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Improvements in or relating to carriers.

THIS INVENTION relates to a carrier and particularly to a carrier for containers.

5 Carriers for multiple stacked containers, to accommodate either a fixed number of containers or a variable number of containers, are well known. Examples of such carriers are described in U.S. Patents Nos. 294,217; 1,065,633; 1,490,973 and 1,499,077.

10 The carriers illustrated in these Patents are either adapted to co-operate with specific containers, or to co-operate with containers specifically modified to be accommodated by the carrier. In all of these Patents the containers function as an assembly wherein only the upper container is provided with a cover, the respective containers therebelow each covering the subjacent container.

15 In a further form of carrier, described in U. S. Patent No. 1,852,195, adjustment of an overlying top member relative to an underlying base member is effected along rigid ratchet bars through a tooth and pawl system.

20 The prior art also contains many examples of carriers in the form of flexible bundling straps incorporating multiple ratchet teeth along the body thereof which selectively interlock with a pawl integral with one end of the body. One such carrier is described in U. S. Design Patent No. 204,545.

25 The present invention provides a carrier for containers, said carrier comprising a lower collar, an upper collar, and flexible, elongated strap means therebetween having closely spaced ratchet teeth formed along the length thereof, said strap means having upper and lower ends, strap
30 retaining means on said lower collar for receiving and retaining the lower end of said strap means, strap retaining means on said upper collar having means for engaging and locking to the ratchet teeth of said strap means, and



lock means on said lower collar for releasably locking said lower collar to a container receivable therein.

5 Preferably, the upper collar includes a generally vertical peripheral wall and an upper wall projecting inwardly therefrom peripherally thereabout, said walls defining an inner surface adapted to engage with and about an upper portion of a container received therein, and the lower collar includes inner and outer peripheral sides and upper and lower edges, the inner side of said lower collar including an inwardly directed lip peripherally
10 thereabout adjacent the lower edge thereof for supportive engagement with a received container.

A preferred embodiment of carrier is particularly adapted for use in conjunction with containers incorporating an integral peripheral outwardly
15 directed handling flange toward the upper end thereof and immediately below the container cover. In this embodiment, the lower collar incorporates an inwardly directed peripheral lip upon which the container flange sits. Coupled with this lip is a plurality of peripherally spaced inwardly directed lugs on the lower collar immediately above the lip. Each of these
20 lugs includes a downwardly and inwardly tapered face terminating in an undercut or recess adapted to receive and retain the container flange on the lip.

The lower collar in this preferred embodiment additionally includes a
25 pair of diametrically opposed outwardly projecting apertured ears and the strap means comprises a pair of straps having said ratchet teeth formed therealong, the ratchet straps being upwardly engaged through said projecting ears, with the lower end of each strap, through an enlargement thereon, engaging beneath the corresponding ear.

30 An upper portion of each strap, in this embodiment, is introduced through a corresponding aperture or passage on the upper collar, the length of each strap engaged through the respective upper apertures being dependent upon the number of stacked containers to be accommodated. An
35 integral pawl, associated with each upper collar aperture, engages the associated strap in a manner requiring positive manual manipulation for release. Any number of containers, within the working length of the straps,

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may be received within the carrier.

5 In the preferred embodiment, a handle, moulded integrally with the upper collar, diametrically spans the upper collar and defines a central hand grip portion. The handle is formed to have an upwardly directed channel configuration and opposed ends thereof are aligned with the strap latching means through which the upper portions of the straps are received. The individual straps, in turn, are flexible, enabling an inward arcing into the channel configured handle of any portion of the strap projecting vertically
10 beyond the associated latch mechanism.

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

FIGURE 1 is a perspective view of a carrier of the invention mounting three circular containers;

20 FIGURE 2 is an exploded perspective view of the carrier of Figure 1, but illustrating only one typical container;

FIGURE 3 is a cross-sectional view of the carrier of Figure 1, with received containers illustrated in elevation;

25 FIGURE 4 is a perspective detail of a strap latching means;

FIGURE 5 is a cross-sectional detail through a lower collar portion of the carrier and a strap end engaged therewith;

30 FIGURE 6 is a bottom plan view of an upper collar and handle unit;

FIGURE 7 is a top plan view of the lower collar; and

35 FIGURE 8 is a top plan view of a further embodiment of the carrier particularly adapted for the accommodation of rectangular containers.

