are each affixed by one end 40, 41 to side portion 32 at spaced apart positions. The opposite ends 42 and 43, of the straps 38, 39 respectively, are attached to a handle element 55 as will be described more fully below. A second similar strap means comprises a pair of straps 46, 47 which extend from the side portion 33 of the support band 30 and are each attached thereto at spaced apart positions by one end 48, 49 respectively. The straps 46 and 47 extend from the side portion 33 in spaced apart substantially parallel arrangement and their other ends 50 and 51 respectively are attached to another handle element 62.

As may be seen from Fig. 4 the end 40 of the strap 38 is attached to the side portion 32 at a point directly opposite the point at which the end 48 of the strap 46 is attached to the side portion 33. Similarly, the ends 41 and 49 of the straps 39 and 47, respectively, are attached at directly opposite positions to their respective side portions 32, 33.

An elongate handle element 55 is attached as mentioned above to the straps 38, 39 and has a first longitudinal side 56 directed toward the straps 38 and 39, and a second substantially parallel longitudinal side 57 directed away from these straps. As may be seen from Fig. 10 the ends 42 and 43 of the straps 38 and 39 respectively are affixed to opposite ends of the first side 56. The handle element 55 also comprises at each end an end wall 58, 59 extending between the two sides 56, 57.

An elongate complementary handle element 62 of similar configuration to the handle element 55 is attached to the straps 46 and 47 and includes a first longitudinal side 63 directed towards strap members 46 and 47, a

parallel longitudinal side 64 and first and second end walls 65 and 66.

As illustrated in Figs. 5 and 6, the carrier 30 lies generally in a single plane when in an unstressed condition whilst the handle element 55 and complementary handle element 62 are similar structures they are attached to the respective flexible straps in such a way that one handle element protrudes from the plane in which the unstressed carrier lies, in one direction, whereas the other handle element protrudes from the plane in the opposite direction, the orientation of one of the handle elements being upside down relative to the orientation of the other.

Describing the carrier in more detail, the handle element 55 has a bottom surface 69 and a top surface 70. Complementary handle element 62 includes top surface 71 and bottom surface 72. The terms "top" and "bottom" refer to the carrier 30 when in the orientation shown in Fig. 5.

Referring now to Fig. 6 it may be seen that the bottom surface 69 and first side 56 of the handle member 55 meet to form a generally V-shaped edge 75 extending between the straps 38 and 39. While various means of forming a generally V-shaped edge will readily occur to those skilled in the art, it is preferred that the side 56 extends upwardly at an acute angle with the bottom surface 69. The lower edge of the second side 57 of the handle element 55 is provided with an elongate outwardly protruding portion forming part of a lip 76 the remainder of which extends downwardly from said outwardly protruding portion at an acute angle to the surface 69. The lip 76 has a length which is slightly less than the spacing between the straps of either pair of straps 38, 39 or 46, 47, and terminates at each end with a first shoulder 77 and a second shoulder 78.

Similarly the complementary handle element 62 has a generally V-shaped edge 79 formed along the junction of the top surface 71 of the handle element 62 and the first side 63 and extending between the straps 46 and 47. An elongate lip 80 extends upwardly from the side 64 at an acute angle to the top surface 71, and terminates at opposite ends with shoulders 81, 82. The length of the elongate lip 80 is slightly less than the spacing between straps 38 and 39.

It is contemplated that various materials may be used for the fabrication of the carrier 30 and it is envisaged that the carrier 30 may be integrally moulded from a resilient plastics material such as for example a suitable polymer or co-polymer. It will be appreciated that various suitable materials will readily occur to those skilled in the fabrication of plastics articles.

Although it is intended that the carrier 30 be formed of a resilient material, it is desired that the handle structure be relatively rigid. In

the present embodiment the desired rigidity of the handle elements 55, 62 is obtained as a result of the configuration in which the elements 55, 62 are moulded. As may be seen from the handle element 55 illustrated in Fig. 11, the sides 56 and 57 and end walls 58 and 59 are panels which converge upwardly to the top surface 70 of the handle element 55 which is defined by a top panel 85.

