March 19, 1968 F. R. LINDA ETAL 3,373,924

CONTAINER HANDLE

Filed July 6, 1966

3 Sheets-Sheet 1

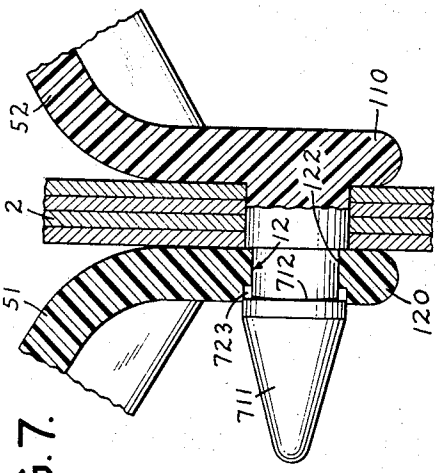


FIG. 7.

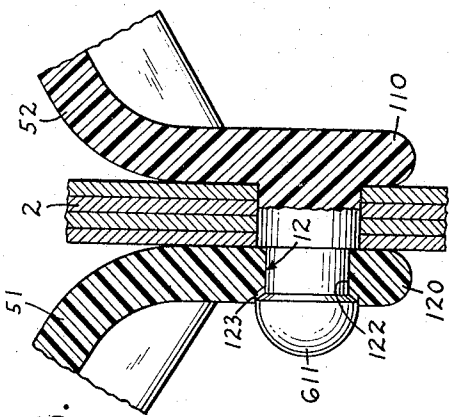


FIG. 6.

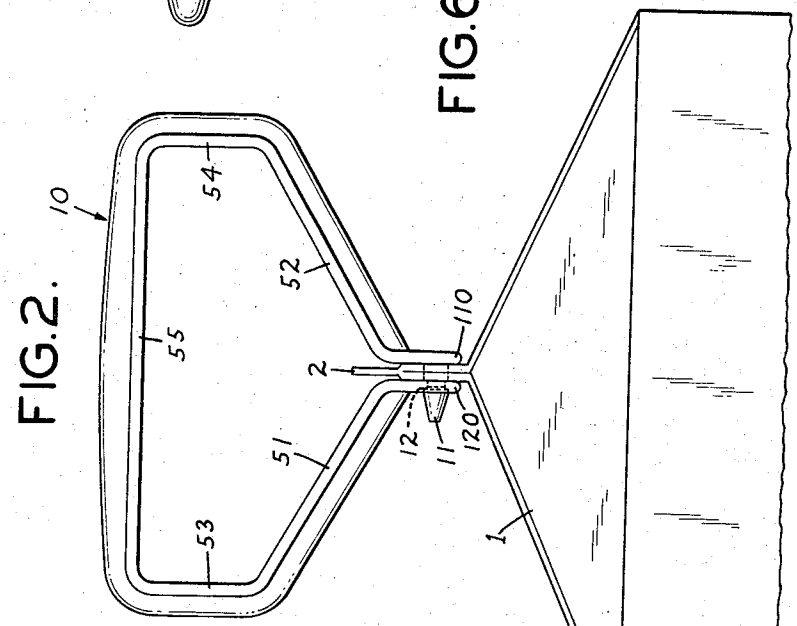


FIG. 2.

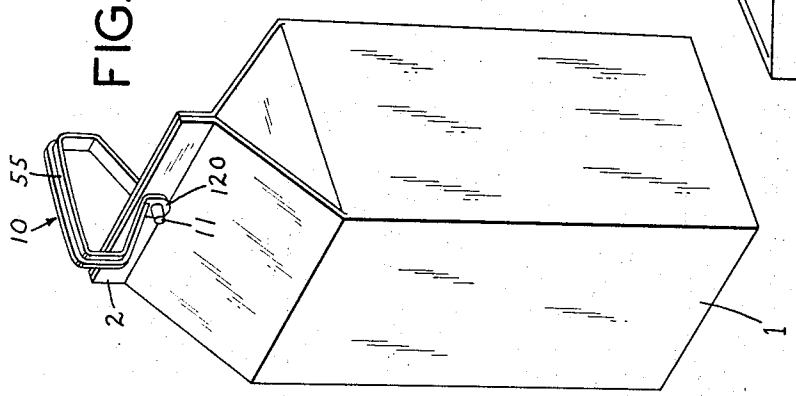


FIG. 1.

