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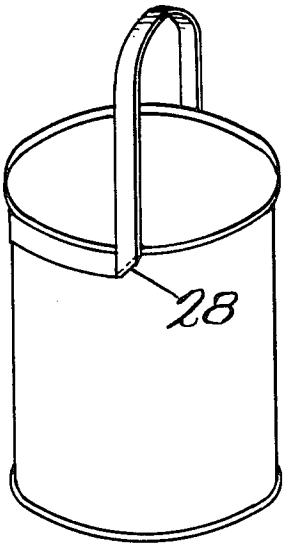
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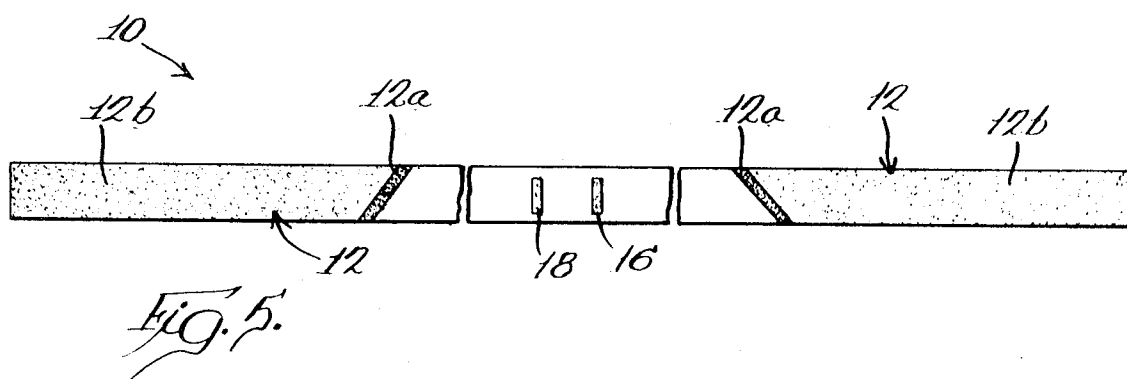
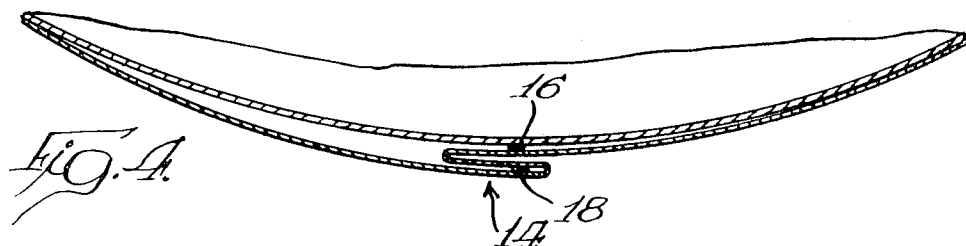
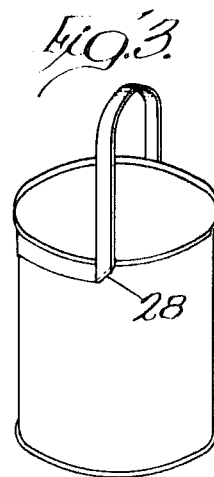
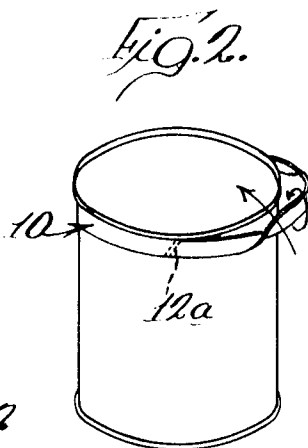
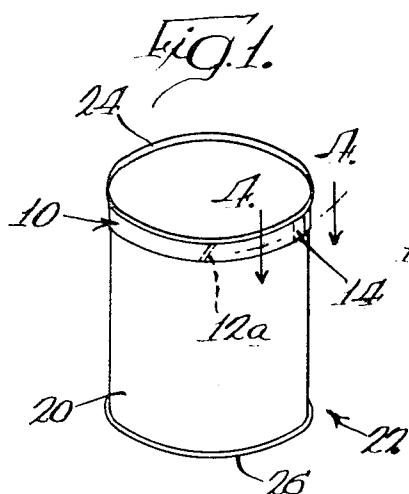
[54] **FLEXIBLE HANDLE FOR CONTAINERS AND METHOD OF PRODUCING CONTAINER HANDLES**  
**12 Claims, 5 Drawing Figs.**