Transverse ribs 86 are integrally formed with the handle element 55 and extend downwardly from the top panel 85 and between sides 56 and 57. Further reinforcement is provided by a reinforcing head 87 extending around the top surface 70. The angular disposition of the lip 76 adds even further rigidity.

It should also be mentioned that in this embodiment the support band 31 is relatively rigid as a result of its relatively thick cross section. However the straps 38, 39, 46 and 47 are readily bendable between the positions illustrated in Figs. 5 and 7. Bending of the several strap members about axes perpendicular to the plane of Fig. 4 is restricted by fabricating the several straps with a cross section as shown in Fig. 12. Each strap 38, 39, 46 and 47 has a relatively thin flat elongate central section 90 bounded along either side by generally cylindrical reinforcing beads 88. The cross section of the reinforcing beads 88 is substantially less than the cross section of the support band 31.

A pair of retention tabs 89 extend inwardly from the support band 31 in the plane thereof, one tab extending from the transverse portion 34 and the other tab extending from the transverse portion 35. In order to engage the carrier 30 with the container 20, the support band 31 is urged upwardly around the side walls 21 of the container 20 to abut the under surface 27 of the peripheral flange 26. During this motion, the tabs 89 are deflected downwardly and thus when the support band 31 is in position tend to press against the side wall 21 so as to retain the support band 31 in position and prevent inadvertent disengagement of the support band 31.

When the support band 31 is engaged with the container 20, the carrier 30 assumes an unstressed position, the various parts thereof lying substantially in a single plane as illustrated in Figs. 4 and 5. The closure member 23 is readily removed and replaced and convenient access is provided to the interior of the container 20. When it is desired to use the carrier 30 to carry the container 20 the straps 38 and 39 and 46 and 47 are lifted upwardly and bent inwardly, so that the straps are deformed as illustrated in Fig. 7. The complementary handle element 62 is passed above and slightly beyond the handle element 55 and then the bottom surface 69 of the handle element 55 and the top surface 71 of the complementary handle element 62

are brought together. This can be readily accomplished if the user holds the handle element 55 and complementary handle element 62 between the thumb and the forefinger of one hand. At the relaxation of manual pressure, the resilient strap members 38 and 39 and 46 and 47 will attempt to assume the unstressed position. The edge 75 is then urged into engagement with the lip 80 and concurrently, the edge 79 is urged into engagement with the lip 76, the surfaces 69 and 71 thus being retained in juxtaposition and the handle structure being completed.

It will be appreciated that the elongate rigid handle structure is conveniently held by the user and provides a hand grip of sufficient size in relation to the size of the container to enable the container to be carried in a stable manner even if the distribution of the contents in the container 20 is non-uniform. Further stability is provided by the arrangement of the four straps 38, 39, 46 and 47 relatively close to the respective ends of the side portions 32, 33 of the support band 31. Shifting of the handle element 55 relative to the complementary handle element 62 is limited by the abutment of the shoulder 77 of lip 76 against the strap 46 and the abutment of the shoulder 78 against the strap 47. Similarly, the lip 80 is retained between the straps 38 and 39 by shoulders 81 and 82 respectively. The handle element 55 and the complementary handle element 62 may readily be separated to allow access to the inside of the container, by urging the elements diagonally apart by forefinger and thumb pressure. Thereafter, the resiliency of the straps will tend to return the carrier 30 to the unstressed position. Thus, ready access to the container 20 is provided without the necessity of removing carrier 30.

Various changes and modifications in the device herein chosen for purposes of illustration will readily occur to those skilled in the art. For example, while each of the elements has been shown as having a preferred workable cross-section, other cross-sections providing comparable results are anticipated. Similarly, the edge and lip engagement means as described have equivalents among other male-female connections.

Whilst the carrier has been described in connection with a container of a corresponding size it will be appreciated that a carrier in accordance with the invention could be utilised to carry a variety of articles having various sizes.