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CONTAINER HANDLE

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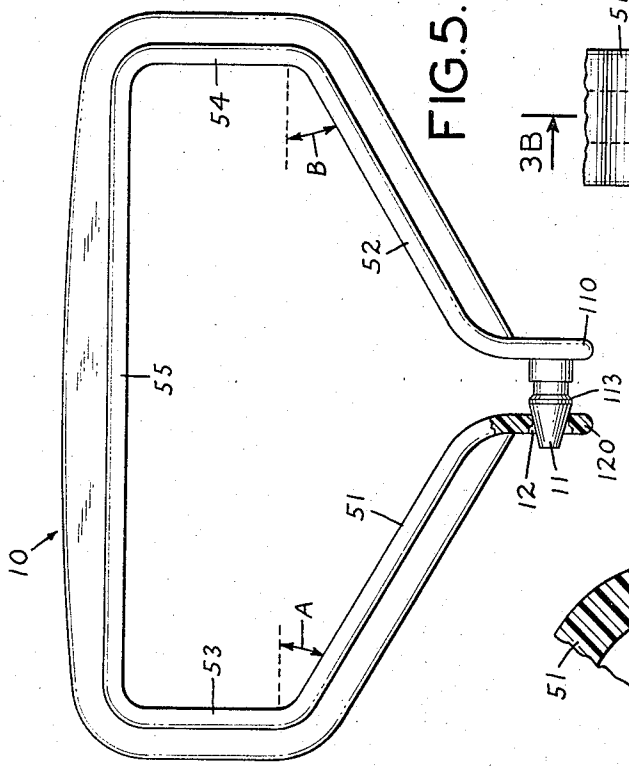


FIG.5.

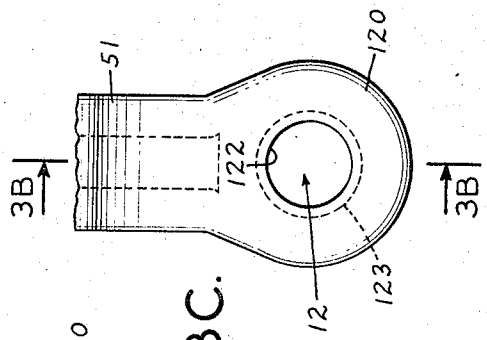


FIG.3C.

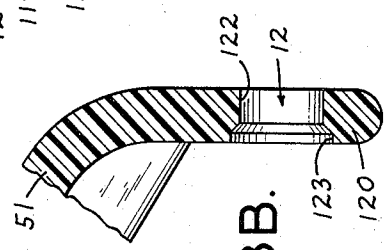


FIG.3B.

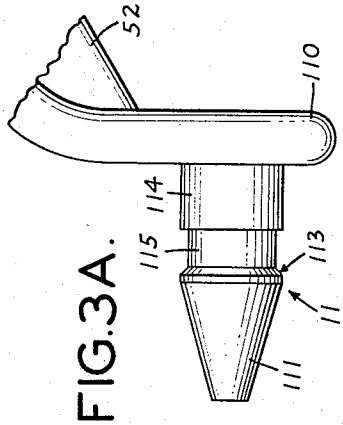


FIG.3A.

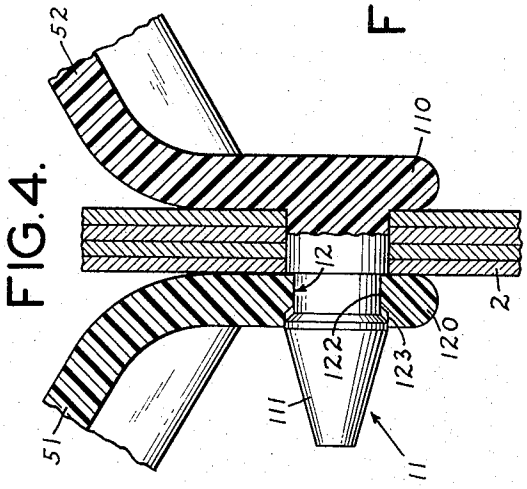


FIG.4.

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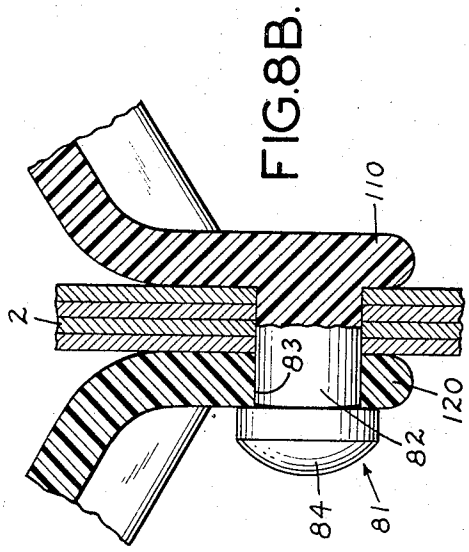


FIG.8B.

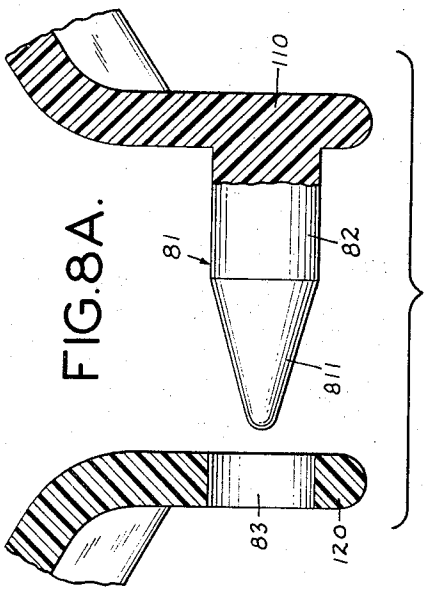


FIG.8A.

