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54 Hand carrier for flanged bottles.

57 A hand carrier (20) for flanged bottles (FB) comprises a pair of tubular members (22a,22b) hingedly connected to one another (at FL). Each of said members accommodates a half section of a neck portion of each flanged bottle, so that a lower side of a flange (BF) in each bottle is supported by a bottom plate (33a,33b; 35a,35b) of the cylindrical members.

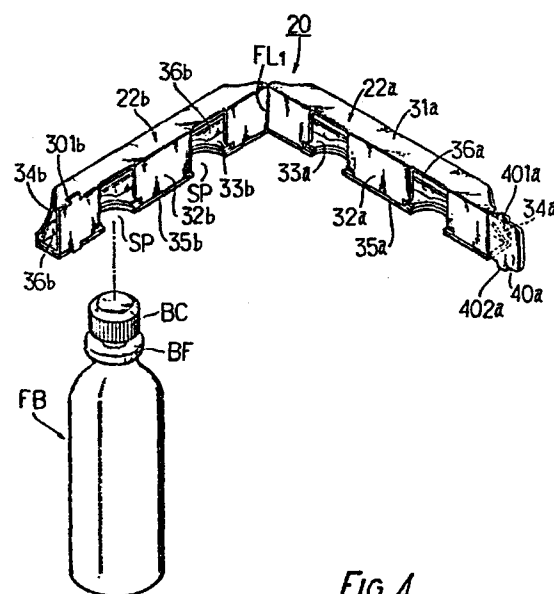


FIG. 4

HAND CARRIER FOR FLANGED BOTTLES

The present invention relates to improvements in hand carriers for flanged bottles, for transferring a plurality of such bottles over relatively short distances.

For making two or more bottles easily portable, hitherto they have been tied with string, but this conventional measure requires some skill to prevent accidental slipping of the bottles and involves a relatively long time in preparation.

In recent years, there have been bottles of synthetic resin material such as polyethylene terephthalate. Such a bottle has a circular or the like flange formed integrally at its neck portion as a support for mounting a cap thereon, and such bottles have been utilized to contain beverages, more particularly carbonated beverages. For making a plurality of such flanged bottles easily portable, a hand carrier as shown in Fig.1 has been proposed. Such a hand carrier has a triangular, hollow, cylindrical or tubular configuration with a bottom and two slanting sections, each section having at least two openings to allow the insertion and positioning of necks of flanged bottles. In such conventional hand carriers, the flange of each bottle is supported by lower edges of the opposed openings formed in the slanting sections, and thus the bottle is apt to be caused to swing when a suspended carrier is transferred to an opening destination, and this may cause accidental dropping of one or more bottles.

An object of the invention is to provide a hand carrier for flanged bottles, which stably supports a flange of each flanged bottle and can be assembled from one piece flat sheet without use of glue.

5 According to the invention such and other objects can be attained by a hand carrier for flanged bottles, which comprises a pair of hollow tubular members hingedly connected each other at one end, each of said tubular members having a first panel as an inner side plate, which
10 has a plurality of openings, each vertically extending from a lower edge to a level near an upper edge of the first panel to allow an insertion of a cap and a flange portions of each bottle, a second panel as a first bottom plate, which is connected to the first panel and has plurality
15 of semi-circular notches, each forming a large opening with the opening formed in the first panel and having a radius smaller than that of the flange of the bottle, a third panel as an outer side panel, which is connected to the first panel and has a plurality of arcuate slits at lower side
20 thereof, a fourth panel as a second bottom plate, which is connected to the third panel, has a configuration the same as that of the second panel and arranged to contact with the second panel, and a fifth panel as a strengthening plate, which is connected to the second panel, has a
25 plurality of arcuate openings at a portion near a side connected to the second panel and is arranged to contact with an inner surface of the third panel, one of said tubular members having a tab element at a free side of its first panel, which tab element is to be folded to keep
30 thereunder the first panel in the other tubular member.

It is preferable that the third panel in each cylindrical member consists of a top plate and an outer

side plate.

Each of the openings formed in the first panel has a substantially rectangular configuration with two notches at lower side thereof to allow an insertion of a bottle flange and prevent an excess movement of the flange.

Further, it is preferable that the tab element has at least one projection to be fitted in a slit formed in at least one panel for the other cylindrical member.

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings in which:-

Fig. 1 is a fragmental perspective view showing a conventional hand carrier for flanged bottles;

Fig. 2 is a perspective view of a hand carrier for flanged bottles, which embodies the present invention;

Fig. 3 is a one-piece blank plate for assembling into the hand carrier as shown in Fig. 2; and

Fig. 4 is an illustration showing a manner for accommodating a neck portion of flanged bottles in the hand carrier as shown in Fig. 2.

