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2,431,713

BOTTLE CARRIER

Filed July 3, 1945

2 Sheets-Sheet 1

Fig-1

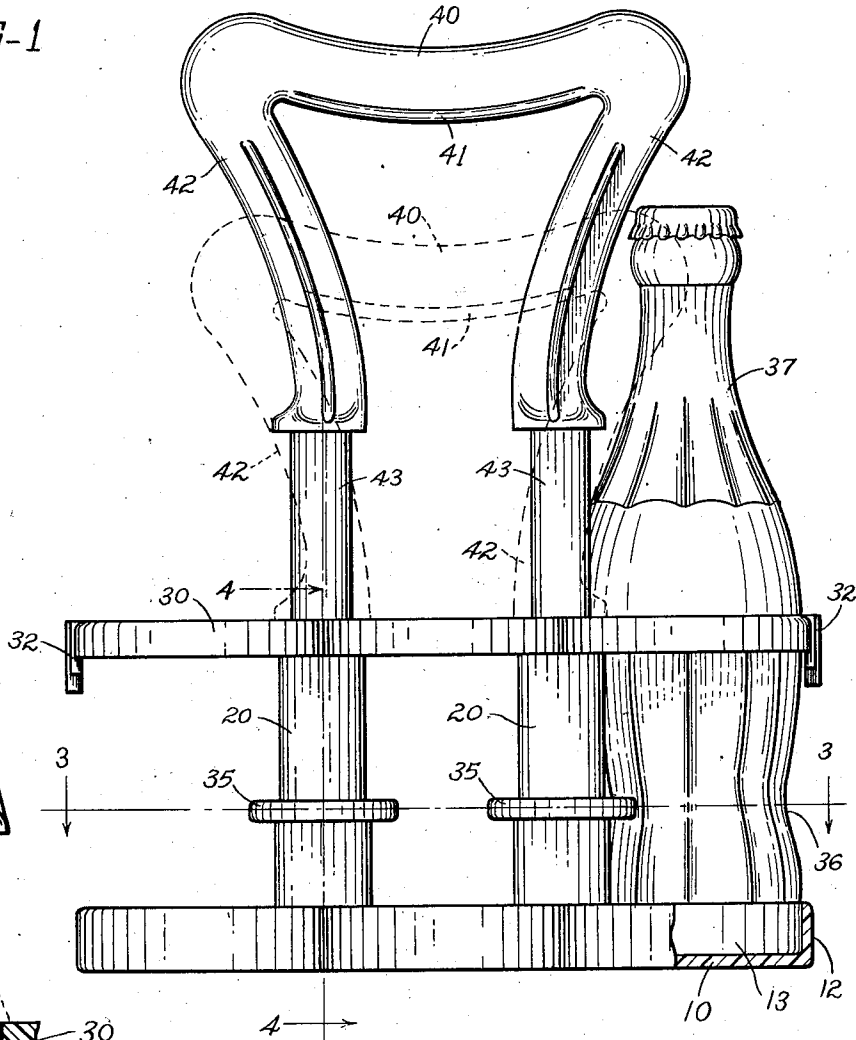


Fig-4

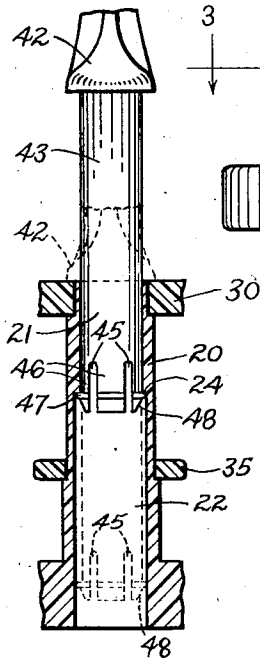
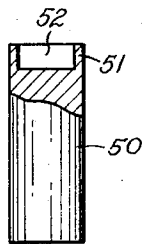