CLAIMS

1. A carrier for carrying a container, and comprising an endless support band shaped to encircle a container, a first flexible strap means extending from a first portion of said support band, a second flexible strap means extending from a second portion of said support band opposed to said first portion, said

first and second strap means having strap-joining means whereby said first and second strap means can be joined to form a composite connecting member extending between said first and second portions, said strap joining means including a first connection means provided on said first strap means and a first mating connection means provided on said second strap means, said first connection means and said first mating connection means being so inter-engageable as to resist separation of said first and second strap means under a force in said composite connecting member tending to extend the composite connecting member, said strap joining means also including a second connection means provided on said second strap means and spaced from said first mating connection means and second mating connection means provided on said first strap means and spaced from said first connection means, said second connection means and said second mating connection means being so interengageable as to resist separation of said first and second strap means under a force tending to extend the composite connecting member, the arrangement being such that the first and second connection means are both engaged with their respective mating connection means when the first and second strap means are joined by the strap joining means, said connection means and the respective mating connection means being readily disengageable from one another to allow separation of said first and second strap means.

2. A carrier according to claim 1 wherein said connection means and mating connection means are provided proximate the ends of the respective said strap means.

3. A carrier according to claim 1 or claim 2 wherein each said connection means includes a substantially rigid first elongate member extending transverse of said first or second flexible strap means respectively and defining a first elongate edge, and wherein each said mating connection means includes a substantially rigid second elongate member extending transverse of said first or second flexible strap means respectively, and being provided with a lip, the lip of each said second elongate member being detachably engageable with said first edge of each said first elongate member.

4. A carrier according to claim 3 wherein the connection means and mating connection means provided on each said strap means extend in substantially parallel spaced relationship to one another.

5. A carrier according to claim 3 or 4 wherein the connection means and mating connection means provided on each said strap means form part of a handle element, the arrangement being such that when said connection means and mating connection means are engaged, said handle elements form a

are brought together. This can be readily accomplished if the user holds the handle element 55 and complementary handle element 62 between the thumb and the forefinger of one hand. At the relaxation of manual pressure, the resilient strap members 38 and 39 and 46 and 47 will attempt to assume the unstressed position. The edge 75 is then urged into engagement with the lip 80 and concurrently, the edge 79 is urged into engagement with the lip 76, the surfaces 69 and 71 thus being retained in juxtaposition and the handle structure being completed.

It will be appreciated that the elongate rigid handle structure is conveniently held by the user and provides a hand grip of sufficient size in relation to the size of the container to enable the container to be carried in a stable manner even if the distribution of the contents in the container 20 is non-uniform. Further stability is provided by the arrangement of the four straps 38, 39, 46 and 47 relatively close to the respective ends of the side portions 32, 33 of the support band 31. Shifting of the handle element 55 relative to the complementary handle element 62 is limited by the abutment of the shoulder 77 of lip 76 against the strap 46 and the abutment of the shoulder 78 against the strap 47. Similarly, the lip 80 is retained between the straps 38 and 39 by shoulders 81 and 82 respectively. The handle element 55 and the complementary handle element 62 may readily be separated to allow access to the inside of the container, by urging the elements diagonally apart by forefinger and thumb pressure. Thereafter, the resiliency of the straps will tend to return the carrier 30 to the unstressed position. Thus, ready access to the container 20 is provided without the necessity of removing carrier 30.

Various changes and modifications in the device herein chosen for purposes of illustration will readily occur to those skilled in the art. For example, while each of the elements has been shown as having a preferred workable cross-section, other cross-sections providing compatible results are anticipated. Similarly, the edge and lip engagement means as described have equivalents among other male-female connections.

Whilst the carrier has been described in connection with a container of a corresponding size it will be appreciated that a carrier in accordance with the invention could be utilised to carry a variety of articles having various sizes.

CLAIMS

1. A carrier for carrying a container, and comprising an endless support band shaped to encircle a container, a first flexible strap means extending from a first portion of said support band, a second flexible strap means extending from a second portion of said support band opposed to said first portion, said

first and second strap means having strap-joining means whereby said first and second strap means can be joined to form a composite connecting member extending between said first and second portions, said strap joining means including a first connection means provided on said first strap means and a first mating connection means provided on said second strap means, said first connection means and said first mating connection means being so inter-engageable as to resist separation of said first and second strap means under a force in said composite connecting member tending to extend the composite connecting member, said strap joining means also including a second connection means provided on said second strap means and spaced from said first mating connection means and second mating connection means provided on said first strap means and spaced from said first connection means, said second connection means and said second mating connection means being so interengageable as to resist separation of said first and second strap means under a force tending to extend the composite connecting member, the arrangement being such that the first and second connection means are both engaged with their respective mating connection means when the first and second strap means are joined by the strap joining means, said connection means and the respective mating connection means being readily disengageable from one another to allow separation of said first and second strap means.