[52] U.S. Cl..... **220/94 R,**  
**16/110.5, 215/100 A, 229/52 A**  
[51] Int. Cl..... **B65d 25/28**  
[50] Field of Search..... **215/100 A;**  
**220/94 A, 94 R; 229/52 R, 52 A, 52 B, 52 AC;**  
**206/65 C**

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**ABSTRACT:** A handle for a container consisting of an elongated flexible strip having opposite ends secured at spaced locations to the peripheral surface of the container in a manner that the length of the unsecured portion of the strip is greater than the peripheral dimension between the spaced locations. A double fold is produced in the elongated strip, between the spaced locations, to define a first position locating the unsecured portion of the strip substantially flush with the peripheral surface of the container. The adhesive securement terminates along lines which are angularly related to the elongated axis of the strip so that the unsecured upper edge of the strip is shorter than the unsecured lower edge. The strip is movable to an operative position by unfolding and reversing the strip along the adhesive termination lines to produce a handle which extends above the container.





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# FLEXIBLE HANDLE FOR CONTAINERS AND METHOD OF PRODUCING CONTAINER HANDLES

## BACKGROUND OF THE INVENTION

The present invention relates generally to containers and more particularly to an improved handle for such containers.

The use of metal containers for packaging various products for shipment is very common in the packaging industry. In packaging merchandise, such as paint, one well-known size of container is a 1 gallon can having a handle formed thereon. In most 1-gallon paint cans, the handle consists of a metal bail having an arcuate intermediate portion terminating in inwardly directed ends which are received in openings formed in ears attached to the outer surface of the container. Such an arrangement has several serious disadvantages which include the necessity of forming the ears on the container at accurate locations and subsequently manually inserting the ends of the bail into the openings in the ears. Another disadvantage with a bail or handle of this type is that, while most of the parts forming the handle are coated, the free ends of the bail are normally uncoated and are subjected to the problem of rusting after a period of storage time. Even more importantly, the paint can handle of this type necessitates orientation of the container relative to dividers normally forming part of a larger container package. With a metal bail of the above type, the ears are required to be aligned with the largest transverse dimension of a rectangular opening, normally defined by the dividers, in order to allow the container to enter the opening defined by the dividers.

Additionally, containers of the above type normally have some type of label applied thereto. When applying a label to a container having the ears secured thereto, it is necessary to accurately orient the label being applied with the position of the ears so as to insure that the openings in the label receiving the ears are in concentric relationship with the center of the respective ears.

While many alternate handle constructions have been proposed, to date none of these have been commercially acceptable for paint containers and the like. Thus, there still remains a need for a simple and inexpensive replacement for the conventional metal bail and which will overcome all of the shortcomings described above.

## SUMMARY OF THE INVENTION

The present invention relates generally to an improved method for forming a bail or handle on a container in a completely automated fashion and in which the bail, in its stored position, is located entirely within the confines of the outer perimeter of the container.

Stated another way, the present invention contemplates a handle for a container having a main body defining a peripheral surface and a rim on one end of the main body with the rim extending beyond the peripheral surface of the main body. The handle includes an elongated strip of flexible material, adhesive means for attaching the strip at spaced locations on opposite sides of the peripheral surface with the length of the continuous strip between the attaching locations being greater than the peripheral distance of the surface between the spaced locations, and means for maintaining the strip in a first position within the confines of the rim. The means for maintaining the strip in the first position contemplates a double fold formed in the strip between the spaced attaching points with releasable means for maintaining the strip in the folded position. The strip is adapted to be moved to a second position above the main body to define a handle by unfolding the unsecured portion of the strip and producing a reverse fold adjacent the lines of connection of the strip to the container.

According to another aspect of the present invention, the strip completely encompasses the peripheral surface of the container along the upper edge and directly below the rim so as to result in a symmetrical area below the lower edge of the flexible strip and the lower end of the container. The uniform

dimension between the lower edge of the flexible strip and the lower end of the container greatly simplifies the label, the mechanism for attaching a label to the container and eliminates the necessity for orientation of the circumferential length of the container with the circumferential dimension of the container, as was heretofore necessary when using metal bails.

According to a further aspect of the present invention, the adhesive means for attaching the opposite ends of the strip to the container terminates along lines which are located at an angle approximately 45° relative to the longitudinal axis of the strip so that, when the strip is reversely folded to produce the handle, the angular relation of the terminal portion of the adhesive will place the entire adhesive area under equal shear stress. If the flexible material were not reversely folded, a localized area, adjacent the lower edge of the strip on each side of the container, would be tensioned and would tend to peel the strip from the container body.

## BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 shows a perspective view of a container having the handle of the present invention secured thereto and located in a storage position;

FIG. 2 is a view similar to FIG. 1 showing the handle in its unfolded condition;

FIG. 3 is a view similar to FIG. 1 showing the handle in its operative position;

FIG. 4 is a fragmentary sectional view taken along line 4-4 of FIG. 1; and

FIG. 5 is a fragmentary developed plan view of the strip before attachment to the container.

## DETAILED DESCRIPTION

FIG. 5 of the drawings discloses an elongated narrow strip of flexible material 10, having adhesive means 12 on opposite ends thereof. The adhesive means 12 are each preferably divided into two areas 12a and 12b with the area 12a being a localized area of high-strength adhesive having considerable resistance to shear, for a purpose which will be described later. The remaining area 12b may be a commercially available low-strength glue or pressure-sensitive adhesive. It should be noted that the adhesive means 12a are substantially equally angularly related to the longitudinal axis of the strip and are arranged along lines intersecting at a substantially 90° angle on one side of the strip. The area of the strip or tape 10 intermediate the localized areas 12a of adhesive has a double fold 14 (FIGS. 1 and 4) defined therein with releasable means in the form of contact adhesive 16 and 18 for maintaining the fold 14 in a folded condition and in juxtaposed relation to the container.

The strip 10 is adapted to be attached adjacent the upper edge of the peripheral surface of a container body 20, forming part of the container 22. The container 22 further includes a rim 24 connected to the container with a conventional double seam to have the outer edge extend beyond the peripheral surface of the main body 20. The rim 24 is formed in the usual manner to receive an enclosure (not shown). The opposite end of the body 20 has an enclosure 26 fixedly secured thereto, as by the conventional double seam joint.

The method of attaching the flexible strip or handle 10 to the container includes securing the opposite ends of the strip 10 adjacent an upper edge of the peripheral surface of the container defined by the body 20 with the localized areas of high-strength adhesive 12a producing lines of securement which are spaced from the ends of the strip and are angularly related to the longitudinal axis of the strip. With this arrangement, the unsecured upper edge of the strip is shorter than the unsecured lower edge of the strip, for a purpose which will be described later. Either before or after the ends of the strip are secured to the container, a double fold 14 is produced in the unsecured portion of the strip to locate the entire substantially

flush with the peripheral surface of the container body. The fold 14 is releasably retained by the adhesive 16 and the adhesive 18 will secure the fold to the container. Thus, in the stored condition, the strip will be located between the peripheral surface of the container body 20 and the outer edge of the rim 24. Furthermore, the double fold 14 in the strip 10 will result in the length of the strip between the lines of securement or adhesive means 12a, along the edges 28, being greater than the peripheral distance of the surface of the container between the adhesive means. Thus, the unsecured portion of the strip can be unfolded (as shown in FIG. 2) and moved over the edge of the rim 24 to serve as a handle (FIG. 3).

According to another aspect of the present invention, the unsecured portion is reversed along the edges 28, defined by the opposed adhesive means 12a, to move the strip to an operative or second position shown in FIG. 3. It should be noted at this point that the formation of the terminal portion of the adhesive 12a along lines which define angles of approximately 45° relative to the longitudinal axis of the strip will result in the lines intersecting to produce an angle of 90° along one side of the strip 10 as shown in the developed condition. This will allow the handle to extend directly above the container and will assist in maintaining the handle in the position shown in FIG. 3. Additionally, the location of the adhesive, as described, will result in equal forces being developed along the entire edges 28 of the adhesive areas 12a. This feature is of extreme importance in assuring that the strip will not be peeled from the container because of localized forces on edges of the adhesive. Also, locating the adhesive 12a at 45° angles relative to the tapes 10 will increase the surface area of the adhesive while still allowing the use of a relatively narrow strip.

While various types of adhesive may be used for the respective areas of the tape, one specific type of adhesive for the localized areas 12a, which is commercially available, is Bostik Pre/Set Transmount 44 KP film adhesive, manufactured by USM Corporation, Rutherford, New Jersey. However, it will be appreciated that any number of adhesives or hot melts may be utilized for the adhesive area 12a. It is desirable that the adhesive for the area 12a have a shear strength on the order of 55 pounds per inch.