Fig-5



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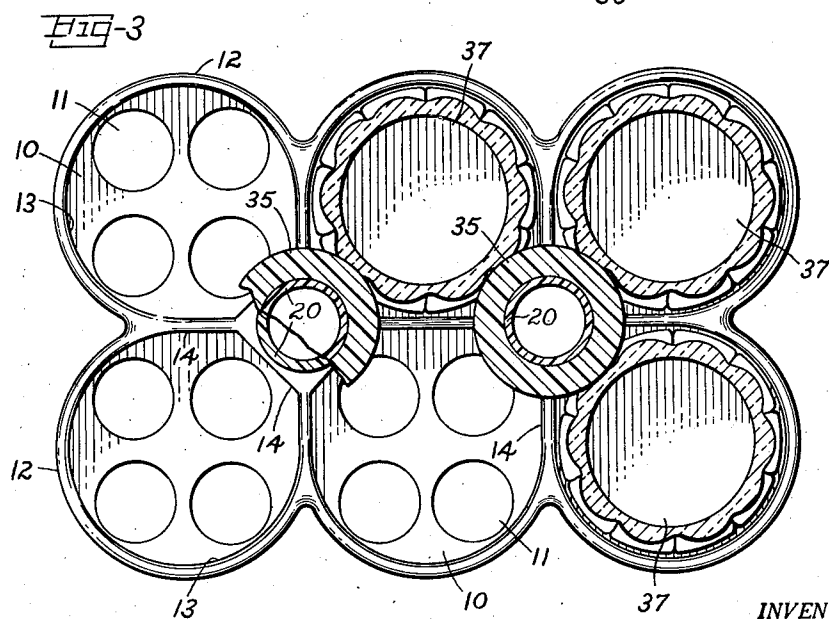
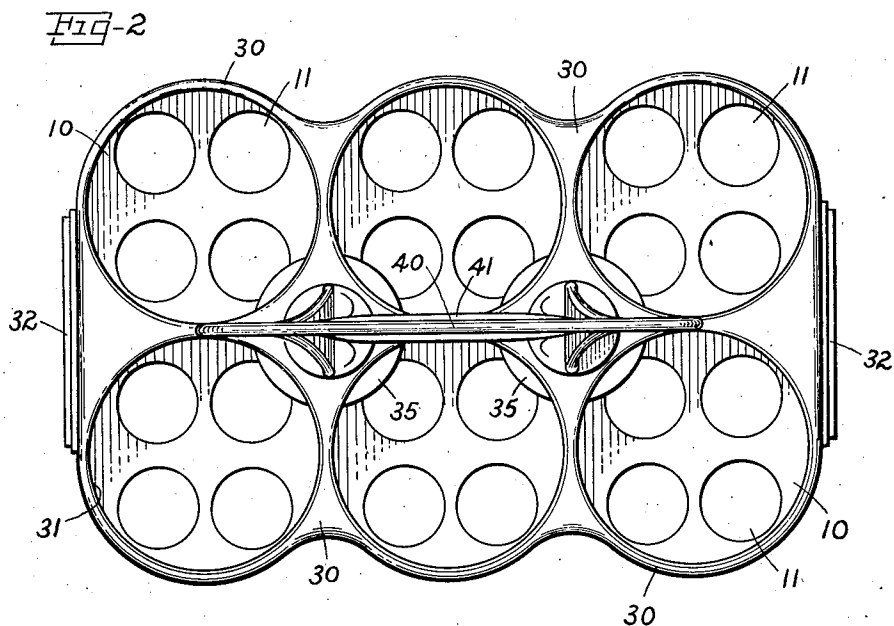
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2 Sheets-Sheet 2



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BOTTLE CARRIER

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This invention relates to bottle carriers. It is the principal object of the invention to provide a bottle carrier which is simple and inexpensive in construction, light in weight and yet adequately strong, and which may be used over and over again, and which may be easily washed or cleansed and kept in a clean and sanitary condition.

Another object is to provide such a carrier construction of parts which can be readily molded and easily assembled, or repaired.

It is a further object to provide such a carrier which selectively receives bottles having an intermediate constriction while rejecting straight-sided bottles.

It is also an object to provide a carrier having a collapsible handle movable from a raised carrying position where the grip is conveniently accessible above the tops of the bottles to a lowered position where the handle is below the tops of the bottles, thereby facilitating the stacking of the carriers upon each other.

It is a still further object to provide a two piece carrier having a base structure on which the bottles are received and a handle having integral legs which are directly assembled by snapping into place on the base structure and from which the handle may be readily removed, to permit of ready assembly of knock down parts or ready replacement of damaged parts.