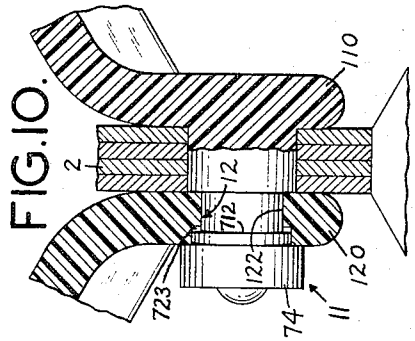


FIG.10.

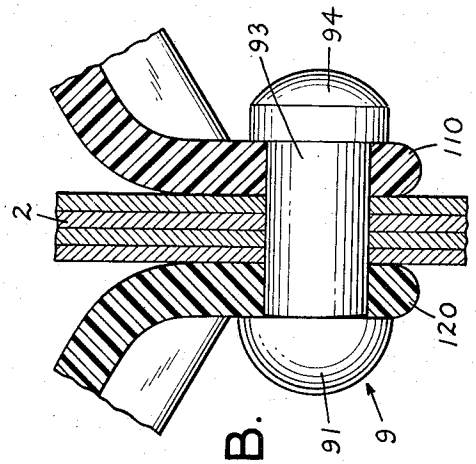


FIG.9B.

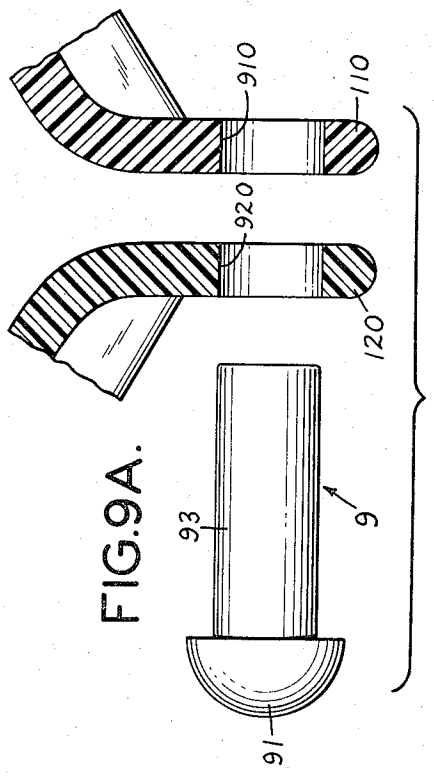


FIG.9A.

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3,373,924

CONTAINER HANDLE

Frank R. Linda, South Norwalk, Conn., and Leigh D. Leiter, Philadelphia, Pa., assignors to International Paper Company, New York, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 521,362, Jan. 18, 1966. This application July 6, 1966, Ser. No. 565,045

16 Claims. (Cl. 229—52)

ABSTRACT OF THE DISCLOSURE

A handle to assist in carrying, moving and pouring from paperboard containers, in which the handle is constructed from a single loop of material provided with a horizontal hand grip side, two vertical sides respectively attached to the two ends of the hand grip side, and two inwardly sloping sides, each of which is attached at one end to a respective one of the vertical sides at a selected acute angle, and each of which terminates at the other end in an element of a closure mechanism, the length of each sloping side and said acute angle being selected to bring said ends of said sloping sides which terminate in closure mechanism elements into contact with one another.

This application in part discloses and claims subject matter disclosed and claimed in an earlier filed pending application of the present applicants, F. R. Linda and L. D. Leiter, Ser. No. 521,362, filed Jan. 18, 1966 and now abandoned.

This invention relates to devices to facilitate the carrying and moving of containers and in particular to a unitary, rigid handle for manipulating relatively large gable top containers filled with heavy fluids.

In the marketing and distribution of certain products in containers, it is often desirable for reasons of economy and convenience to package the product in a relatively large container. One example is the packaging of fresh milk, in which it is more economical to package milk in half-gallon and gallon containers than in the smaller one quart containers. However, in the case of relatively heavy products such as fresh milk, it is somewhat awkward for the eventual consumer to carry and pour from a large container of the half-gallon or gallon size, especially paperboard containers having waxed or plastic coated surfaces.

In the present invention there is provided an inexpensive handle device of unique construction to assist in carrying, moving and pouring from paperboard containers, particularly relatively large paperboard containers of the gable top variety. The handle device of this invention is constructed from a single, unfastened loop of material such as a suitable plastic, the ends of the loop being designed to be locked securely to each other and to a container by means of the male and female members of a selected closure mechanism. The handle is affixed to a container by inserting the male member of the closure mechanism through a pre-punched hole in the gable ridge of a container and locking together the male and female members to form a closed loop extending through the gable ridge. In its locked, closed loop position, the handle lies in a plane that is normal to the gable ridge and is spaced above the gable ridge by a sufficient distance to provide a comfortable hand grip.

