PLASTIC TOTE CASE
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1. 3,353,659

ABSTRACT OF THE DISCLOSURE

A plastic tote case which cooperates with containers located therein by employing strategically located cut-out areas in the case sidewalls to provide commercial identification of the case contents and which also employs graphics so located as to complement the identification of the contents. The openings not only serve the purpose of identification but also greatly reduce the overall weight of the tote case and can render the tote case interchangeable between different users.

This invention relates generally to a tote case and, more particularly, to molded plastic tote cases suited for handling paperboard, plastic and glass liquid containing packages, such as milk containers.

Heretofore such tote cases have had substantially solid side walls, usually with reinforcing means to give them sufficient strength and rigidity to allow them to perform their intended function. Such substantially solid side walls not only result in relatively high case weight, but necessitate a graphic display area on the case wherein the name of a particular dairy or other company using the tote case is customarily imprinted. Because of the latter feature, such cases were therefore not interchangeable between different companies. Examples of such prior art tote case constructions are those illustrated in U.S. Patents 3,005,572 and 3,002,650.

In contrast to the above prior art tote case constructions, and as a distinct improvement thereover, the tote case construction of the present invention avoids the above enumerated disadvantages.

Accordingly, it is an object of the present invention to provide an improved plastic tote case for handling and storing containers.

Another object of the present invention is to provide an extremely lightweight tote case.

Still another object of the present invention is to provide a plastic tote case which is interchangeable between different users.

Yet another object of the present invention is to provide an improved plastic tote case wherein the graphics on the containers located therein are employed and cooperate with the case structure to provide identification for the case.

Briefly then, the present invention resides in providing an improved plastic tote case which cooperates with containers located therein, by employing strategically located cut-out areas in the case side walls, to provide commercial identification of the case contents. The openings not only serve the purpose of identification but also greatly reduce the overall weight of the tote case and renders the tote case interchangeable between different users.

Yet additional objects and advantages of the present invention will become apparent from a study of the following description and specification taken in conjunction with the accompanying drawings in which, whatsoever possible, like characters of reference designate corresponding material and parts throughout the several views thereof, in which:

FIGURE 1 is a side elevational view of a tote case constructed according to the principles of the present invention, all sides of which can be substantially alike, the case having containers located therein;

FIGURE 2 is a top plan view thereof;

FIGURE 3 is a side elevational view similar to that of FIGURE 1 only showing a modified side wall construction; and

FIGURE 4 is a side elevational view similar to that of FIGURE 1 only showing yet another modified side wall construction.

Referring more particularly to FIGURES 1 and 2, a plastic tote case 10 has a substantially square configuration both in its side elevation and plan views with its side walls 12 preferably being integrally molded with its bottom wall 14. However, it is conceivable that bottom wall 14 could be made separately from side walls 12 and be of a different material, such as wood, for example. Bottom wall 14 and side walls 12 include therebetween a stacking shoulder 16.

Preferably, the case 10 is molded from a light weight strong and substantially rigid plastic material such as high impact polystyrene, high density polyethylene, polypropylene or of other plastic materials having substantially similar characteristics. At least one side wall 12, and preferably all four, are provided with openings 18, 20, 22, 24 and 26 in planar surface 28, which surface 28 most desirably is recessed slightly from the outermost surface 29 of side wall 12 to reduce case weight. These openings preferably encompass over one-third of the area of each side wall. For purposes of convenience in describing the present invention, corresponding reference characters have been employed for openings which are the same shape as or of reverse shapes to one another.

The aforementioned openings are arranged so that there is disposed therebetween and defined thereby a complex of cross-pieces, in this case shaped as bars 30 located so as to confine the contents of the case, to display the markings of the case contents to their best advantage and to provide a handle grip. In the latter instance, the bars 30 define the openings 24 which can be employed as hand openings when grasping the case. The grasp area, of course, comprises that material of upper rim 32 of side wall 12 located above each opening 24.

