ABSTRACT OF THE DISCLOSURE

A multiple bottle plastic carrying carton comprising a generally rectangular carton having integral bottom, side and endwalls; a longitudinally extending central dividing wall; partition walls cooperating with the central dividing wall to segregate the carton into a plurality of cells adapted to contain bottles; an upright handle attached to the central dividing wall; the dividing wall having an aperture contained therein adapted to receive the handle of another like carton in stacking relationship. The lower portions of the carton are divided into two integral units by a longitudinally extending recessed groove and the recessed groove is adapted to straddle a portion of a baling loop to connect the carton to other like cartons. Furthermore, lock receiving means is disposed along the outer edges of at least one endwall and adapted to cooperate in interlocking relationship with locking means on the baling loop to securely bind the carton to other like cartons.

This invention relates to bottle carrying cartons and cases. More particularly, this invention relates to plastic bottle carrying cartons which interlock to form a composite case. Bottle carrying cartons manufactured from plastic material, especially high density polyethylene, are becoming of significant importance in the packaging industry. These cartons, conventionally called "six" or "eight" packs, have been hitherto commercially desirable because of their ability to be reused many times with a minimum of maintenance. Normally, these cartons have been packaged in cases adapted to hold four six packs or three eight packs. Wholesalers and distributors ship the cases to retailers who ultimately sell the individual cartons to the consumer. The retailer, however, of necessity, acquires a large inventory of such cases which are space consuming and present additional problems of handling.

Attempts have heretofore been made to overcome these problems by providing cartons which interlock to form a composite case. For example, Masser in U.S. Patent 3,131,829 describes beverage carriers which are adapted to interlock through a series of notches and projections in the carrier adapted to mate with female receiving means in adjacent carriers to form a composite case. This type of construction, however, is quite susceptible to rapid wear, especially in the vicinity of the interlocking means. After a rather short period of use, the worn interlocking means provide a loose fit and result in a non-rigid composite case which is unsuitable for continuous handling and stacking and thus presents bulk transportation problems.

Accordingly, it is an object of the present invention to provide a bottle carrying carton which is adapted to be conveniently formed into a composite case. It is another object to provide a bottle carrying carton which will be relatively unaffected by repeated usage and jointer to form a composite case.

It is another object to provide a bottle carrying carton which either individually or as a component of a composite beverage case will easily stack with other cartons or cases of similar design to provide a stable means for the bulk transportation of beverage bottles.

These and other objects are accomplished by the present invention which provides a multiple bottle, plastic carrying carton comprising a generally rectangular carton having integral bottom, side and endwalls. A longitudinally extending central dividing wall having transverse partition walls cooperating therewith segregates the carton into a plurality of cells adapted to contain bottles. An upright handle is attached to said central dividing wall. The dividing wall has an aperture contained therein adapted to receive the handle of another like carton in stacking relationship. The lower portions of the carton are divided into two integral units by a longitudinally extending recessed groove, said recessed groove being adapted to straddle a portion of a baling loop to connect said carton to other cartons thereby forming a composite beverage case of the present invention. Lock receiving means are disposed along a portion of the outer edges of at least one endwall of said carton and are adapted to cooperate in interlocking relationship with locking means on said baling loop to securely bind said carton to other like cartons.

In another embodiment of the present invention there is provided a composite beverage case comprising, in combination, a plurality of plastic cartons as hereinabove described, the sidewalls of at least two of said cartons being contiguous. A baling loop extends longitudinally through the recessed grooves of said cartons and laterally across the adjacent endwalls unifying the cartons to form said composite case. Locking means are attached to the lateral portions of said loop and are adapted to interlock with the lock receiving means on the endwalls of said cartons to securely bind said cartons together.

The invention will be more readily understood by reference to the accompanying drawings, wherein several embodiments of the invention are illustrated, and wherein:

FIGURE 1 is a perspective view of a composite beverage case of the present invention with a partial cutaway to illustrate the means employed for increasing internal rigidity of the case.

