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(54) **Bail handle**

(57) A bail or swing arm for a container has a mid part length formed by extruded plastics rod cut to length and cranked end connecting parts (4) located one at each end of rod (2). Parts (4) provide bosses (6) by which the bail arm is pivotally mounted on a container

and are formed as mouldings discrete from the rod (2) and rigidly secured to that rod. The connecting parts (4) can be moulded or formed directly on to the ends of the rod (2) or can be secured to that rod by bonding, adhesive, brazing welding, material shrinkage or by mechanical locks.

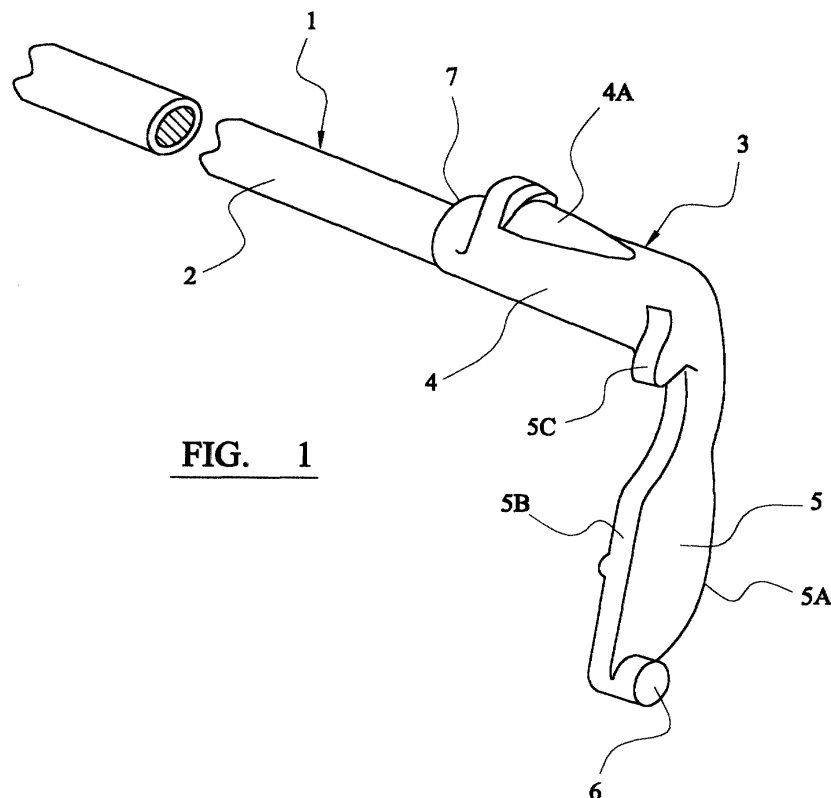


FIG. 1

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Description

Technical Field and Background Art.

[0001] The present invention relates to a bail arm for a container.

[0002] In the art of container structures, particularly open-topped containers as are typically used for the storage, carriage and display of goods for retail purposes, bail arms (sometimes known as "swing arms") are well known. Such arms are pivotally mounted on side walls of the container to be adjustable in their positioning to facilitate selective nesting or stacking of several similar containers in a column. For this latter facility the bail arms may be pivotally adjustable to a position where they overlie the open top of a container so that an overlying container can stand on the bail arms of an underlying container to form a stacked column where goods may be stored in the individual containers. Alternatively the bail arms may be pivoted to another position clear of the open top so that an overlying container may be nested in an underlying container to provide a nested column of empty containers as may be convenient for storage or transport. In addition or alternatively, a pivoted bail or swing arm may serve as a convenient handle for carrying a container, which handle may be pivoted to an unobtrusive position when not in use. An example of a container having bail arms is disclosed in our British Patent Specification GB-A-2263689.

[0003] Bail arms are conventionally manufactured in metal or plastics, to have a mid part length on which an overlying container is generally supported in a stacked column, and two end part lengths, one at each end of the mid part length. The end part lengths are generally cranked and present spigots or sockets for pivotal connection to the container side walls. The end part lengths may also present specific design configurations such as slide faces, reinforcing webs, locating flanges and the like as required for particular functional characteristics of the container assembly of which the bail arm is to form part.