A conventional hand carrier for flanged bottles has a structure as shown in Fig. 1. The hand carrier 10 has a hollow cylindrical body 12 having a triangular cross section, which is to be assembled by folding a one-piece blank plate made of a cardboard, corrugated cardboard, synthetic resin plate or the like. A bottom panel 14 is constructed as a double layered one to strengthen the same and has two or more circular openings 141, 141 of a relatively large size. Each of slanting panels 16, 18 has two or more semi-circular openings 161 (181) opposing each other. Each center line of the openings 141, 161, 181 formed side by side along a vertical cross sectional

direction of the body 12 lies on an imaginary vertical surface.

5 A neck of a flanged bottle FB is inserted in a space of the body 12 through the circular opening 141 formed in the bottom panel 14 and a flange BF of the bottle FB is protruded through the semi-circular openings 161, 181 formed respectively in the slanting panels 16, 18.

10 When two or more flanged bottles FB are transferred with use of such conventional hand carrier 10, the weight of each bottle will be loaded on a lower edge 161a (181a) of the semi-circular opening 16 (18). This means that each of the flanged bottles FB is supported by a linear contact between a lower side of the flange BF and the lower edge 161a (181a) of the semi-circular opening 15 16 (18) and thus the bottles FB is apt to undergo a swinging motion about the supported points, when the bottles FB are transferred by suspending the hand carrier 10. The swinging motion of the bottles FB may damage the hand carrier 10, for instance by generation of cleavage at 20 a corner of the semi-circular openings 141, 181. If the flange supporting portion of the hand carrier 10 is damaged, there is a possibility of an accidental falling of the bottles FB from the hand carrier 10, during a transfer thereof.

25 A hand carrier for flanged bottles, which embodies the invention, as well as a one-piece blank plate therefor are shown in Figs. 2 to 4.

30 The hand carrier as generally designated by reference numeral 20 comprises a pair of hollow cylindrical members 22a, 22b hingedly connected each other at one end (Fig. 4). The other end of each cylindrical member can be

mechanically connected to one another to accommodate a head and neck portions of each flanged bottle FB which has a structure the same as that illustrated in Fig. 1 (see Fig. 2).

5 The hand carrier 20 can be assembled from the one-piece blank plate BP as shown in Fig. 3. In Fig. 3, solid lines and dot lines show cut lines and folding lines, respectively. The blank plate BP can be obtained by stamping out along the cut lines from a conventional sheet
10 or plate material of a cardboard, corrugated cardboard, synthetic resin or the like. This blank plate BP is directed to that for assembling into the hand carrier 20 which holds two flanged bottles FB, but this may be modified for another hand carrier to transfer three or more such
15 bottles.

 The blank plate BP comprises first and second sections 30a, 30b which have substantially the same configuration each other about a vertical central folding line FL₁, excepting that the first section 30a has a
20 flap-like tab 40a with two projecting areas 401a, 402a, and the second section 30b has no such a tab but has two slits 301b, 302b to receive the projecting areas 401a, 402a, when the blank plate BP be assembled into the hand carrier 20 as shown in Figs. 2 and 4. Each of the sections 30a, 30b
25 forms the hollow cylindrical member 22a or 22b, when each of them is folded along the various folding lines therein, as referred to hereinafter.

 For the sake of simplicity, an explanation will be given as to one of the sections, namely on the first
30 section 30a only. The section 30a has two pairs of an opening 303a and a semi-circular notch 304a, which will be combined to form an opening for allowing the accommodation of a head and a flange for each flanged bottle FB (Figs.

2 and 4), when the blank plate BP is assembled into the hand carrier 20. For this purpose, each of the openings 303a, 303a has notch-like areas 303a', 303a" to accept the flange of the bottle FB.

5 The section 30a is folded in the following manner to form the hollow cylindrical member 22a (see Figs. 3 and 4). In the first place, the section 30a is folded down along folding lines FL₂ and FL₃ to define a top plate 31a. Then a folding operation is carried out along a folding
10 line FL₃ to define a first panel 32a as an inner side plate. A further folding operation is carried out along a folding line FL₄ to define a second panel 33a as a first bottom plate. Another folding operation is carried out along a folding line FL₅ to define an outer side plate 34a
15 and a fourth panel 35a as a second bottom plate. Please note that the folding operation on the folding line FL₃ may be omitted, so that the top plate 31a and the outer side plate 34a form a third panel as an integral outer plate. An inner side of the fourth panel 35a as the second
20 bottom plate is contacted with an outer surface of the second panel 33a as the first bottom plate. In this case, a remaining plate as a fifth panel 36a connected to the second panel 33a and defined therefrom by the folding line FL₄ will contact with an inner surface of the outer side
25 plate 34a to strengthen the same, and each of arcuate portions 361a, 361a formed in the fifth panel 36a is fitted in each of arcuate openings 221a, 221a (Fig. 2) to be formed in the third panel 34a with an aid of the folding line FL₅ and an arcuate cut lines 341a, 341a.