Referring to the drawings, a carrier 10 is illustrated in Figure 1 in locked engagement with three containers 12. The carrier 10 is formed of

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four components or units, a lower or base collar 14, an upper collar 16, and two ratchet straps 18. The carrier 10 is particularly adapted to receive, and to provide carrying means for, one or more containers 12 having a circular configuration. Each container 12 includes a container body 20, an overlying lid or cover 22 with a depending peripheral edge portion 24, and a peripheral outwardly directed handling flange 26 integrally formed with the container body 20 and positioned in slightly spaced relation immediately below the cover 22. The bottom of the container body 20 and the top of the container cover 22 are so configured as to allow for a convenient stacking thereof. The number of containers 12 which can be accommodated in the carrier 10 is governed by the length of the ratchet straps 18.

The lower or base collar 14 includes an annular vertical wall 28 having an integral inwardly directed lip 30 peripherally about the lower edge thereof. The wall 28 and lip 30 are of a size and configuration to engage upwardly about the body 20 of a container 12, in which position the lip 30 is in underlying supporting relationship to the container flange 26.

The lower collar 14 is adapted to be releasably locked to the container flange 26 to assist in the mounting of the carrier 10, as well as in the stabilization of the mounted containers. Accordingly, a plurality of locking lugs 32 are integrally formed with the collar wall 28 and lip 30 at peripherally spaced points about the lower collar 14. Each lug 32 projects inwardly from an inner face of the wall 28 and includes an inwardly and downwardly tapered inner face 34 terminating above the lip 30 in an undercut portion or recess 36. The recess 36 is so sized that the container flange 26 can be received therein and snap-locked. As best shown in Figure 5, the recess 36 is defined immediately above the lip 30 so that the flange 26, when snapped into position, is retained in seated engagement directly on the lip 30.

The lower collar 14 is formed to have a degree of inherent resiliency which, together possibly with resilience of the container flange 26, enables the desired snap-locking of the collar in position about the container. In order to facilitate the manual disengagement of the lower collar 14 from a received container 12, a single laterally outwardly directed pressure tab 38 is integrally formed with the collar wall 28. With this tab, one need merely

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exert downward pressure thereon to cause a downward shifting of the adjoining portion of the lower collar 14 relative to the received container 12. Such pressure will cause a degree of flexure within the lower collar and thereby a release of the container flange from the lug recesses 36.

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A pair of opposed apertured ears 40 are integrally formed with the collar wall 28 and project laterally or radially outward therefrom on a diametric line, preferably spaced 90° from the position of the tab 38. The ears 40 are adapted to receive the ratchet straps 18 therethrough. Each of the ears 40 has an enlarged downwardly opening socket portion 44 at a lower end thereof. Each ratchet strap 18, as shown in Figure 2 and in detail in Figure 5, includes an enlarged head or block portion 42 at a lower end thereof which engages within the enlarged downwardly opening socket portion 44 constituting the lower end of a corresponding apertured ear 40. If desired, the strap head 42 can have slightly tapered upper surfaces to facilitate entry into the socket 44 and to provide for a positive wedging of the head 42 therein. The portion of each aperture above the socket 44 is of a size to receive closely the strap 18 therethrough while precluding passage of the enlarged head portion 42. Two small projections or lugs 46 are integrally formed on each strap 18 at a position so upwardly spaced from the enlarged head portion 42 as to engage with an upper surface of the corresponding mounting ear 40 upon an intimate seating of the head 42 within the socket 44. The inherent flexible nature of the materials utilized allows for the degree of flexure needed to engage the lugs 46. This provides for a releasable locking of each strap 18 within a corresponding aperture.