Other objects and advantages will be apparent from the following description, the accompanying drawings and the appended claims.

In the drawings, which disclose a preferred embodiment of the invention, and in which like characters of reference designate like parts throughout;—

Fig. 1 is a view in side elevation of a carrier which is constructed in accordance with the present invention showing one bottle in position and the handle in both its raised and lowered positions;

Fig. 2 is a plan view of the empty carrier;

Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1 showing a number of the bottles in the assembled position in the carrier;

Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 1 through one of the uprights; and

Fig. 5 is a view partially in section and partially in elevation showing a simple and effective tool utilized for releasing the handle locking members.

Referring to the drawings which disclose a preferred embodiment of the invention the carrier comprises a base 10. As shown the base is

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provided with a series of openings or perforations 11 for the purpose of saving weight and material while maintaining adequate strength and to allow dirt and waste to fall through, the form illustrated being constructed to carry up to six bottles. As stated, the carrier is so formed and of such material that it is desirably light and yet strong. These characteristics are attained in the form herein illustrated by forming the carrier of a molded material which is light in weight and yet may be made adequately strong, the form shown being satisfactory in this regard and a satisfactory material for this purpose being a plastic such as a cellulose acetate material. All parts of the carrier are adapted for convenient formation from such materials and by convenient molding operations and relatively inexpensive dies.

The base 10 has side walls 12 which define a plurality of recesses 13 each of which is of proper size and shape to receive the bottom of a bottle. As will be apparent from Fig. 3, the side wall 12 of each recess is continuous, and while relatively shallow (see Fig. 1) nevertheless prevents lateral movement of each bottle relative to its recess except by a movement substantially longitudinal of the bottle.

The recesses are not necessarily of precisely the same cross section as that of the bottle, but may be provided with portions such as 14 which have flat sides, for ease and convenience in molding. The shape of the recesses however is such as to receive and relatively closely confine the bottom of the bottle so that when in assembled position there is no substantial looseness, and the bottle is properly guided and supported. Fig. 3 shows the carrier arranged for the handling of six bottles arranged in two parallel rows of three bottles each. In this way it is possible to make use of a single side wall 12 for defining the side of each adjacent pair of recesses.

A pair of uprights 20 extend upwardly from the base. These are preferably formed integrally with the base. But parts made of proper material, such as the moldable plastic material above referred to, may be formed in separate parts as desired and fixedly connected thereto by means of an adhesive having a volatile solvent which will also soften the molded material and bind parts, such as the base and uprights, together with adequate strength. This molding in a plurality of smaller parts of uncomplicated form lowers the cost of preparing the parts and yet when bonded together it gives an adequately strong structure. This also permits of shipping

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parts knocked down and assembling them at the place of use, or assembling them into unit sections as desired. And when so adhered or bonded the parts, such as these uprights, are as satisfactorily connected as if formed integrally. Such uprights are hollow or tubular as shown in Fig. 4. Further such uprights are open both at their upper ends and at their lower ends through the provision of a passage, having the upper end designated 21 and the lower one 22. As shown in Fig. 4 the upper part of the passage and the opening 21 are of less diameter than the lower part and the opening 22, thus providing an internal shoulder 24 at an intermediate position. Also the uprights 20 are of substantially less height than the bottles.

A retaining means for the bottles is provided adjacent the upper ends of the uprights, such retaining means also being preferably formed separately and adhered to the uprights in the manner stated. When thus adhered the base, uprights and retaining means act as a unitary section and may be so formed, although by molding them separately and then adhering them, it has been found that economy in manufacturing is effected.

As shown this retaining means comprises a plate 30 which is supported on the uprights 20 and which is shaped to provide a series of ring-shaped openings 31 of suitable size to allow the bottles to be received therethrough. Openings 31 are arranged in a pattern corresponding to that of the recess 13, being substantially coaxial therewith and spaced above the latter, as shown in Fig. 1. The plate 30 also forms a convenient means for supporting a sign member 32 on which suitable advertising or other identifying data may be placed. The openings 31 are shown in Fig. 2 as circular, to receive a bottle which is circular in cross section at this position and are shaped to provide for closely receiving and confining the bottle when in assembled position.