As illustrated, tote case 10 includes a plurality of containers 34 for milk. These particular containers are of such a size that they fit three across a side wall of container 10 with the middle container being located approximately adjacent the center section of the side wall. The predominant graphics on each container 34, in this particular illustration, are generally centrally located on the side of the container and define a generally inverted triangular configuration. Opening 26 is also of a generally inverted triangular configuration located in the center area of side wall 12 so as to be coincident with and expose the main portion of the graphic imprint of the middle container 34. Thus, one looking at side wall 12 can readily identify the particular product within the tote case 10. The other openings 18, 20 and 22 are provided to reduce additionally the overall weight of the case. The openings also provide more clean outs for cleaning and washing the case, and lend an aesthetic appearance to the case. Enough of the recessed area 28 remains for bars 30 to keep the containers 34 captive in the case. It is only necessary that one container 34 on a side wall 12 have its graphic imprint exposed for case identification.

Of course, the particular configuration of FIGURES 1 and 2 are only exemplary of the principles of the present invention and other various modifications of the invention can be employed. For the purpose of illustrating other possibilities, but not to be considered as being limiting, there are shown two other embodiments in FIGURES 3 and 4, respectively.
The tote case 40 illustrated in FIGURE 3 is particularly adapted to contain four containers 42 across each side wall 44, thus carrying a total of sixteen containers. Each side wall 44 has a recessed area 46 including therein a plurality of openings 48, 50, 52, 54, 56 and 58. Since smaller containers 42 are located within the case 40 than those which are contained within case 10 of FIGURE 1, a greater number of generally smaller openings are located within the side wall providing many bars 60 to prevent the smaller containers from escaping through the side walls. In this embodiment, the primary graphical area of at least one container 42 is substantially visible through the generally centrally located opening 56, even though two such containers are visible through this opening. The products contained within the tote case 40 thus are readily identifiable to one looking at the case side wall 44. Again, an upper opening 54 provides a hand opening permitting grasping of the case about the upper rim 61 which acts as a handle.

Yet another possible arrangement involving the principles of the present invention is that illustrated in FIGURE 4 wherein a tote case 62 has a side wall 64 including a thinner recessed area 66. Openings 68, 70, 72, 74 and 76 are provided within the recessed area 66 for generally the same reasons as those described earlier with respect to tote cases 10 and 40. Some of these openings peculiarly define parallel bars 78 which serve to keep the containers from slipping through the side wall 64. Here molded or otherwise impressed graphics are contained on the side wall 64 itself. These are identified on the drawing as the terms “HOMOGENIZED,” “MILK” and “FORTIFIED,” which are typical terms that might be used on any milk case, for example. Such terms would be interchangeable between many dairy companies and therefore the openings on the side wall 64 need only show so much of the graphics on containers 71 as tell the particular company’s name concerned. Thus, it can be seen that the generally centrally located opening 70 is only wide enough to show that the milk contained in the case is from the “COMPANY DAIRY” which phrase is found on a container 71. In all other aspects, the particular side wall construction of the case 62 functions in the same manner as that previously described for cases 10 and 48.

While it is obvious from the above that the present invention works well when embodied in tote cases for milk cartons and the like, it can also be understood that the concept may be employed to achieve the same results in other areas. For example, for beverage bottles, egg cartons, detergent containers, etc., can be designed with side wall openings to provide the same or similar identifying and weight reducing functions. Additionally, while certain representative embodiments and details have been shown for the purposes of illustrating the invention, it will be apparent to those skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope of the invention.

Accordingly, what is claimed is:

1. The combination comprising a substantially rigid molded plastic tote case for holding a plurality of individual containers, said plastic tote case having a bottom wall, four sidewalls formed integrally with said bottom wall, at least one of said sidewalls defining a plurality of openings comprising at least one third of the area of said sidewall, one of said openings being centrally located in said sidewall, at least one container located in said case adjacent the central opening of the sidewall, said container having a graphical display area, the metes and bounds of said central opening being substantially the same as those of said display area of the container such that the display area is substantially exposed by said central opening, at least one cross-piece defined by said sidewall between said openings, said cross-piece including graphics to complement said display area.

2. The combination of claim 1 wherein another of said openings is located centrally below the upper rim of said side wall and is of a width and breath sufficient to permit the fingers of an adult hand to comfortably extend therethrough.

3. The combination of claim 1 wherein said openings are located in a recessed surface of said side wall.

References Cited

UNITED STATES PATENTS

1,494,006 5/1924 Morrison .......................... 206--45.31
2,530,481 11/1950 Rawn .......................... 76--76
2,963,193 12/1960 Arthur .......................... 220--21
2,970,715 2/1961 Kappel et al. ..................... 220--21
3,006,461 10/1961 McGinnis ........................ 45.31

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