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For a portion of their length the straps 18 have a configuration defining an outwardly directed rack-like section consisting of a plurality of downwardly and outwardly directed ratchet teeth 50. The rack-like section extends upwardly from the lower headed end of the strap 18 and terminates short of an upper leading end portion 48. As will be described further below the ratchet teeth 50 provide for adjustable locking engagement of the strap 50 with the upper collar 16.

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The upper collar 16 is of the same annular size as the lower collar 14 and is specifically adapted to engage over the cover 22 of a container 12 for positive retention of the container on the application of a container securing

compressive force. The upper collar 16 includes a generally vertical annular outer wall 52 and a top wall 54 integrally formed with the outer wall 52 and projecting inwardly therefrom peripherally thereabout. As best seen in Figures 3 and 4, the walls 52 and 54 of the collar 16 may incline slightly to conform more readily to the shape of the container cover 22 and so co-operate with both the depending peripheral edge portion 24 thereof and a generally horizontal portion of the cover immediately above the edge portion 24.

The upper collar 16 also includes an integrally formed carrying handle 56. The handle 56 extends diametrically across the upper collar 16. Opposed end portions of the handle 56 overlie the top and side walls 52 and 54 and conform in shape with the walls 52, 54. The handle 56 has an outwardly directed channel configuration, defined by an inner panel 58 constituting a continuation of the top wall 54 in the region of the handle and a pair of vertical panels or side flanges 60 projecting in parallel spaced relation from opposite edges of the panel 58. As will be appreciated from the drawings, the handle 56, at the opposed end portions thereof, rises quite abruptly from the upper collar 16 to a central elongate section to allow for accommodation of the cover 22 of a container 12 while providing a freely accessible hand grip.

Referring to Figures 2, 3 and in particular the detailed view of Figure 4, it can be seen that the opposed ends of the vertical panels 60, at each end of the handle 56, are interconnected by a laterally directed bottom panel or end piece 62. The end piece 62 has an inner edge spaced outwardly from the adjacent wall 52 to define a passage or slot 64 through which the upper portion of a strap 18 may be introduced. A vertical panel 66, having a lower portion coextensive with the end panel 62 and similarly integrally formed with the opposed side flanges 60 of the handle 56 projects vertically from the inner edge of the end piece 62. An upper portion 68 of the panel 66 has a reduced width, as compared with the lower portion of the panel 66, and an overlying horizontally directed finger actuatable latch tab 70 is mounted on the panel portion 68. The latch tab 70 is of equal width with the panel portion 68 immediately therebelow and includes an inwardly directed pawl formed by a portion 72 of the tab 70. When a strap 18 is passed through the passage 64 formed between the end piece 62 and the collar wall 52, the pawl

is so positioned as to co-operate with the rack portion of the strap 18 to secure the strap against a removing force.

5 The outer portion of the latch tab 70 projects in overlying spaced relation to the corresponding end piece 62. In this manner, the latch mechanism can conveniently be manipulated, for the selective retraction of the pawl 72, by downward manual pressure on the tab 70. The material of the pawl has an inherent resilience, such that upon release of manual pressure, the pawl will automatically return into co-operative latching or locking engagement with the rack portion of the strap 18, more particularly with a ratchet tooth 50 thereof. Whilst only one latch mechanism has been described, it will be appreciated that similar latch mechanisms are provided at each end of the handle 56.

15 As will be appreciated, the straps 18 are positioned to have the ratchet teeth 50 thereon outwardly directed and thus readily engagable with the inwardly directed pawls 72 of the two latch mechanisms. As best shown in Figures 1 and 3, in instances where the full operative length of the ratchet straps 18 is not required, the upper portions of the straps 18 may be arced or deflected to be received in the channel-shaped handle 56 where they are retained in position by the snugly fitting flanges 60. As best seen in Figure 2, containment of the straps within the handle 56 may be further effected by a central handle portion 80 in which the flanges 60 are inclined slightly inwardly.

