A plastic crate or carton for transporting bottles in bottle carriers is divided into compartments each of which is of a size to receive a "pack" comprising e.g., six filled bottles in a bottle carrier. Star shaped spacers project up from the bottom of each compartment and extend up through corresponding holes in the bottom of the bottle carrier so as to be disposed between the bottles to prevent them from bumping one another during shipment. The crate can also be used to transport empty bottles, in which case the spacers prevent the bottles from bumping one another whether or not they are in carriers. The bottle carriers may be formed of cardboard or of plastic. When formed of plastic, the bottle carrier has a central longitudinal slot in the bottom and has ribs projecting inwardly from the side walls to separate the bottles.
PLASTIC CRATE FOR TRANSPORTING BOTTLES IN BOTTLE CARRIERS

FIELD OF INVENTION

The present invention relates to shipping containers and particularly to plastic crates or cartons for the transport of bottles in bottle carriers or "six-packs." The carton is provided with means for separating the individual bottles so as to keep them from bumping one another during shipment.

BACKGROUND OF INVENTION

Shipping cartons for individual bottles are well known. Such cartons are commonly provided with partitions for separating individual bottles. For example, crossing partitions between opposite walls of the carton provide individual compartments for holding the bottles.

In self service stores and supermarkets bottled beer and other beverages are commonly sold in the form of "six-packs" comprising six bottles in a carrier which may be formed of cardboard or of plastic. The cardboard bottle carriers are very inexpensive and serviceable. The plastic bottle carriers are substantially stronger and can be reused but they are considerably more expensive. The bottles in the bottle carriers are packed in pasteboard cartons and nonreturnable bottles result in high distribution costs. It is therefore desirable to provide a plastic carton in which the bottle carriers together with the individual bottles can be shipped back to the bottling works. When the bottles are to be reused it is necessary for the individual bottles to be separated from one another in the carton so that they do not bump one another and thereby become damaged. On the contrary, it is accepted that the bottles in the bottle carriers lie next to one another as the bottles in the bottle carriers are transported only short distances whereas the bottles in the shipping cartons are often transported over long distances.

Although this problem of creating a suitable shipping carton for individual bottles and for bottles in bottle carriers has existed for a very long time, namely as long as bottle cartons and bottle carriers have been on the market, no satisfactory solution has heretofore been found. A plastic bottle carrier has been developed which provided a cup shaped receptacle for each bottle which are held together by a common grip. If such bottle carriers are placed in a plastic carton the compartments of the carton must be large enough to accommodate the individual receptacles in which the bottles are placed. The production of the special bottle carriers and the special shipping cartons has been found to be so complicated and expensive that such carriers and cartons have had practically no acceptance in the market.

Heretofore no satisfactory bottle carton has been created in which bottles in cardboard bottle carriers can be transported. While plastic bottle carriers can have large cutouts in the side walls and bottom, this is not possible in bottle carriers produced of cardboard. The cardboard bottle carriers would be unacceptably weakened by cutouts or openings other than small openings for the necks of the bottles and edge portions of the bottoms.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a shipping container for the transport of full bottles in carriers, for example "six-packs" and for the transport of empty bottles whether in carriers or not. In either event the bottles are prevented from bumping one another during transit. The container has four sides and a bottom and is herein referred to interchangeably as a crate or carton.

The present invention now provides for the first time an extremely simple plastic bottle crate or carton in which either individual bottles or bottles in cardboard or plastic carriers can be transported without bumping one another. In accordance with the invention, at least one partition extending between opposite side walls divides the carton into compartments in which bottle carriers together with their bottles can be placed and that in each compartment there is at least one spacer element which projects up from the bottom of the carton to keep the bottles out of contact with one another.

The individual bottle carriers are separated from one another by the partitions of the carton. Moreover, the bottoms of the bottle carriers are provided with openings through which the spacers of the carton project so as to separate individual bottles from one another. The bottles in the bottle carriers are thereby held apart.

Preferably the spacers which project up from the bottom of the carton are cross shaped and are spaced from the compartment walls by a distance which is less than half the diameter of the bottles. In this manner the spacers can be quite thin at their edges and yet prevent the bottles from contacting one another. Alternatively, the wings of the bottle spacers can be made somewhat shorter and thicker.

When the bottle carriers are made of plastic, ribs can be provided on the inner sides of the side walls. These ribs project inwardly so as to touch or be slightly spaced from the spacers of the carton when the bottle carrier together with the bottles therein is placed in the carton.

BRIEF DESCRIPTION OF DRAWINGS

The nature, objects and advantages of the invention will be more fully understood from the following description in conjunction with the accompanying drawings which illustrate schematically preferred embodiments of the invention.

IN THE DRAWINGS

FIG. 1 is a plan view of a bottle carton in accordance with the invention with a bottle carrier shown in one compartment and individual bottles shown in another compartment;

FIG. 2 is a cross section of the carton with bottles in a cardboard bottle carrier shown in one compartment;

FIG. 3 is a perspective view of a known cardboard bottle carrier with bottles therein;

FIG. 4 is a plan view of the bottom of the cardboard bottle carrier;

FIG. 5 is a cross section through a plastic bottle carrier which can be inserted in the carton of the present invention; and

FIG. 6 is a plan of the bottom of the plastic bottle carrier.