[0004] A bail arm is generally regarded as an expensive component of a container assembly where a different design size or structure of bail arm is required for each container in a range of container designs and sizes. This is largely due to the fact that conventional practice is to have available plastics moulding tools or metal forming tools, one for each of the various designs and sizes of bail arm. It is an object of the present invention to alleviate the expense of this latter manufacturing convention and to provide a bail arm that is relatively inexpensive and convenient to manufacture of a design and size appropriate for a particular container to which it is to be fitted.

Statement of Invention and Advantages.

[0005] According to the present invention there is pro-

vided a bail arm for a container comprising a mid part length and two connecting parts located one at each end of the mid part length, said mid part length being presented by a bar component and said connecting parts being formed discretely from and secured to said bar component.

[0006] By the present invention the bail arm has its mid part length presented by a bar component which will typically comprise or consist of plastics or metal and this bar component may conveniently be cut to length from readily available tubular or solid extruded bar stock. The connecting parts will usually provide cranked ends for the bail arm and the two connecting parts for a particular bail arm may be identical or left and right handed (usually the mirror image of each other) depending upon the characteristics required of the bail arm and the design of container to which it is to be fitted. The two connecting parts are formed discrete from the bar component (but not necessarily remote from that bar component) and are secured to the bar component, usually as a rigid attachment. With such a manufacturing arrangement it will be appreciated that in a range of similar containers of different sizes, the various containers may utilise the same size and design of connecting parts for their respective bail arms whilst the bar component for a particular bail arm may simply be selected to be of a length appropriate for the bail arm of a particular sized container. As a consequence only one or two moulding or forming tools may be required for the two connecting parts appropriate for a range of container sizes (rather than the conventional practice of having to provide a range of moulding or forming tools for the complete bail arms consistent with the number of different sized containers in a range). This has the advantage of cost saving and also the convenience in manufacture of the bail arms as it may be possible for them to be provided on demand from a stock of connecting parts and bar components.

[0007] The connecting parts may be pre-formed independently of and remotely from the bar component and subsequently secured, (preferably rigidly) to that bar component. Securing of the connecting parts to the bar component may be by material flow techniques (such as welding, brazing, bonding or adhesive), interference techniques (such as shrinkage or compression) or mechanical locks (such as the use of locking screws). The connecting parts are preferably attached to the bar component through co-operating socket and spigot connections. By a further proposal the connecting parts will be formed discretely of the bar component (but not independently of that component) by being moulded or otherwise formed directly on to the end part lengths of the bar component. This latter technique is particularly advantageous for plastics bail arms where relatively inexpensive plastics connecting parts may be moulded onto a more expensive, relatively stronger bar component formed of, for example a glass fibre reinforced plastics rod extruded and cut to length.

[0008] The present invention also provides a method

of manufacturing a bail arm for a container which comprises providing a bar component which is to present a mid part length of the bail arm and securing to that bar component, one at each end thereof, two connecting parts by which the arm is to be attached to the container.

[0009] There is also provided a container assembly which includes a bail arm of the present invention.

Drawings.

[0010] One embodiment of a bail arm constructed in accordance with the present invention will now be described, by way of example only, with reference to the accompanying illustrative drawing in which:-

Figure 1 is a perspective view of one end of the bail arm showing a connector part secured to an end of the bar component (the opposite end of the bail arm being the mirror image of that shown);

Figure 2 is a side elevation in section of the part of the bail arm shown in Figure 1.

Detailed Description of the Drawings

[0011] The bail arm 1 illustrated has a mid part length 2, opposite ends of which are provided, one each, with two connecting parts (one of which is shown at 3). The two connecting parts 3 are substantially identical except for the fact that one is the mirror image of the other so that the bail arm is left and right handed for attachment to a predetermined design of open topped container. For convenience therefore only one connecting part has been shown. The connecting part 3 is cranked to have a generally cylindrical socket part 4 extending from which (in a radial plane of the socket part 4) is an end plate 5 from which projects a cylindrical boss or trunnion 6. The bail arm is fitted to the open-topped container (not shown) by engaging its bosses or trunnions 6 in sockets in opposed side walls of the container so that the bail arm can pivot right relative to the container on its trunnions 6 in known manner to be adjustable to overlie the opentop of the container or to lie unobtrusively adjacent an end wall of a container. These characteristics will be determined as required for a particular design of container assembly and this will be realised by those conversant with the art. Also, the connecting part 3 may include in its design slide faces or edges 5a and 5b, a locating lug 5c on its plate 5 and a seating 4a on its socket part 4 as appropriate for the particular characteristics or purpose required at the bail arm during its use with a particular design of container.