It will be appreciated that the present invention provides a simple and inexpensive manner of forming a handle for a container which can be stored in a neat and compact condition and can readily be moved to an operative position which again is neat in appearance. In the stored condition, the flexible strip or handle is located completely within the confines of the outer edge of the container which allows for automatic casing of the containers without the necessity of orientation of the containers relative to the package. In addition, by having the adhesive strip completely encompass the upper edge of the peripheral surface of the container, the remaining surface is completely symmetrical to greatly simplify the design of the label to be attached thereto. Also, the flexible strip eliminates the need for the ears heretofore necessary thus allowing for automatic machinery for applying the flexible strip and the label without the necessity of orientation between the container, the label and the flexible strip. By way of example, the strip could be furnished in a continuous roll prefolded at spaced locations along the length thereof and could be automatically fed to an adhesive applying station where the adhesive 12 could readily be applied and the strip could then be fed to another location for automatic application to the container surface. In the same process, the container label could be applied to the container either before or after the handle was secured thereto.

What is claimed is:

1. In combination with a container having a main body defining a peripheral surface and a rim on one end of said main body and extending beyond said peripheral surface, a handle for said container comprising an elongated strip of flexible material; adhesive means attaching said strip at spaced substantially opposite locations on said peripheral surface, 75

said flexible strip having a length between said spaced locations greater than the peripheral distance between said spaced locations; means for maintaining said strip in a first position within the confines of said rim, said last means accommodating movement of said strip to a second position above said main body and said rim.

2. The combination as defined in claim 1, in which said adhesive means is located along angularly related lines which are located in a substantially common plane extending between said opposite locations.

3. The combination as defined in claim 1, in which said last means includes overlapping portions in said strip between said spaced locations and releasable means maintaining said overlapping portions in a folding condition and said strip in juxtaposed relation to said peripheral surface.

4. The combination as defined in claim 1, in which said strip has opposite ends extending beyond said spaced locations to completely encompass said peripheral surface with said adhesive means securing said ends to said surface beyond said spaced locations.

5. The combination as defined in claim 1, in which said adhesive means terminates along lines extending substantially 45° relative to the length of said strip to produce an unattached upper edge portion which is shorter than the lower edge portion and in which said strip is reversed along said lines and unfolded to define said second position.

6. A flexible handle for a container comprising an elongated, narrow strip of flexible material; adhesive means at spaced locations on said strip, said adhesive means being positioned along angularly related lines intersecting at a substantially 90° angle on one side of said strip; said strip having a double fold between said spaced locations; releasable means on said strip for maintaining said double fold whereby said strip may be attached at spaced locations to a main body of a container adjacent one end by said adhesive means with said double fold maintaining said strip in a stored condition and said strip may be unfolded and reversed along said lines to produce a handle.

7. In a container having a main body defining a peripheral surface terminating in opposite ends, a handle comprising an elongated flexible strip having a length greater than the peripheral dimension of said surface; adhesive means securing opposite ends of said strip to said surface adjacent one end, said adhesive means terminating along lines at locations spaced from said strip ends, said lines defining angles of substantially 45° relative to an elongated axis of said strip and located in a substantially common plane, said plane being inclined towards an intermediate portion of said strip above said one end of said body; said strip having a double fold in said unsecured portion to locate said strip in a stored position substantially flush with said peripheral surface, said strip being movable to an operative position by unfolding said double fold and reversing said strip along said lines to produce a handle extending above said one end of said body.

8. A container as defined in claim 7, in which said body has a rim on said one end, said rim having an outer edge extending beyond said peripheral surface, the further improvement of said strip being located between said peripheral surface and the outer edge of said rim in said stored position.

9. A method of producing a handle for a container which comprises the steps of securing opposite ends of an elongated flexible strip of material adjacent an upper edge of the peripheral surface of said container to produce lines of securement spaced from said ends that are angularly related to the elongated axis of said strip with said strip having a length between said lines which is greater than the peripheral distance of said surface; and folding said strip between said lines to locate the unsecured portion substantially flush with said surface whereby said strip may be unfolded and reversed along said lines to produce a handle extending above said upper edge of said container.

10. A method as defined in claim 9, in which said strip completely encompasses the peripheral surface of the container along the upper edge.

11. A method as defined in claim 9, in which said strip is releasably retained in said folded condition.

12. A method as defined in claim 9, in which the lines of securement are located at substantially 45° angles relative to the elongated axis of said strip and produce an unsecured 5 upper edge of said strip which is shorter than the unsecured lower edge of said strip.

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