The single loop of material from which the handle of this invention is constructed is provided with a plurality

of co-planar sides, for example, five sides, one side serving as a horizontal hand grip; two vertical sides attached perpendicularly to each of the two ends of the hand grip side serving to space the hand grip side above the gable ridge; and two sloping sides each attached at one end at selected acute angles to a corresponding one of the vertical spacing sides, and each respectively terminating at the other end in elements of the closure mechanism. It has been discovered that by making the sloping sides of appropriate lengths and by selecting proper values for the acute angles, in its unfastened condition the loop has the ends of its two sloping sides bearing elements of the closure mechanism urged into contact with one another. In those embodiments in which the sloping sides respectively terminate in male and female members of the closure mechanism, the urging together of the ends of the sloping sides tends to close but not lock together the male and female elements, thereby preventing unwanted interlocking of different handles when mixed together in large quantities prior to affixing to the containers. This unique self-closing tendency of the handle device of the present invention, while in its unfastened state, is further enhanced in certain preferred embodiments by providing the male member of the closure mechanism with a shape that partially seats itself within the female member so that the ends of the two sloping sides of the loop terminating in the closure mechanism tend to remain closed despite rough handling when large quantities of the unfastened handles are mixed together.

Those skilled in the art will immediately recognize from the following description and appended drawings that handles embodying the principles of the present invention may be applied with advantage to various types of containers other than gable top containers. However, since it is anticipated that the invention will find most immediate utility in gable top containers, the invention will be described in terms of its application thereto. The description is intended for illustrative purposes only and in no manner to limit the invention.

The invention will be fully understood from the following detailed description of illustrative embodiments thereof taken in connection with the appended drawings, in which:

FIG. 1 is a perspective view showing the handle device of this invention secured to a gable top carton;

FIG. 2 is a front view partially in section illustrating the manner in which the handle device of this invention is secured to the gable ridge of a gable top milk carton;

FIG. 3A is an enlarged side elevation view of the shape of the male member of a closure mechanism for the handle device of this invention;

FIG. 3B and 3C are enlarged side and front elevation views, respectively, of a female member complementary to the male member shown in FIG. 3A;

FIG. 4 is an enlarged sectional view of the closure mechanism of FIGS. 3A, 3B, and 3C after the handle has been secured to the gable ridge of a gable top carton;

FIG. 5 is a side elevation view of a preferred embodiment of the handle of this invention in its unfastened condition before it is attached to a container and illustrating the self-closing tendency of the unattached handle;

FIG. 6, which is included on the sheet of drawings having FIGS. 1 and 2, is an enlarged sectional view of an alternative closure mechanism for the handle of this invention, illustrating the handle after it has been secured to the gable ridge of a gable top carton;

FIG. 7, which is included on the sheet of drawings having FIGS. 1 and 2, is an enlarged sectional view of another closure mechanism for the handle of this in-

vention after it has been attached to the gable ridge of a gable top carton;

FIGS. 8A and 8B are enlarged side elevation and sectional views of the ends of the handle of this invention respectively showing an additional closure mechanism before and after the handle has been secured to the gable ridge of a gable top container;

FIGS. 9A and 9B are enlarged side elevation and partial sectional views of a rivet closure mechanism for locking together the ends of the handle of this invention respectively showing the handle before and after it has been secured to the gable ridge of a gable top container; and

FIG. 10 is an enlarged side elevation view partially in section of a handle with male and female closure elements of the kind shown in FIG. 7, illustrating two kinds of mechanical interlocks for securing the handle to the gable ridge of a gable top container.

Referring now to the drawings wherein like reference characters designate like elements throughout the several views, there is shown in FIG. 1 a perspective view of the handle device **10** of this invention affixed to a gable top container **1**. Gable top container **1**, which is of well known construction, customarily terminates at the upper end of its body in a gable top end closure which is surmounted by a longitudinal central rib or gable ridge **2**. The handle device **10** of this invention, which has a plurality of co-planar sides, is secured to gable ridge **2** of container **1** by providing handle **10** with a closure mechanism that is inserted into a pre-punched hole (not shown) formed at an appropriate point in gable ridge **2**. It is to be understood that the pre-punched hole must be located in gable ridge **2** at a point such that the integrity of the container and its pouring spout are not impaired. Also, for convenience in handling the container, the pre-punched hole should be located off center so that the handle is closer to the side opposite to the pouring spout. In this manner, it is easier to use the handle to tilt the container for pouring, and to carry two containers back-to-back with one hand.

In its secured position, handle **10** lies in a plane substantially normal to gable ridge **2**. Also, it is desirable to make handle **10** sufficiently wide to provide a grip for a full human hand, and to space horizontal member **55** of handle **10** above gable ridge **2** by a sufficient distance so that the knuckles of a user's hand do not rub the upper edge of gable ridge **2**.

A preferred shape for handle **10** may be more readily perceived by reference to FIGS. 2 and 5, in which it is observed that handle **10** is preferably provided with a five-sided or pentagonal loop shape, with a substantially horizontal hand grip side or member **55** being joined at its extremities by two perpendicular sides **53** and **54**, and with perpendicular sides **53** and **54** being respectively joined in turn to two inwardly sloping sides **51** and **52** to complete the loop. It is to be noted at this point that handle **10** is desirably constructed as a unitary loop unfastened at its ends, which is pre-shaped to have the five-sided co-planar structure described herein. The sloping sides **51** and **52** respectively terminate in tab members **110** and **120**, each of which is provided with an element of a selected closure mechanism by means of which the unfastened loop is affixed to the gable ridge to form a closed loop handle.