30 Folding operations the same as those referred to will be carried out as to the other or second section 30b in the blank plate BP as shown in Fig. 3 to form the hand carrier 20 as clearly shown in Fig. 4.

As apparently seen from Fig. 4, each of spaces SP, SP formed in each of the hollow cylindrical members 22a, 22b, which space SP is formed depending on each pair of the opening 303a (303b) and the semi-circular notch 304a (304b), serves as a portion to accommodate a half section of a cap BC for and a flange BF of the flanged bottle FB, said flange BF being integrally formed at a neck portion of the bottle FB. A radius of a half circular notched area formed in the double layered bottom of each cylindrical member 22a (22b) is smaller than that of the flange BF of the bottle FB, as previously referred to in connection with the semi-circular notch 304a (Fig. 3), so that the flange BF of the bottle FB can stably be supported by the double layered bottom plate per se for the cylindrical members 22a, 22b.

After sliding setting a head portion of each flanged bottles FB in the spaces SP, SP in one of the cylindrical members 22a, 22b, the other cylindrical members 22b or 22a are relatively and pivotally moved about the folding line FL₁, until the first panels 32a, 32b as the inner side plates contact each other. Then the tab 40a connected to the first panel 32a is folded into space formed in the cylindrical member 22b to sandwich a part of the first panel 32b for the cylindrical member 22b by the tab 40a and a part of the first panel 32a for the other cylindrical member 22a. In this case, the projecting areas 401a, 402a formed in the tab 40a fit into and protrude from the slits 301b, 302b (see also Fig. 3) to prevent a possible pivotal movement of the cylindrical members 22a, 22b, which could cause an accidental fall of the flanged bottles FB.

CLAIMS:-

1. A hand carrier for flanged bottles which comprises a pair of hollow tubular members (22a, 22b) hingedly connected to one another at their one
5 ends, each tubular member having a first panel (32a; 32b) as an inner side plate which has a plurality of openings (303a; 303b) each extending vertically from a lower edge to a level near an upper edge of the first panel to allow the insertion of a cap portion
10 (BC) and a flange portion (BF) of each bottle (FB), a second panel (33a, 33b) as a first bottom plate which is connected to the first panel and has a plurality of generally semi-circular notches (304a; 304b), each forming an enlarged opening (SP) with
15 the corresponding opening in the first panel and having an effective radius smaller than that of the flange of the bottle, a third panel (31a, 34a; 31b, 34b) as an outer side plate which is connected to the first panel and has a plurality of arcuate slits (341a; 341b)
20 at a lower side thereof, a fourth panel (35a; 35b) as a second bottom plate which is connected to the third panel, has a configuration similar to that of the second panel and is arranged to contact with the second panel, and a fifth panel (36a; 36b) as a
25 strengthening plate which is connected to the second panel, has a plurality of arcuate slits at a portion near a side connected to the second panel and is arranged to contact an inner surface of the third panel, one of said tubular members (22a) having a tab
30 element (40a) at a free side of its first panel (32a), which tab element is to be folded to hold thereunder the first panel (32b) of the other tubular member (22b).

2. A hand carrier as claimed in Claim 1, wherein said third panel in each tubular member consists
35 of a top plate (31a or 31b) and an outer side plate (34a or 34b).

3. A hand carrier as claimed in Claim 1
or Claim 2, wherein each of the openings formed
in the first panel has a substantially rectangular
configuration with two notches (303a', 303a";
5 303b', 303b") at a lower side thereof to allow the
insertion of a bottle flange (BF) and prevent
excess movement of the flange.

4. A hand carrier as claimed in any of the
preceding Claims, wherein said tab element has at
10 least one projection (401a, 402a) to be fitted in a
slit (301b, 302b) formed in at least one panel
(31b, 33b) of the other cylindrical member (30b).