FIGURE 2 is a perspective view of a plastic carton of the present invention, which, in combination with other like cartons, forms the composite case shown in FIGURE 1;

FIGURE 3 is a plan view of the composite case with one carton removed to illustrate the position of the baling loop employed to connect the respective cartons;

FIGURE 4 is a front elevation of the composite case with one carton removed to illustrate the position of the baling loop and the means for connecting the respective cartons in locking relationship;

FIGURE 5 is a right end elevation of the composite case shown in FIGURE 1 with one carton removed illustrating the position of the baling loop and the boss and mating aperture contained in one endwall of the cartons;

FIGURE 6 is a left end elevation of the composite case shown in FIGURE 1 illustrating the means for locking the respective cartons in abutting relation;

FIGURE 7 is a bottom plan view of the composite case illustrating the bottom walls of the cartons and the position of the baling loop relative thereto.

FIGURE 8 is a perspective view of a plastic carton of the present invention having 8 cells;

FIGURE 9 is a perspective view of three of the cartons of FIG. 8, illustrating a composite beverage case;

FIGURE 10 is a perspective view of the carton of FIG. 8, illustrating a detachable handle connection.

Referring now to the drawings, wherein like numerals in the various figures are employed to designate like parts.
posite case 10 is comprised of four multiple bottle plastic carrying cartons shown generally as 12. Each carton 12 is comprised of integral sidewalls 14 and 15, endwalls 20 and 21 and bottom said carton 12 is formed open for a laterally rectangular carton 12. The sidewalls 14 of at least two cartons 12 and, in the embodiment shown, four cartons, are contiguous. A bailing loop 16 extends longitudinally through the recessed grooves 18 of each carton 12 and laterally across the adjacent endwalls 20 of the respective carton 12 to form composite case 10.

The bailing loop 16 can be comprised of any structural material having sufficient strength and rigidity to maintain the cartons 12 in close contacting relation and to withstand the rigors of transportation and repeated handling. Materials which are considered satisfactory for this purpose include, for example, metallic wire or cable, formed plastic or relatively hard rubber loops, wooden loops or the like.

Locking means 22 are attached to the laterally extending portion of said bailing loop 16 and are adapted to interlock with lock receiving means shown in this embodiment as locking studs 24 integral with the endwalls 20 of said cartons 12 to securely lock said cartons 12 together to form composite case 10. Although studs 24 are shown herein, it is readily apparent that any lock receiving means adapted to receive and securely retain a device in the positions shown are adaptable for use within the scope of the present invention. It is also possible to entirely eliminate the lock receiving means and have the locking means 22 adapted to hook onto the endwall 20 of the carton. The cutaway portion of FIGURE 1 illustrates the means for internally rigidizing the cartons 12 comprising the composite case 10. A boss 42 and laterally opposed mating aperture 44 are contained in endwall 21 and are adapted to interlock with a boss 42 and mating aperture contained in the abutting endwall 21 of the adjacent carton 12 of the composite case 10. The exact location of the boss 42 and mating aperture 44 on the endwall 21 is not narrowly critical; however, it is considered preferably that they lie in about the midsction of the endwall 21.

