BAIL BAND ASSEMBLY FOR INTRAVENOUS LIQUID CONTAINERS

Inventor: John J. McCoy, Milwaukee, Wis.
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ABSTRACT

A thin, flexible attaching band is detachably connected beneath a shoulder at the lower end of a bottle. A shorter flexible bail-forming band is superimposed on the first band and pivotally connected thereto by rivets at the ends of the bail-forming band, at least one of which is slidable engageable in a longitudinal slot in the first band whereby the shorter band may be pulled outwardly and then swung upwardly on the rivets to form a bail.

7 Claims, 7 Drawing Figures
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BAIL BAND ASSEMBLY FOR INTRAVENOUS LIQUID CONTAINERS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention pertains to bail band assemblies for use principally for suspending bottles of the type used in hospitals for intravenous applications.

2. Description of the Prior Art

Heretofore bail band assemblies for the purpose described have consisted of a thin metal band or strap which is detachably connected around the lower end of a bottle beneath a shoulder thereon, being a bail of round wire having bent ends hingedly inserted in holes in the flat band. Thus the assembly was a two-piece arrangement requiring either the band manufacturer or the pharmaceutical house to insert the ends of the bail wires into the holes in the bands. The wire bail, when in operative position, projected a substantial distance beyond the side of the bottle with the result that it would catch into adjacent objects. These assemblies are usually installed on the bottles by the pharmaceutical company, and the laterally projecting bails have presented a problem during the loading of the bottles into the shipping containers, particularly when it was attempted to use automatic carton-loading mechanism. Also the projecting bails rendered such packaging less compact than it might otherwise be. In addition, when the shipping containers, with the intravenous liquid bottles, arrived at a hospital, the loosely projecting bails have created a problem during removal of the bottles from the containers.

In my copending application, Ser. No. 27,352, filed Apr. 10, 1970, a generally similar construction to that forming the subject matter of the present invention is disclosed. In the copending application, however, the bail-forming band has oppositely disposed slots and is connected to the main band by rivets projecting from the latter which are slidable in both slots. With this arrangement when the bails with the bail band assemblies thereon are in the shipping containers with the bails in inactive stored position, end portions of the shorter bail-forming band have a tendency to project tangentially beyond the rivets and bails to cause possible interference in handling and in inserting and in removing the bottles from the shipping containers.

SUMMARY OF THE INVENTION

The present invention provides a bail band assembly wherein the shorter bail band is superimposed on and pivotally connected to the main band by connecting means, at least one of which is slidable in a longitudinal slot in the main band. Due to the use of the slots in the main band, with the connecting means at the ends of the shorter band, there are no tangential projections, when the assembly is in stored condition, to form problems in handling or while inserting or removing the bails from the shipping containers.

The general object of the present invention, therefore, is to provide a bail band assembly of the type described which eliminates objectionable projections when the band is in the inactive, stored position on the bottle.

Other objects of the invention are to provide a bail band assembly which is inexpensive to manufacture and assemble, which is simple to install, which can be compactly shipped from the band manufacturer to the pharmaceutical house in flat, striplike form without projections, which requires no assembly of two portions by the pharmaceutical house before installation on the bottle, and which is otherwise well adapted for the purposes described.

With the above and other objects in view the invention consists of the improved bail band assembly for intravenous liquid containers, and all of its parts and combinations, as set forth in the claims, and all equivalents thereof.

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BRIEF DESCRIPTION OF THE DRAWING

In the accompanying drawing, illustrating two complete embodiments of preferred forms of the invention, in which the same reference numerals designate the same parts in all of the views:

FIG. 1 is a plan view of the bail band assembly before installation on a bottle, looking at the inner side of the band;

FIG. 2 is an edge view thereof;

FIG. 3 is a fragmentary elevational view showing the upper portion of an intravenous liquid bottle having the improved bail band assembly connected thereto, the bail band portion being in stored position;

FIG. 4 is a view similar to FIG. 3, showing the bail band in pulled out position ready for swinging movement, the broken lines indicating various other positions of the bail as it is swung upwardly to operative position.