5. The features herein described, or their
equivalents, in any patentably novel selection.

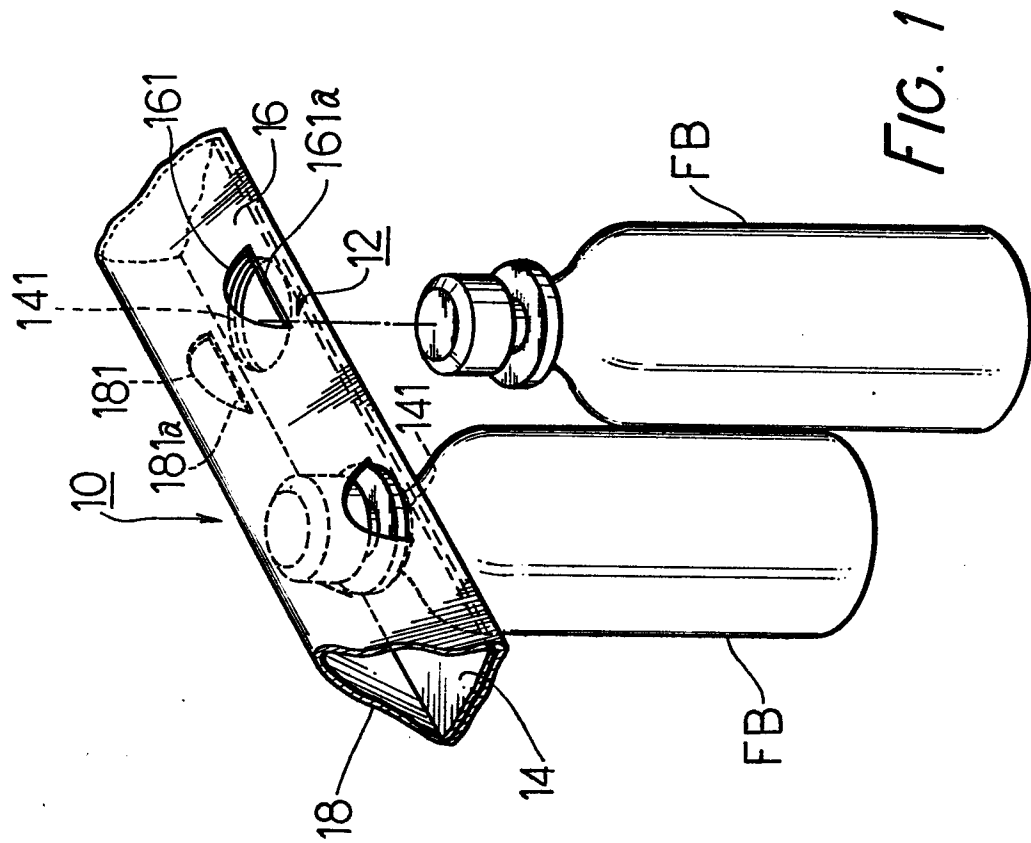
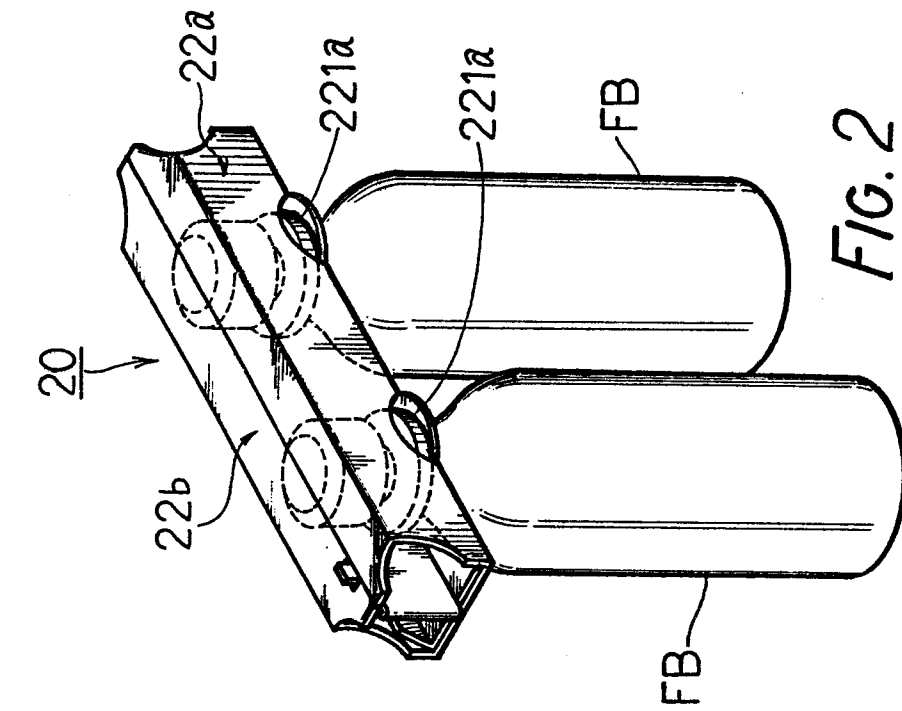


FIG. 3