Interference members 35 are provided at an intermediate location above the recesses 13 and below retaining means 30. The interference members as shown comprise rings which may be conveniently molded separately and adhered to uprights 20 as described. The rings overlie and project laterally beyond the side walls of the recesses in the base and retaining member. The interference members thus project into the normal path of movement of the bottles as introduced into and removed from the carrier, and are so positioned vertically that they are located substantially opposite a constriction of the body of the bottle when the latter is in its finally assembled position. As shown in Fig. 1, the constriction 36 of the bottle 37 is located opposite interference member 35, such member extending laterally into close interfitting relation with the constriction in each assembled position.

Fig. 3 shows a satisfactory construction of the interference members, as shaped as solid disks. Each such disk thus overlies and performs its intended function with respect to the four recesses adjacent each upright. Thus the provision of two such members adequately provides the desired function for all six recesses, this effective relationship of a single such member to a group of bottles being clearly shown in Fig. 3.

A handle is provided to facilitate manual carrying, such handles are preferably formed as a single member, and may be readily molded of plastic material. The handle comprises a grip

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portion 40 which is relatively thin, when in place extends lengthwise of the carrier, and is preferably provided with a reinforcing flange as shown at 41 on its lower side, to give considerably greater strength with less weight. The flange has an upward curvature of its ends, to facilitate handling. The handle is also formed with downwardly curving parts 42, the lower ends of which are shaped as cylindrical leg portions 43, parallel to and spaced from each other the proper distance to be received within the upper openings 21 of the respective uprights 20.

At their lower ends, each leg portion is provided with slits 45 providing deformable tongues 46 which may be sprung against the natural resiliency of the material sufficiently to allow the flexing thereof toward each other sufficiently to enter them into the upper smaller part of its passage through the opening 21. Satisfactory results have been secured using four such slits and tongues, as shown. These parts may be effectively molded by forming the lower ends of the handle hollow and with projecting angularly spaced flexible projections. Locking means in the form of an enlargement providing locking flanges 47 are formed at the lower ends of members 46, the outer periphery of said members below the enlargement 47 being beveled as shown at 48 to form an effective cam surface for flexing the tongues 45 as they are pushed into the upper openings 21.

Each enlargement 47 is normally of greater diameter than an opening 21, but the leg portions are receivable through opening 21 upon application of manual pressure to cause the deforming of the tongues 46 inwardly toward each other, this action occurring initially under the camming effect of surfaces 48 being forcibly introduced into the upper end of opening 21. The leg portions then may readily be pushed through the upper part of the passage, and as soon as the enlargements 47 pass below shoulder 24, they snap outward into the lower larger passage where they are free to expand, thus establishing a normal locking relation of the handle, providing for free up and down movement of the handle throughout the extent of the lower part of the passage, but normally preventing further movement or withdrawal of the handle after it is moved upward to the position determined by the shoulder 24.

Suitable means is provided for flexing the tongues inwardly when it is desired to disassemble the handle from the base unit. As shown, a separate tool 50 is provided which may be used to unlock and release the leg portions from the uprights when desired, this tool having an annular wall 51 at one end defining a recess 52. It is receivable into the lower passage portion through the lower opening 22 of each upright and movable into engagement with the cam surfaces 48. When pressed upwardly with the annular wall 52 in contact with the cam surfaces 48, a deforming pressure is developed which flexes the tongues 46 toward each other, sufficiently to release the locking enlargement 47 from shoulder 24, thereby allowing the handle to be readily withdrawn. Broken or damaged handles may thus be easily replaced, or good handles salvaged from damaged bottom units.

In the use of the carrier, bottles having an intermediate constriction in their body, such as the bottles shown at 37 may be assembled through the openings 31. This requires a movement during assembly primarily in the lengthwise direc-

tion of the bottle. As the bottom of the bottle passes downwardly, it tends to strike interference member 35, but by slightly swinging or tipping the bottle the bottom of the bottle may be laterally displaced during such assembly sufficiently to clear such interference member. For its final assembled position, the bottom of the bottle is swung or tilted back slightly to be received in and substantially closely confined by the side wall 12 of recess 13, the interference member 35 interfitting with the constriction 36 of the bottle in such manner as to in effect hold or lock the bottle in its assembled position against accidental displacement and affording additional support for the same in addition to that developed by the side wall of the recess and the retaining means 30.