In a preferred embodiment of the handle of this invention, tabs **110** and **120** are respectively provided with the male and female members of a closure mechanism. One suitable closure mechanism is the snap fit variety shown in FIG. 3A, in which the male member **11** comprises three principal structural elements, a cone-shaped stud **111**, a first cylinder shaped extension element **115**, and a second cylinder shaped support element **114**. The diameter of the circular cross-section of support element **114** and the diameter of the circular base of stud element **111** are approximately equal, and the diameter of the circular cross-section of extension element **115** is smaller than the

above diameters of elements **114** and **111**. All three elements have a common central axis which is perpendicular to the inner surface of tab **110**, and the three elements are positioned upon tab **110** to extend the apex or smaller end of stud **111** toward the complementary female member provided in tab **120** shown in FIGS. 3B and 3C. As shown in FIG. 4, element **114** supports the handle through the opening in gable ridge **2**, while element **115** extends into the female member in tab **120**.

The complementary female member **12** for male member **11** is shown in FIGS. 3B and 3C, in which it is observed that opposing tab **120** is provided with a cylindrical opening **122** extending through tab **120** and having its central axis aligned with the central axis of male member **11**. Also, cylindrical opening **122** is provided with an annular recess **123** on the opposite side of tab **120**, the inner side wall of annular recess **123** being tapered to receive the tapered bottom edge **113** of stud **111** when the male and female members are locked together as shown in FIG. 4. The diameter of opening **122** is approximately equal to the diameter of extension element **115**, while the diameter of recess **123** is approximately equal to the diameter of the base of stud **111**.

The manner in which male member **11** and female member **12** are locked together through a gable ridge to form a closed loop handle is illustrated in FIG. 4. The overlapping plies of paperboard or other material forming the gable ridge are denoted by the reference numeral **2**, the diameter of the pre-punched hole in the gable ridge being dimensioned to accommodate the cylinder shaped support element **114** of male member **11**. In order to lock together the male and female members, the male member **11** is first inserted through the pre-punched hole in gable ridge **2**, after which the female member **12** is snapped or pressed over stud **111** so that the male member **11** is locked in snap fit relationship with female member **12**, the bottom edge **113** of the base of stud **111** being seated within annular recess **123**. Because the diameter of the base of stud **111** is larger than the diameter of opening **122**, once stud **111** has been forced completely through opening **122**, stud **111** tends to remain locked in placed with its base resting against annular recess **123**.

The details of the closure mechanism illustrated in FIGS. 3A, 3B, 3C, and 4 may be modified in various ways without departing from the spirit and scope of the invention. Thus in FIG. 6 there is shown a hemisphere shaped stud element **611** as an alternative to the truncated cone shaped stud **111** shown in FIG. 3A. Another modification of the stud element shape is illustrated in FIG. 7, in which stud element **711** is shaped to resemble a cone with a rounded tip rather than a truncated tip. Also, if desired, the bottom edge **712** of stud member **711** may be terminated in a short right cylindrical bottom portion without a tapered edge. Correspondingly, the side wall of annular recess **723** in female member **12** joins opening **122** at right angles in order to receive the right cylindrical bottom portion of stud member **711**.

An alternative closure mechanism is illustrated in FIGS. 8A and 8B, in which the male member **81** comprises a cone shaped stud element **811** attached to tab **110** by means of a single cylinder shaped support and extension element **82**, elements **811** and **82** having a common central axis. The female member in tab **120** comprises a circular opening **83** having a diameter approximately equal to the diameter of the circular cross section of extension element **82**. A locking relationship is established between the male and female members by a so-called "heading" technique to form a closed loop handle having the locking structure shown in FIG. 8B. The male member **81** is inserted through a prepunched hole in gable ridge **2** and into the opening **83** of tab **120** so that the inner surfaces of tabs **110** and **120** are pressed against opposite sides of gable ridge **2** and stud element **811** is extended beyond the outer surface of tab **120**. The stud element **811** is then controllably deformed to form a locking cap **84** that abuts

the outer surface of tab **120** and thereby locks together the male and female members in a single closed loop handle.

The controlled deformation of stud **811** into locking cap **84** may employ either "cold heading" or "warm heading" techniques. In cold heading deformation is accomplished by forcing a suitably shaped, unheated die or forming pin against stud **811** so that deformation is accomplished by pressure alone, whereas in warm heading the die or forming pin is pre-heated to a temperature within the range of about 150° to 200° F. so that deformation is accomplished by a combination of temperature and pressure.

Another closure mechanism is shown in FIGS. 9A and 9B, in which the female member comprises identical cylinder shaped openings **910** and **920** in tabs **110** and **120**, with openings **910** and **920** having a common central axis. The male member comprises a separate rivet **9** with a preformed hemispherical head **91** and a cylinder shaped support **93** of approximately the same diameter as openings **910** and **920**. As illustrated in FIG. 9B, support **93** is inserted through openings **910** and **920**, which are positioned in alignment with a pre-punched hole in gable ridge **2**, so that the end of support **93** extends beyond tab **110**. The thus extended end of support **93** is then controllably deformed to form a locking cap **94** in much the same way as locking cap **84** is formed in the apparatus shown in FIG. 8B.