FIG. 5 is a fragmentary vertical sectional view through the container, showing the modified bail band assembly of FIG. 6 thereon in stored position;

FIG. 6 is a view like FIG. 1 showing an alternative construction with two slots in the main band, one for each rivet; and

FIG. 7 is an elevational view showing a bottle for intravenous liquid being supported from a hanger during use.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more particularly to the drawing, the numeral 10 designates a thin flat attaching band which is preferably formed of thin bendable metal but which may be formed of other thin materials such as plastic. Any suitable end attaching means may be employed. In the illustrated embodiment one end of the band is cut to reduced width to provide a tongue 11 and the other end has an opening 12 of a diameter to receive the tongue 11. Projecting inwardly from the ends of a shorter band 15 are longitudinally spaced headed rivets 13 and 13' or other projections having very short shanks, one of which (13'), in the form of FIG. 1, extends through a slot 14 in the attaching band 10 and the other of which is in longitudinally fixed connection with both bands. The shorter band 15 is superimposed on the attaching band 10 in the manner shown in FIGS. 1 and 2 and is held by the heads of the rivets 13 in compact parallelism as is clear from FIG. 2. The shank of the rivet 13', however, is just long enough with respect to the thickness of the bail band 15 to permit relative slidable movement of one end of the bail band relative to the attaching band 10. It is preferred to form one edge of the bail band, intermediate its length, with finger recesses 16 having outwardly offset margins 17, as shown in FIG. 4, with which a fingernail can be easily engaged.

The item is furnished by the band manufacturer to the pharmaceutical house in the form shown in FIG. 1, with the bail portion 15 permanently connected to the attaching band portion 10. In this form, as is clear from FIGS. 1 and 2, a large quantity of bail band assemblies may be shipped to the pharmaceutical house in a relatively small package, as the bail band assemblies can be stacked close to one another in parallelism during shipment. When the assemblies are in the flat condition of FIGS. 1 and 2 for shipment it is not possible for the bail-forming portions 15 to pivot—instead, they tend to stay flat against the attaching portion 10 as shown in FIG. 2 to provide for maximum compactness during shipment. However, the spacing of the rivets 13 is such with respect to the diameter of the bottle portion on which the bands are to be used that when the attaching band is in encircling, stored condition as in FIG. 3, the rivet 13' of the form of invention of FIG. 1 is at the right-hand end of its slot 14, as shown in FIG. 3, and well to the right of a position which is diametrically opposite the rivet 13; that is, the rivets 13 and 13' are less than 180° apart. Also, as is apparent from FIGS. 3 and 4, the rivets are so close to the ends of the bail-forming band 15 that these ends cannot project beyond the groove 20 of the bottle. This is because of the novel arrangement of having the rivets carried by the bail-forming band at the ends thereof and having the
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3 slot 14 in the attaching band 10 rather than in the bail-forming band as in my copending application, Ser. No. 27,352. The spacing between the rivets 13 and 13' is also such that when the bail-forming band 15 is pulled outwardly, as in the full line position of FIG. 4, the rivet 13' rides to the left-hand end of the slot 14 and arrives at a position which is then opposite the longitudinally fixed rivet 13. Thus the bail may then be readily swung upwardly as shown at \((c)\) and \((d)\) in FIG. 4.

While only one slot 14 in the main band is needed to carry out the present invention, which minimizes expense, a desirable form of the invention may have two slots 114, both in the main band as shown in FIGS. 5 and 6, each positioned for coaction with a rivet. Here the slots 114 may be shorter than in the form of invention of FIG. 1, and when the band is flat as in FIG. 6 the rivet 113 is at the lower end of its slot 114 and the rivet 113' at the upper end of its slot 114. In FIGS. 5 and 6 all of the same reference numerals are used as in FIG. 1, except that they are preceded by the digit 1.

At the pharmaceutical house the bail band assemblies can be quickly installed on bottles 18 of the type in which intravenous liquids are furnished to hospitals. A common use for the present invention is in connection with bottles containing intravenous feeding liquid. These bottles are customarily made of glass, but may, of course, be formed of other materials. They customarily have an annular shoulder 19 near their base ends with an annular recess 20 inwardly of the shoulder. At the pharmaceutical house each bottle may be quickly equipped with a bail band assembly by bending the band around the recessed portion 20 of the bottle, inserting the tongue 11 at one end of the band 10 into the hole 12 at the other end, and then bending the tongue over as shown in FIG. 3 to releasably lock the band in position around the bottle. The superimposed shorter band 15, which is to form the bail portion, bends with the band 10 and stays in close juxtaposition therewith as is clear from FIG. 3, where it will be seen that when the band is assembled and in stored condition all portions are within the bottle recess so that there are no lateral projections, and the ends of the shorter band are likewise non-projecting.