[0012] In accordance with the present invention the connecting parts 3 are formed discretely from and are secured to the bar 1, in the present example as a rigid fixture. The bar 2 will usually be formed as a cylindrical extrusion which is cut to the required length. Typically the bar 2 will be extruded in plastics such as polypropylene filled or reinforced with glass fibre for strength (hav-

ing in mind the considerable load bearing characteristics that may be required of the bar during its use as a carrying handle or to support overlying containers which may be column stacked on it).

[0013] Each connecting part 3 is formed as an injection moulding in plastics, typically polypropylene, to have a cylindrical socket 7 complimentary to and within which a respective end of the bar 2 is located as a rigid fixture.

[0014] In one embodiment the connecting parts 3 are formed as injection mouldings directly on to ends of the bar 2 that are located as inserts within the moulding tool for the respective connecting part. As a consequence each connecting part 3 is moulded onto the respective end of the bar 2 as a secure rigid attachment as shown in Figure 2 when the bar end and connecting part are removed from the moulding tool. The ends or end part lengths of the bar 2 may be provided with recesses or rebates (not shown) with which the plastics of the moulded on connecting parts keys to ensure a secure connection between the components.

[0015] Whilst separate moulding tools will be required for the left hand and right hand connecting parts 3, the bar 2 can simply be cut to length as appropriate for a particular size of container in a range of sizes of such container for which the same connecting parts 3 are appropriate.

[0016] In an alternative embodiment to the aforementioned technique of moulding the plastics connecting parts 3 on to the ends of the bar 2, the connecting parts are pre-moulded remote from the bar 2 and thereafter the ends of the bar are bonded or adhesively secured within the sockets 7 of the respective connecting parts.

Claims

1. A bail arm for a container comprising a mid part length and two connecting parts located one at each end of the mid part length, said mid part length being presented by a bar component and said connecting parts being formed discretely from and secured to said bar component.
2. A bail arm as claimed in claim 1 in which the bar component is cut to length from extruded bar stock.
3. A bail arm as claimed in either claim 1 or claim 2 in which the connecting parts are rigidly secured to the bar component.
4. A bail arm as claimed in any one of the preceding claims in which the connecting parts provide cranked ends for the bail arm.
5. A bail arm as claimed in any one of the preceding claims in which the connecting parts are attached to the bar component through co-operating sockets

and spigots.

6. A bail arm as claimed in any one of the preceding claims in which the connecting parts are moulded or formed directly on to the end part lengths of the bar component. 5
7. A bail arm as claimed in claim 6 in which the end part lengths of the bar component are recessed or rebated and said moulded or formed on connecting parts key with the recesses or rebates. 10
8. A bail arm as claimed in any one of claims in which the connecting parts are secured to the bar component by material flow or interference techniques or by mechanical locks. 15
9. A bail arm as claimed in any one of the preceding claims in which the connecting parts comprise plastics mouldings. 20
10. A bail arm as claimed in any one of the preceding claims in which the bar component comprises extruded plastics rod. 25
11. A method of manufacturing a bail arm for a container which comprises providing a bar component which is to present a mid part length of the bail arm and securing to that bar component, one at each end thereof, two connecting parts by which the arm is to be attached to the container. 30
12. A method as claimed in claim 11 which comprises moulding or forming the connecting parts on to end part lengths of the bar component. 35
13. A bail arm as manufactured by the method as claimed in any one of claims 11 to 13.
14. A container assembly which includes a bail arm as claimed in any one of claims 1 to 10, 14 and 15. 40

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