FIGURE 2 is an illustration, in perspective, of one embodiment of the multiple bottle plastic carrying carton 12. It is intended that said carton 12 comprises a substantially rectangular shape of the carton 12 and the integral sidewalls 14 and 15, endwalls 20 and 21 and bottom wall 26. A longitudinally extending central dividing wall 32 co-operates with a plurality of, in this embodiment, two, transverse partition walls 36 to segregate the carton 12 into a plurality of said cells 36 thereby forming a "six pack" beverage carton. An upright handle 38 is attached to the central dividing wall 32 and can be either an integral extension thereof or a detachable handle. In the latter instance, the handle can be constructed of a similar or different plastic material or of an entirely different material such as wire. The central dividing wall 32 has an aperture 40 contained therein which is adapted to receive a handle of another similar carton in stacking relationship. The handle of another carton communicates with the aperture 40 to provide excellent stack stability to either a stack of individual cartons 12 or to a stack of composite beverage cases 10. The handle 38 in the central dividing wall 32 bridges the aperture 40 contained therein. Gripping means 46 is horizontally disposed across endwall 20. Preferably, the gripping means 46 is substantially hollow and easily grasped by the fingers. The gripping means 46 provides a convenient means of handling the composite case 10. Although gripping means 46 is shown as an integral part of the carton 12, it is also considered within the scope of the present invention that the gripping means 46 be attached to the bailing loop 16 along the laterally extending portions thereof rather than as an integral part of said carton 12 as shown as locking studs 24 are disposed on the opposed end of the gripping means 46 proximate the outer edges of the endwall 20. The locking studs 24 are adapted to cooperate in interlocking relation with locking means 22 on the bailing loop 16 to securely bind said carton 12 to other like cartons to form the composite beverage case 10. Tensioning ribs 48 are integral with the underside of the gripping means 46 and the edges of the recessed groove 18 and are adapted to take-up slack in the bailing loop 16 attributable to minor molding variations in the individual cartons 12 forming the composite case 10. The laterally extending portion of the bailing loop 16 ride on one tensioning rib 48 on each endwall 20 of adjacent cartons 12. When the locking means 22 attached to the laterally extending portions of the bailing loop 16 engages the locking studs 24 to lock the cartons 12 in abutting relation, the laterally extending portions of the bailing loop 16 ride up or down on the tensioning ribs 48 depending on the extent of molding variation in the respective cartons 12 and take up any slack in the system thereby maintaining the cartons in close contact. Also, when the slack, if any, is taken up, this forces the mating bosses 42 and apertures 44 on endwalls 21 into interlocking relation thereby internally rigidizing the composite case 10. The locking means 22 is preferably adapted to impart tension to the bailing loop 16 thereby maintaining constant upward force on said bailing loop to compensate for plastic creep and permit said bailing loop 16 to ride up and down said tensioning ribs 48. Although the presence of the tensioning ribs 48 is considered desirable and therefore preferred, molding variations are usually very slight and thus, the tensioning ribs 48 can be entirely dispensed with if desired.

FIGURE 3 illustrates a plan view of the composite beverage case 10 with one carton 12 removed to illustrate a portion of the bailing loop 16 as it longitudinally travels through the recessed grooves 18 of the respective cartons 12 and laterally extends across the endwalls 20 thereof to bind them into a composite case 10. The bottom wall 26 of each carton 12 has a plurality of apertures 28 contained therein to provide adequate drainage for the carton and also to otherwise aid in reducing the weight of the carton. The number and configuration of the apertures 28 within the bottom wall 26 is not considered critical; however, they should not be so numerous or so large as to effect the integrity thereof generally. The flexural rigidity of the bottom wall 26, ribs 30 are provided integral with the bottom wall 26 and preferably upwardly resting thereon. The ribs 30 are confined within and contact the walls defining the respective cells 36 of the cartons 12. Although considered preferential, the ribs 30 are not critical since sufficient rigidity can be imparted to the bottom wall 26 by increasing the thickness thereof or by other known rigidizing means. The locking means 22 attached to the bailing loop 16 is adapted to grasp a pair of locking studs 24, one from each endwall 20 of adjacent cartons 12 and lock the cartons 12 in their respective positions in the composite case 10. Any suitable locking means 22 can be employed, for example trunk-type locks, spring clamps, lever-type locks, toggle locks, wedge clamps, camming clamps and the like. FIGURE 4 illustrates a front elevation of the composite case of the present invention with one carton removed. Upright handle 38 is shown, preferably centrally disposed relative to the entire length of the carton 12 in order to provide proper balance and ease of handling when the carton 12 is loaded with bottles (not shown). The handle 38 is also preferably ribbed to impart rigidity thereto and substantially prevent the handle 38 from breaking from the carton 12 upon repeated usage. The edges 50 of the carton 12 formed by the intersection of the respective endwalls 20 and 21 with the sidewalls 14 and 15 are preferably beveled, at least for a portion of the length thereof, in order to remove sharp corners which are quite susceptible to rapid wear and breakage upon continuous use especially in bulk transportation systems using conveyors of various types wherein such cases are commonly collid-
ing with one another and the sidewalls of the conveyor track or belt. The lateral portion of the baling loop 16 contains the locking means 22 which is shown in interlocking relation with locking studs 24 integral with the endwall 20.