Turning to FIG. 5, by appropriate choice of the acute angles denoted A and B at which sloping sides **51** and **52** respectively join perpendicular sides **53** and **54**, and by appropriate choice of the respective lengths of sides **51** and **52**, tabs **110** and **120** are urged into contact with one another. In those embodiments in which tabs **110** and **120** respectively terminate in the male and female members of a closure mechanism, the male and female members of an unfastened handle have a tendency to close but not lock together. This self-closing tendency is enhanced in the embodiments described above in which the male member of the closure mechanism has a conical shape as shown in FIGS. 3A, 7 and 8A, by making the conical shape sufficiently long to ensure that the smaller end of the cone extends within and remains extended within opening **122** of the tab **120** even during rough handling. By virtue of this self-closing tendency, handle **10** may be employed with automatic machinery designed to feed and sort parts in large quantities, with relatively small likelihood of interfering with automatic operation due to interlocking of different handles such as might result from random partial seatings between male and female members of different handles.

In the closure mechanisms described above, the male and female elements of the selected closure mechanism are joined together by a single mechanical interlock, either a snap fit interlock or a heading interlock. If desired, however, the handle of this invention may be affixed with greater security to the gable ridge of a container by joining together the male and female elements of a closure mechanism with a double mechanical interlock which combines both the snap fit and the heading arrangements previously described.

A double mechanical interlock is illustrated in FIG. 10, in which a handle with male and female elements of the type shown in FIG. 7 is shown after it has been affixed to a gable ridge **2**; however, it is to be understood that the combined snap fit and heading interlocks may be applied to handles with male and female elements of other configurations. As shown in FIG. 10, conical stud **711** extending from tab member **110** is inserted through a preformed hole in gable ridge **2**, and female element **12** integral with tab element **120** is snapped or pressed over stud **711** so that stud **11** is forced through opening **122** to lock in snap fit relationship with female member **12** in the same manner as previously described in connection with the arrangement shown in FIG. 4. In addition, that portion of conical stud **711** which projects through the other side of tab **120** is controllably deformed by either warm or cold heading to form a locking cap **74**. Thus, in addition to the interlock formed by seating the cylindrical base element **712** of stud **711** against the bottom of annular recess **723**, a second interlock is formed by seating the base of locking cap **74** against the outer surface of tab member **120**, thereby to close together the ends of the handle by two sets of mechanical interlocks.

Handle **10** may be constructed in a single loop of material selected from any one of a number of substances; for example, high density polyethylene, acetate, nylon, or polypropylene are suitable materials. Of course, for large scale production of handles, it is desirable to choose a reliable, low cost, easily fabricated material such as high density polyethylene. Typically, the handles may be fabricated by any suitable plastic molding technique to produce a unitary loop structure shaped in accordance with the embodiments described above. In those embodiments in which tabs **110** and **120** terminate in male and female members, respectively, as illustrated in FIGS. 3A, 6, 7 and 8A, it is desirable that the elements of the male and female members of the closure mechanism be integral with the tabs **120** and **110** of sloping sides **51** and **52** of the loop.

The terms and expressions that have been employed herein are used as terms of description and not of limitation, and there is no intention in the use of such terms and expressions to exclude any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

What is claimed is:

1. Apparatus which comprises

a gable top container having a body which terminates at its upper end in a gable top closure surmounted by a longitudinal gable ridge, wherein said gable ridge is provided with a pre-punched hole of selected diameter at a predetermined point,

and a unitary loop of material having a plurality of coplanar sides, one of said sides terminating in the male element of a selected snap fit closure mechanism and another one of said sides terminating in the female element of said selected snap fit closure mechanism, wherein said male element is proportioned to pass through said pre-punched hole in said gable ridge to snap into locking relationship with said female element thereby to affix said loop of material to said container, wherein said sides of said handle lie in a plane substantially perpendicular to said gable ridge and wherein at least one of said sides is spaced a predetermined distance above said gable ridge to provide a hand grip for manipulating said container.

2. Apparatus as defined in claim **1** wherein said loop is characterized by five sides in which each side is provided with two extremities.

3. Apparatus as defined in claim **2** wherein a first one of said five sides is substantially horizontal and of sufficient length to provide said hand grip.

4. Apparatus as defined in claim **2** wherein second and third ones of said five sides are respectively joined at one of their extremities at a right angle to a corresponding one of the extremities of said first side, and wherein said second and third sides are of substantially equal length to space said first side at said predetermined distance above said gable ridge.

5. Apparatus as defined in claim **2** wherein fourth and fifth ones of said five sides are of sufficient length and are respectively joined at one of their extremities at a selected acute angle to the other corresponding extremities of said second and third sides so that the other extremities of said fourth and fifth sides are urged into contact with one another.

6. Apparatus as defined in claim **5** wherein said other extremities of said fourth and fifth sides terminate in said

male and female elements of said snap fit closure mechanism.