When the bottles equipped with the bail band assemblies of the present invention arrive at a hospital or other point of use, they may be easily withdrawn from the shipping containers as the bail band portions 15, when in the stored position of FIG. 5, form no interference during removal. When it is desired to use one of the bottles, a fingertip is inserted in one of the notches 17 and the bail portion is pulled outwardly to the full line position of FIG. 4, the slot 14 permitting such movement on the shank of the rivet 13'. Due to the fact that the rivets 13 and 13' are so spaced on the flat sides of FIG. 1 that they are opposite one another when in such full line position of FIG. 3, the features of the present invention permit the bail portion to be swung from such position to the broken line positions \((c)\) and \((d)\) of FIG. 4 where it clears the corners of the bottle shoulder. The slot 14 is made of sufficient length to permit the amount of movement indicated in FIG. 4. From position \((c)\) the bail portion is swung to position \((d)\) of FIG. 4 in this position it may be readily suspended from a hanger 21, as shown in FIG. 7. The hanger is of the type which projects from a suitable supporting stand customarily used for supporting intravenous liquid bottles. While thus suspended the bottle is in the inverted position of FIG. 7 whereby the liquid may be dispensed by gravity through a dispensing tube 22 leading to the patient.

In the form of the invention of FIGS. 5 and 6, when the band is on a bottle as in FIG. 5 the rivets 113' and 113 are somewhat to the right-hand ends of their slots 114, referring to said figures, and are less than 180° apart. When the bail band is pulled outwardly to a position corresponding to the full line position of FIG. 4, then both of the rivets of the form of the invention of FIGS. 5 and 6 move in their slots to positions substantially opposite one another on the bottle, allowing the bail portion to be swung to a position corresponding to the operative position \((d)\) of FIG. 4.

It is to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

What I claim is:

1. A bail band assembly for use on an intravenous liquid container comprising a first length of thin, flat, bendable band material having attaching means at its ends, a second straight length of thin, flat, bendable band material which is shorter than said first length superimposed thereon in parallelism, pivotal connecting means projecting inwardly from the ends of said second length of band material pivotally connecting the latter to said first length of band material, at least one of said pivotal connecting means including a slot in the first length of material through which the connecting means from the second length of material extends for slidable movement in a longitudinal direction, the pivotal connecting means being so spaced that when the first length of material has been bent to circular form with its end attaching means joined, the connecting means between the two band portions are positioned to provide for pivotal movement of said second length to a right-angled bail-forming position with respect to said first length.

2. A combination as claimed in claim 1 in which each of said pivotal connections includes a slot in said first length of band material.

3. A combination as claimed in claim 1 in which the pivotal connecting means between the two lengths of band material comprise rivets at the ends of the second length of material projecting inwardly therefrom, and at least one longitudinally extending slot in said first length of band material with which a rivet has slidable engagement.

4. A combination as claimed in claim 3 in which one of the rivets is in longitudinally fixed position with respect to both lengths of band material, and in which the other has slidable connection with a slot.

5. In combination with a circular bottle having an annular recess near a bottom end, a thin, flat, bendable attaching band connected to the bottle in encircling position in said recess, a bail-forming band of lesser length than the attaching band superimposed on the latter within said bottle recess and having opposed ends, pivotal connecting means projecting inwardly from each of said opposed ends pivotally connecting said ends to the attaching band, at least one of said pivotal connections including slot means in the attaching band providing for slidable movement of the pivotal connecting means therein whereby the bail-forming band may be pulled laterally outwardly from a stored position to a bowed position outwardly of said annular recess in the bottle, said connecting means being positioned on opposite sides of the bottle so as to provide for swiveling movement of the bail-forming band over the end of the bottle to a position at right angles to its stored position.

6. A combination as claimed in claim 5 in which each of said pivotal connecting means is a rivet.

7. A combination as claimed in claim 6 in which the rivets are less than 180° apart when the bail-forming band is in stored position, and in which the slot means is of such length that after the bail-forming band has been pulled laterally outwardly the rivets are substantially opposite one another on the bottle, whereby the bail-forming band may be swung over the end of the bottle to a position at right angles to its stored position.

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