FIGURE 5 illustrates a right end elevation of the beverage case 10 of the present invention with one carton 12 removed. The longitudinally extending recessed groove 18 of the carton 12 divides the lower portion of the carton into two integral units 52 and 54 which straddle the baling loop 16. It has been found critical in the present invention that the height of the recessed groove 18 be less than about 75 percent of the height of the endwalls 20 and 21 of the carton 12. Preferably, the height of said recessed groove is less than about 50 percent of the height of the endwalls and, most preferably, the height of the recessed grooves 18 coincides with about mid point of the endwall. The height of the recessed groove 18 is critical, for if the groove extends higher on the endwall, a hinge effect is obtained when the carton is loaded with bottles causing the bottles to bow either inwardly or outwardly when subject to stresses of stacking thereby substantially reducing the rigidity of the carton and destroying stack stability thus preventing severe problems in bulk transportation as well as display applications wherein stacking is important. It is also considered preferable in this regard that the boss 42 and mating aperture 44 lie in a common plane in about the midsection of the endwall 21 thereby providing optimum internal rigidity to the composite case. When the cartons 12 are locked in place to form the composite case 10, the baling loop 16 transmits the forces exerted by the locking means 22 through connection with locking studs 24 and the tensioning ribs 48 primarily throughout a plane in the midsection of the case. In so doing, the mating bosses 42 and aperture 44 are forced into intimate interlocking relation to impart rigidity in the internal rigidity to the corresponding area of the abutting endwalls 21 of the composite case 10.

FIGURE 6 illustrates a left end elevation view of the composite case of the present invention. Due to the lateral portions of the baling loop 16 riding on the tensioning ribs 48 which are integral with the endwalls 20 and the underside of the gripping means 46, any slack in the composite case 10 due to the molding variations in the individual cartons 12 is taken up by the baling loop 16 riding up or down on the tensioning ribs 48 as the locking means 22 interlocks or grips the locking studs 24. Vertical ribs 56 with the endwall 20 and extending vertically down from the underside of the gripping means 46 provide additional rigidity to the endwall and support for the gripping means. The vertical ribs 56 have been found useful in protecting the locking means 22 from accidental opening on bottle conveying lines but are not considered narrowly critical and can be dispensed with if desired.

FIGURE 7 is a bottom plan view of the composite case 10 illustrating the means by which the baling loop 16 connects the respective cartons 12. The baling loop 16 extends longitudinally through the recessed grooves 18 of the respective cartons 12 and laterally across the endwalls 20 thereof. Locking means 22 attached to the lateral portions of said baling loop interlock or grip the locking studs 24 or other similar lock receiving means to bind the respective cartons 12 into a composite, rigid case 10. The recessed grooves 18 divide the bottom wall 26 into two integral units 52 and 54. The perimeter of said integral units can be ribbed 58 and/or footed 60 at intervals to improve stacking stability by contacting the crowns of bottles below to prevent sideward sliding.

Although the composite case 10 in the embodiment shown in the drawing is comprised of four “six packs,” it is also considered within the scope and spirit of the present invention that the composite cases can be comprised of two or more cartons, wherein said cartons are adapted to hold six or eight bottles each. Since the beverage industry generally prefers to package bottles in cases of 24, this usually necessitates cases either being comprised of four “six packs” or three “eight packs.” In the latter instance, certain modifications of the present invention become necessary. Principally, the baling loop contains an additional loop member extending longitudinally and parallel with the longitudinal portions of the baling loop and connects with about the mid point of the laterally extending portions of the baling loop. The recessed grooves of each of the three “eight pack” cartons straddle the three longitudinally extending portions of the baling loop. In this embodiment, the abutting walls are the respective sidewalls of the carton; therefore, the bosses and mating apertures are contained in the sidewalls of the cartons and are adapted to interlock to impart internal rigidity to the composite case. A pair of locking means on each of the laterally extending portions of the baling loop are adapted to interlock with the locking studs on the endwalls of each carton. Since the sidewalls of the eight packs are in abutting relationship, it becomes necessary that both endwalls of each carton contain locking studs therein.

The composite case for eight packs described above is illustrative of the versatility of the present invention and is not to be considered in limitation thereof since it is readily apparent that the eight packs can be arranged in other case configurations as well while still employing the basic concepts of the present invention. For example, if a pair of apertures are provided generally through the sidewalls of each carton, a baling loop such as that shown in the drawing could be employed and the additional loop member described above would become unnecessary. In this latter embodiment, gripping means would preferably be attached to the baling loop.