7. Apparatus as defined in claim 6 wherein said male element comprises a hemispherically shaped stud with the hemispherical surface of said stud projecting toward said female element in a direction substantially parallel with said first side of said loop.

8. Apparatus as defined in claim 6 wherein said male element comprises a stud shaped to resemble a truncated cone with its smaller plane surface projecting toward said female element in a direction substantially parallel to said first side of said loop.

9. Apparatus as defined in claim 6 wherein said female element comprises a substantially circular opening of selected diameter which is provided with an annular recess of larger diameter adapted to serve as a locking seat for said male element.

10. A five sided unitary loop of material to be fastened to a container to assist in manipulating said container, in which said loop is provided with two extremities which are in non-locking but partially closed contact with one another in the unfastened condition of said loop and which are joined together in locking contact with one another through a pre-punched hole in said container in the fastened condition of said loop, which comprises

a first substantially horizontal side adapted to accommodate the human hand,

second and third sides respectively joined at one of their extremities at a right angle to a corresponding one of the extremities of said first side, and

fourth and fifth sides respectively joined at one of their extremities at acute angles to the other corresponding extremities of said second and third sides, wherein the other extremities of said fourth and fifth sides terminate in opposing tabs respectively provided with male and female elements of a selected snap fit closure mechanism, and wherein both the lengths of said fourth and fifth sides and said acute angles are selected so that said male and female elements are urged into partially closed contact with one another in said unfastened condition of said loop.

11. A five sided unitary loop of material to be fastened to a container to assist in manipulating said container, in which said loop is provided with two extremities which are in non-locking contact with one another in the unfastened condition of said loop and which are joined together in locking contact with one another through a pre-punched hole in said container in the fastened condition of said loop, which comprises

a first substantially horizontal side adapted to accommodate the human hand,

second and third sides respectively joined at one of their extremities at a right angle to a corresponding one of the extremities of said first side, and

fourth and fifth sides respectively joined at one of their extremities at acute angles to the other corresponding extremities of said second and third sides, the other extremities of said fourth and fifth sides terminating in first and second opposing tabs respectively bearing selected elements of a predetermined closure mechanism for joining together said opposing tabs through said pre-punched hole in said container to form a closed loop handle in said fastened condition of said loop, wherein both the lengths of said fourth and fifth sides and said acute angles are selected so that said elements of said closure mechanism are urged into contact with one another in said unfastened condition of said loop.

12. Apparatus as defined in claim 11 wherein said selected elements of said predetermined closure mechanism comprise

a first cylinder shaped opening of selected diameter extending through said first tab, and

a second cylinder shaped opening of the same diameter as said first cylinder shaped opening extending through said second tab,

wherein said first and second cylinder shaped openings have a common central axis.

13. A five sided unitary loop of material to assist in manipulating a container in which each side of said loop is provided with two extremities, which comprises

a first substantially horizontal side adapted to accommodate the human hand,

second and third sides respectively joined at one of their extremities at a right angle to a corresponding one of the extremities of said first side, and

fourth and fifth sides respectively joined at one of their extremities at acute angles to the other corresponding extremities of said second and third sides, the other extremity of said fourth side terminating in a first tab having an inner surface and an outer surface, said inner surface bearing a male element of a selected closure mechanism, the other extremity of said fifth side terminating in a second tab having an inner surface and an outer surface, said inner surface of said second tab opposing said inner surface of said first tab and bearing a female element of said closure mechanism,

said male element comprising

a cylinder shaped support element joined at one end to the inner surface of said first tab and having a first selected diameter,

a cylinder shaped extension element joined at one end to the other end of said support element and having a second selected diameter smaller than said first selected diameter,

a cylinder shaped base element joined at one end to the other end of said extension element and having a third selected diameter approximately equal to said first selected diameter of said support element, and

a cone shaped stud element joined at its base to the other end of said extension element and extending at its apex toward the inner surface of said second tab, said base of said stud element having a diameter equal to the diameter of said base element, and said support element, said extension element, said base element, and said stud element having a common central axis,

said female element comprising

a cylindrical opening opposite said apex of said stud element and extending through said tab from said inner surface to said outer surface, said cylindrical opening having an annular recess extending from said outer surface of said tab partially into said circular opening, wherein the diameter of said cylindrical opening is selected to be approximately equal to the diameter of said extension element, and the diameter of said annular recess is selected to be approximately equal to the diameter of said base element,

wherein the lengths of said fourth and fifth sides and said acute angles are selected so that the apex of said stud element is urged to extend partially into said cylindrical opening of said female element, and

wherein said male and female elements of said closure mechanism are joined together to form a closed loop handle by two mechanical interlocks,

a first mechanical interlock formed by inserting said stud element and said base element through said cylindrical opening so that said base element is seated against said annular recess, and

a second mechanical interlock obtained by controllably deforming said stud element after it has been inserted through said cylindrical opening to form a locking cap whose base is seated against the outer surface of said second tab.