DESCRIPTION OF PREFERRED EMBODIMENT

The bottle carton 20 shown by way of example in the drawings is designed to receive four bottle carriers 1
each with six bottles 2. The carton thus holds 24 bottles. The carton has side walls 3 and end walls 4 as well as partitions 5 and 6 which divide the interior of the carton into four compartments A. In each of the compartments there are two spacers or separators 7 which project up from the bottom of the carton and have the cross sectional shape of four point stars. As seen in FIG. 2, the wings of the spacers taper into a central point which is located at approximately the level of the tops of the partitions 5 and 6 and below the top of the carton. As seen in FIG. 1, the wings of the spacers are spaced from the walls of the compartment a distance which corresponds to half the diameter of the bottles. The carton including the partitions and the spacers is molded from a suitable plastic having sufficient strength and impact resistance to permit repeated re-use.

In FIG. 3 there is shown a cardboard bottle carrier 1 for six bottles. The bottle carrier comprises cardboard bent to provide a bottom 1a and sides 1b, the upper portions of which slope in to a reinforced handle 1c. At the junction of the side walls with the bottom the carrier 1 is provided with openings 8 into which portions of the bottle bottoms fit so as to hold the bottles. Moreover, the inwardly sloping portions of the side walls 1b are provided with openings 9 which receive portions of the bottle necks so that the upper ends of the bottles are likewise firmly held. These openings 8 and 9 are needed in order to position the bottles since both ends of the bottle carrier are open. In accordance with the invention, the bottom of the bottle carrier is provided with star shaped openings 10 as seen in FIG. 4. The spacers 7 extend up through these openings when the bottle carrier with bottles therein is placed in the carton 20. As seen in FIG. 2 the spacers 7 and the partitions 5 and 6 extend upwardly from the bottom of the carton a distance somewhat greater than the height of the body portions of the bottles 2. The outer walls of the carton extend higher so as to accommodate the neck portions of the bottle and the handle portions of the bottle carriers. The upper ends of the spacers 12 are pointed as seen in FIG. 2 so as to facilitate entry of the spacers into the openings 10 in the bottoms of the bottle carriers when the carriers with the bottles therein are placed in the carton.

If the bottle carrier is formed of plastic it can have walls on all four sides. Likewise with plastic bottle carriers, wings are provided in the bottom to receive the spacers 7 when the bottle carriers are placed in the carton.

In FIGS. 5 and 6 there is shown a plastic bottle carrier 21 having a bottom 14, side walls 21a and end walls 21b. A handle portion 12 extends upwardly from the end walls. Ribs or fins 11 extend inwardly from the side walls so as to separate the bottles and prevent them from bumping one another. In the middle of the bottom there is provided a longitudinal slot 13 which extends up into the end walls 21b so as to accommodate the handle portion 12 of another bottle carrier when the carriers are stacked. Wedge shaped transversely extending slots 15 branch off of the longitudinal slot 13 as seen in FIG. 6. The longitudinal slot 13 together with the transverse slots 15 serve as openings to receive the spacers 7 when the bottle carriers are placed in the carton. The bottom portions 14 on opposite sides of the longitudinal slot 13 can be quite narrow. As the edges of the bottom join the side walls 21a, they have the strength of an angle profile. Moreover, the ribs 11 integral with the side walls and with the bottom further reinforce and support the bottle carriers.

In accordance with the present invention the carton 20 can accommodate either bottles in a carrier 1 as illustrated in one compartment of the carton shown in FIG. 1, or individual bottles as illustrated in a diagonally opposite compartment. In either event the spacers 7 position and separate adjacent bottles so that they do not bump one another during transport. A particular advantage of the invention is the possibility of automatic packing of bottles in bottle cartons as well as in bottle carriers and the possibility of automatic packing of filled and unfilled bottle carriers in the bottle carton.

While preferred embodiments of the invention have been illustrated in the drawings and are herein particularly described, it will be understood that the invention is in no way limited to these embodiments but that many modifications may be made while still retaining the novel features and advantages of the invention.

Thus, while reference has been made to ‘six-packs,’ it will be understood that the carriers may have greater or lesser capacity. Also while the crate or carton has been shown as accommodating four carriers, it may be made larger or smaller.

What I claim and desire to secure by letters patent is:

1. Packaging for the transport of bottles, comprising a plurality of bottle carriers each having a plurality of bottles and a plastic carton of a size to receive a plurality of said bottle carriers, said carton having side walls and a bottom, and positioning elements projecting up from the bottom of said carton and fitting between the bottles in bottle carriers placed in said carton to position said bottles and prevent them from bumping one another during transport, said carriers having openings in their bottoms through which said positioning elements extend.

2. Packaging according to claim 1, in which said carton has integral partitions dividing said carton into compartments of a size to receive said bottle carriers.

3. Packaging according to claim 2, in which said partitions are lower than the side walls of said carton.

4. Packaging according to claim 3, in which said bottle carriers have body portions and neck portions and in which said partitions have a height approximately equal to the height of the body portions of said bottles.

5. Packaging according to claim 2, in which said positioning elements are star shaped in cross section with a central portion and wing portions interposed between adjacent bottles to separate said bottles.

6. Packaging according to claim 2, in which said positioning elements are star shaped in cross section with a central portion and four wing portions having edges of which are spaced from sides of said compartments a distance not greater than half the diameter of said bottles.

7. Packaging according to claim 2, in which said positioning elements are star shaped with a central portion and four wing portions having edges of which are spaced from sides of said compartments a distance greater than half the diameter of said bottles and of sufficient thickness to prevent engagement of adjacent bottles with one another.

8. Packaging according to claim 1, in which said bottle carriers have vertical ribs extending inwardly from side walls of said carriers.

9. Packaging according to claim 1, in which said positioning elements are star shaped in cross section with a central portion and four wing portions and in which said openings in the bottoms of said carriers comprise a central longitudinal slot and transverse slots branching from said longitudinal slot.

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