25 From the foregoing, it will be appreciated that a unique adjustable carrier has been defined. This carrier utilizes four components, each preferably formed of an appropriate synthetic resinous material, which interlock about a stack of containers in such a manner as to confine the containers for handling or carrying as a single unit. The carrier, particularly by way of the container gripping features of the lower collar thereof, is specifically adapted for the accommodation of containers incorporating a peripheral handling rim or flange at an intermediate point along the height of the container.

35 While the carrier in the embodiment described above utilizes annular collars and thus is particularly suitable for carrying circular containers, it is

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to be appreciated that the collars can assume any other desired configurations. For example, as shown in Figure 8, the collars may be generally rectangular, the shape of the collar depending upon the shape of containers to be carried. Such containers would preferably incorporate a peripheral
5 handling flange illustrated at 74 in Figure 8. Other than the rectangular configuration of the lower and upper collars thereof, the carrier of Figure 8 incorporates all of the features of the carrier 10 illustrated in Figures 1 to 7, and similarly provides for interlocking and interengaging with the received containers.

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CLAIMS



1. A carrier for containers, said carrier comprising a lower collar, an upper collar, and flexible, elongated strap means therebetween having closely spaced ratchet teeth formed along the length thereof, said strap means having upper and lower ends, strap retaining means on said lower collar for receiving and retaining the lower end of said strap means, strap retaining means on said upper collar having means for engaging and locking to the ratchet teeth of said strap means, and lock means on said lower collar for releasably locking said lower collar to a container receivable therein.
2. A carrier according to claim 1, wherein said upper collar includes a generally vertical peripheral wall and an upper wall projecting inwardly therefrom peripherally thereabout, said walls defining an inner surface adapted to engage with and about an upper portion of a container received therein.
3. A carrier according to claim 1 or claim 2, wherein said lower collar includes inner and outer peripheral sides and upper and lower edges, the inner side of said lower collar including an inwardly directed lip peripherally thereabout adjacent the lower edge thereof for supportive engagement with a received container.
4. A carrier according to claim 3, wherein said lock means comprises lug means projecting inwardly from said inner side of the lower collar above the inwardly directed lip, and recess means defined immediately below said lug means and between said lug means and said lip for a snap-locking of a peripheral portion of a received container therein.
5. A carrier according to claim 4, wherein said lug means comprises a plurality of individual lugs spaced peripherally about said lower collar.
6. A carrier according to any one of claims 1 to 5, further including a tab integrally formed with said lower collar and projecting outwardly from an outer side thereof so that the lower collar can be released from a container received therein by exerting pressure manually on the tab.



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7. A carrier according to any one of claims 1 to 6, wherein the strap retaining means on the lower collar comprises diametrically opposed outwardly projecting ears, each ear defining an aperture therethrough, said strap means comprising a pair of vertically elongate straps, each upwardly receivable through one of the ear apertures, each strap including an enlarged head portion at a lower end thereof, said head portion being larger than the associated ear aperture and incapable of passage upward there-through.
8. A carrier according to claim 7, further including integral projections on each of said straps in spaced relation above the enlarged head portion for engagement with an upper surface of the corresponding ear for co-operation with the enlarged head portion to fix the strap end releasably to the ear.
9. A carrier according to any one of claims 1 to 8, wherein said strap means comprises two elongate straps, each strap including ratchet teeth defined along the length thereof, and the strap retaining means on the upper collar comprising means defining a vertical passage for each strap, and a pawl on the upper collar directed inwardly relative to each passage for engagement with selected ratchet teeth of the strap received therethrough.
10. A carrier according to claim 9, further including a handle spanning the upper collar between said strap accommodating passages, said handle including an outwardly directed recess along the length thereof for selective reception of the upper portions of the straps therein.
11. A carrier according to claim 10, wherein the handle recess is defined by laterally spaced generally vertical flanges, said flanges extending transversely across the upper collar to each side of each of the strap retaining means on the upper collar.
12. A carrier substantially as herein described with reference to and as shown in Figures 1 to 7 of the accompanying drawings.
13. A carrier substantially as herein described with reference to and as shown in Figure 8 of the accompanying drawings.