2. A carrier according to claim 1 wherein said connection means and mating connection means are provided proximate the ends of the respective said strap means.

3. A carrier according to claim 1 or claim 2 wherein each said connection means includes a substantially rigid first elongate member extending transverse of said first or second flexible strap means respectively and defining a first elongate edge, and wherein each said mating connection means includes a substantially rigid second elongate member extending transverse of said first or second flexible strap means respectively, and being provided with a lip, the lip of each said second elongate member being detachably engageable with said first edge of each said first elongate member.

4. A carrier according to claim 3 wherein the connection means and mating connection means provided on each said strap means extend in substantially parallel spaced relationship to one another.

5. A carrier according to claim 3 or 4 wherein the connection means and mating connection means provided on each said strap means form part of a handle element, the arrangement being such that when said connection means and mating connection means are engaged, said handle elements form a



handle assembly to facilitate carrying of the carrier.

6. A carrier according to claim 5 wherein each said handle element comprises a first and a second said elongate member, each said handle element being integrally formed and further comprising end walls and a top panel connecting said elongate members.

7. A carrier according to claim 6 wherein said first and second elongate members of each said handle element are inclined towards one another and said lip of each handle element extends in a plane substantially parallel with a plane in which extends said first elongate member of said handle element.

8. A carrier according to any one of claims 1 to 7 wherein when said connection means and mating connection means are engaged at least one of said flexible strap means is resiliently biased in a direction away from the other of said flexible strap means to urge said connection means and mating connection means relative to one another in a direction to maintain engagement therebetween.

9. A carrier according to any of claims 1 to 8 wherein said first flexible strap means includes a first pair of elongate straps extending from spaced positions along said support band and having respective ends adjoining said first connection means at spaced apart positions, and said second flexible strap means includes a second pair of elongate straps extending from spaced positions along said support band and having respective ends adjoining said second connection means at spaced apart positions.

10. A carrier according to claim 9 wherein the respective ends of said first pair of elongate straps are spaced apart along said first connection means a sufficient distance to receive said first mating connection means therebetween and the respective ends of said second pair of elongate straps are spaced apart along said second connection means a sufficient distance to receive said second mating connection means therebetween.

11. A carrier according to claim 9 or claim 10 wherein said first pair of elongate straps are parallel, and said second pair of elongate straps are parallel and each strap of said first pair of elongate straps is longitudinally aligned with a respective strap of said second pair of elongate straps.

12. A carrier according to any one of the preceding claims wherein said support band is provided with retention means for frictionally engaging an item to be carried by said carrier.

13. A carrier according to claim 12 wherein said retention means comprises a pair of opposed inwardly extending resilient protruberances, said protruberances each being spaced intermediate said first and said second flexible strap means.

14. A carrier according to any one of the preceding claims wherein said support band is

resiliently deformable.

15. A carrier according to any one of the preceding claims wherein said carrier lies substantially in a single plane when in an unstressed condition.

16. A carrier according to claim 15 wherein the connection means and mating connection means provided on one said strap means protrude in one direction out of said single plane and the connection means and mating connection means provided on the other said strap means protrude in the opposite direction out of said single plane, when said carrier is in an unstressed condition.

17. A carrier according to any one of the preceding claims in combination with a container, said container comprising a bottom, a peripheral side wall and an outwardly directed flange extending from the upper periphery of said side wall, said flange being adapted to engage said support band thereby to retain said band against upward movement relative to said container, thereby to facilitate the carrying of said container.

18. A carrier in combination with a container according to claim 17 wherein said container further comprises a closure member.

19. A carrier substantially as herein described with reference to and as illustrated in the accompanying drawings.

20. A carrier in combination with a container substantially as herein described with reference to and as illustrated in the accompanying drawings.

Printed for Her Majesty's Stationery Office
by Burgess & Son (Abingdon) Ltd.—1982.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.