The carrying cartons of the present invention can be constructed of any material such as plastic, metal, wood, paper composites and the like which can provide sufficient structural strength and rigidity and can be easily formed by extrusion, molding or other forming techniques. Although both thermoplastics and thermoplastic materials can be employed, thermoplastics are considered preferable. Typical of the thermoplastics which can be suitably employed are polyolefins such as polyethylene, polypropylene, polystyrene, rubber modified styrene polymers such as acrylonitrile/butadiene/styrene polymers, and the like, and preferably high density polyethylene.

Although the invention has been described in its preferred forms with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example, and that numerous changes can be made without departing from the spirit and scope of the invention.

What is claimed is:
1. A multiple bottle plastic carrying carton adapted to be united to other cartons by a baling loop comprising a generally rectangular carton having integral bottom, side and endwalls; a longitudinally extending central dividing wall; partition walls cooperating with said central dividing wall to segregate the carton into a plurality of cells adapted to contain bottles; an upright handle attached to said central dividing wall; said dividing wall having an aperture contained therein adapted to receive the handle of another like carton in stacking relationship; the lower portions of said carton being divided into two integral units by a longitudinally extending bailing loop receiving groove, said groove adapted to straddle a portion of a baling loop to connect said carton to other like cartons and lock receiving means disposed along the outer edges of at least one endwall adapted to baling loop to securely bind said carton to other like cartons.
2. A multiple bottle plastic carrying carton as defined in claim 1 wherein a boss and mating aperture are contained in opposed sides of one end wall of said carton, adapted to interlock with a similarly disposed boss and aperture of another like carton.
3. A multiple bottle plastic carrying carton as defined...
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A multiple bottle thermoplastic carrying carton as defined in claim 7 wherein the central dividing wall cooperates with three transverse partition walls to segregate the carton into eight cells.

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14. A multiple bottle thermoplastic carrying carton as defined in claim 14 wherein the central dividing wall cooperates with three transverse partition walls to segregate the carton into eight cells.

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15. A multiple bottle thermoplastic carrying carton as defined in claim 14 wherein the boss and mating aperture are contained in at least one sidewall of said carton along the midsection thereof.

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16. A composite beverage case comprising, in combination, three plastic cartons as defined in claim 15 being situated such that the endwalls containing bosses and apertures therein are in interlocking communication; a balancing loop extending longitudinally through the recessed grooves in each of said cartons and laterally across adjacent endwalls connecting the cartons to form a composite case; locking means attached to the lateral portions of said loop adapted to interlock with the locking studs on both endwalls of each of said cartons.

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17. A multiple bottle polyolefin carrying carton comprising a generally rectangular carton having integral bottom, side and endwalls; a longitudinally extending central dividing wall; two transverse partition walls cooperating with said central dividing wall to segregate the carton into six cells; locking means attached to the lateral portions of said loop adapted to interlock with the locking studs on both endwalls of each of said cartons.

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18. A multiple bottle polyolefin carrying carton as defined in claim 17 wherein the central dividing wall cooperates with two transverse partition walls to segregate the carton into six cells.

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19. A multiple bottle polyolefin carrying carton as defined in claim 17 wherein the height of the recessed groove is about 50 percent of the height of the endwall of the carton.

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20. A multiple bottle polyolefin carrying carton as defined in claim 19 wherein the boss and mating aperture are contained in one endwall of said carton proximate the opposed vertical edges thereof at about the midsection thereof.

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21. A composite beverage case comprising, in combination, two pairs of polyolefin cartons as defined in claim 17, the cartons in each pair being disposed relative to each other so that the endwalls containing bosses and apertures are in interlocking communication; the two pairs of cartons are disposed in parallel alignment so that the two endwalls thereof are contiguous; a balancing loop extending longitudinally through the recessed grooves in said cartons and laterally across the adjacent endwalls unifying the two pairs of cartons to form a composite beverage case; locking means attached to the lateral portions of said loop adapted to interlock with the locking studs on the endwalls of said cartons.
walls of said cartons and through cooperation with the
tensing ribs, provide a rigid composite case.

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