14. A five sided unitary loop of material to be fastened to a container to assist in manipulating said container, in

which said loop is provided with two extremities which are in non-locking but partially closed contact with one another in the unfastened condition of said loop and which are joined together in locking contact with one another through a pre-punched hole in said container in the fastened condition of said loop, which comprises

a first substantially horizontal side adapted to accommodate the human hand,

second and third sides respectively joined at one of their extremities at a right angle to a corresponding one of the extremities of said first side, and

fourth and fifth sides respectively joined at one of their extremities at acute angles to the other corresponding extremities of said second and third sides, the other extremities of said fourth and fifth sides terminating in first and second opposing tabs respectively bearing selected elements of a predetermined closure mechanism for joining together said opposing tabs through a pre-punched hole in said container to form a closed loop handle fastened to said container, wherein both the lengths of said fourth and fifth sides and said acute angles are selected so that said elements of said closure mechanism are urged into contact with one another in the unfastened condition of said handle, said selected elements of said predetermined closure mechanism including

a male member integral with said first tab and provided with

a cylinder shaped support element joined at one end to said first tab and having a first selected diameter,

a cylinder shaped extension element joined at one end to the other end of said support element and having a second selected diameter smaller than said first selected diameter, and

a cone shaped stud element joined at its base to the other end of said extension element and extending at its apex toward said second tab, the diameter of said base of said stud element being approximately equal to said diameter of said support element, said support element, said extension element, and said stud element having a common central axis, and

a female member integral with said second tab including

a cylindrical opening opposite said apex of said stud element and extending through said tap, said cylindrical opening having an annular recess extending partially into said circular opening away from the apex of said stud element, wherein the diameter of said cylindrical opening is selected to be approximately equal to the diameter of said extension element, and the diameter of said annular recess is selected to be approximately equal to the diameter of the base of said cone shaped stud element,

wherein the elements of said closure mechanism which are urged into contact with one another comprise the apex of said stud element which is urged to extend partially into said cylindrical opening.

15. A five sided unitary loop of material to be fastened to a container to assist in manipulating said container, in which said loop is provided with two extremities which are in non-locking but partially closed contact with one another in the unfastened condition of said loop and which are joined together in locking contact with one another through a pre-punched hole in said container in the fastened condition of said loop, which comprises

a first substantially horizontal side adapted to accommodate the human hand,

second and third sides respectively joined at one of their extremities at a right angle to a corresponding one of their extremities of said first side, and

fourth and fifth sides respectively joined at one of their extremities at acute angles to the other corresponding extremities of said second and third sides, the other extremities of said fourth and fifth sides terminating in first and second opposing tabs respectively bearing selected elements of a predetermined closure mechanism for joining together said opposing tabs through a pre-punched hole in said container to form a closed loop handle fastened to said container wherein both the lengths of said fourth and fifth sides and said acute angles are selected so that said elements of said closure mechanism are urged into contact with one another in the unfastened condition of said handle, said selected elements of said predetermined closure mechanism including

a male member integral with said first tab and provided with

a cylinder shaped element joined at one end to said first tab and having a selected diameter, and

a cone shaped element joined at its base to the other end of said cylinder shaped element and extending at its apex toward said second tab, said cylinder shaped element and said cone shaped elementd having a common central axis, and

a female member integral with said second tab including

a cylinder shaped opening of selected diameter extending through said second tab and having its central axis aligned with the common central axis of said cone shaped element and said cylinder shaped element,

wherein said diameter of said cylinder shaped opening is selected to be approximately equal to said diameter of said cylinder shaped element of said male member, and

wherein the elements of said closure mechanism which are urged into contact with one another comprise the apex of said cone shaped element which is urged to extend partially into said cylinder shaped opening.

16. A five sided unitary loop of material to be fastened to a container to assist in manipulating said container, in which said loop is provided with two extremities which are in non-locking contact with one another in the unfastened condition of said loop and which are joined together in locking contact with one another through a pre-punched hole in said container in the fastened condition of said loop, which comprises

a first substantially horizontal side adapted to accommodate the human hand,

second and third sides respectively joined at one of their extremities at a right angle to a corresponding one of the extremities of said first side, and

fourth and fifth sides respectively joined at one of their extremities at acute angles to the other corresponding extremities of said second and third sides, the other extremities of said fourth and fifth sides terminating in first and second opposing tabs, wherein both the lengths of said fourth and fifth sides and said acute angles are selected so that said elements of said closure mechanism are urged into contact with one another in the unfastened condition of said handle,

a first cylinder shaped opening of selected diameter extending through said first tab, and

a second cylinder shaped opening of the same diameter as said first cylinder shaped opening extending through said second tab,

wherein said first and second cylinder shaped openings have a common central axis, and

means for joining together said first and second opposing tabs through a pre-punched hole in said container to form a closed loop handle, including

a male member comprising a rivet provided with

a cylinder shaped support portion having a diameter approximately equal to the diameter of said first and second openings, and

a hemisphere shaped portion having two outer surfaces, a curved surface and a plane surface, the cen-

tral portion of the plane surface of said hemisphere shaped portion being joined to one end of said support portion,

wherein said opposing tabs are joined together through said pre-punched hole in said container to form said closed loop handle fastened to said container by controllably deforming the other end of said support portion after said support portion has been inserted through said first and second cylinder shaped openings which have been pre-positioned on either side of said pre-punched hole in said container.

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