If it is attempted to insert bottles having straight sides, or without the intermediate constriction, and of diameter corresponding to the diameters of the recesses 13 and aligned opening in the retaining means 30, it will be evident then that this cannot be done. In the absence of such constriction, a straight-sided bottle of such size cannot be seated in the recess 13 because of the presence of the interference member. The form of carrier shown is thus selective with respect to bottles having an intermediate constriction, rejecting straight-sided bottles.

When the component parts of the base unit are adhered, the carrier comprises only the two pieces, the molded base unit, and the separately molded handle member. Initial assembly of the two pieces requires only the pressing of the legs of the handle downwardly through the openings 21 in the uprights, the handle being moved downwardly until the locking means 47 snaps into locking engagement below shoulders 74. The handle may then be further collapsed to the dotted line position shown in Figs. 1 and 4, moving freely to this position under the action of gravity or under slight force if the parts are in sliding fit. In this position the top of the handle is below the tops of the bottles. This is desirable as facilitating the stacking of the loaded carriers upon each other, without interference from the handle member, this being true whether the carrier is loaded with full bottles or empty bottles being returned. When however the carrier is to be picked up the handle readily lifts, the limited but free upward movement thereof being permitted to permit easy carriage. When the handle has been lifted to approximately the full line position as shown in Figs. 1 and 4 locking members 47 engage shoulders 24, thus preventing further sliding movement, and picking up the load of the base and the bottles assembled thereon. This provides a definite clearance above the tops of the bottles so that the latter do not interfere with complete freedom of carrying on the part of the operator.

The invention therefore provides a simple and highly satisfactory construction of bottle carrier which may be made easily and inexpensively molded or die cast from suitable material, and when ready for use is preferably in only two separable parts which are readily assembled and disassembled. The carrier as shown is selective with respect to bottles having an intermediate constriction, and rejects straight-sided or other shaped bottles, but permits of readily assembling such constricted bottles, of holding them in place and of readily removing them. The carrier is neat and attractive in appearance, is readily adaptable to stacking without interference from

the handle, and in carrying position the handle is arranged to be completely free of interference from the bottles. Also it may be molded of variously colored materials thus permitting the use of desired attractive colors or combinations of colors.

The carrier is readily adapted to cleaning so that upon return with the empty bottles, it may be washed or otherwise cleansed such as by the use of sterilizing light rays so that it is then in a clean and sanitary condition available for re-use.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A bottle carrier for selectively receiving bottles having an intermediate constriction in the body thereof comprising a base having a side wall defining a recess adapted to receive and closely confine the bottom of the bottle, means on said carrier requiring a bottle to be inserted in said recess with a movement primarily in the lengthwise direction of the bottle, and an interference member spaced from and projecting in overhanging relation with respect to said recess and adapted to be received in interfitting relation with the constriction of said bottle when in assembled position upon said carrier.

2. A bottle carrier for selectively receiving bottles having an intermediate constriction in the body thereof comprising a base having a continuous side wall defining a laterally enclosed recess of relatively shallow depth for receiving and closely confining the bottom of the bottle in assembled position thereon, means on said carrier requiring the bottle to be assembled in said recess with a movement primarily in the lengthwise direction of the bottle, and an interference member spaced above and projecting partially over said recess for preventing assembly of a straight sided bottle in said recess and adapted to interfit with said intermediate constriction when such bottle is assembled therein.

3. A bottle carrier for selectively receiving bottles having an intermediate constriction in the body thereof comprising a base portion having a side wall defining a recess for receiving and closely confining the bottom of the bottle in assembled position thereon, a closed ring supported above and in spaced relation with said base and having an opening therethrough of substantially the size of said recess through which the bottle is received in assembly, said ring limiting said bottle to movement primarily in the lengthwise direction thereof when being inserted in said recesses, and an interference member between said ring and said base preventing the seating in said recess of a straight-sided bottle and adapted to interfit in locking relation with a bottle having said intermediate constriction.

4. A bottle carrier for selectively receiving bottles having an intermediate constriction in the body thereof comprising a base portion having a side wall defining a recess for receiving and closely confining the bottom of the bottle in assembled position thereon, an upright member secured to said base, a closed ring supported by said upright member above and in spaced relation with said base and having an opening therethrough of substantially the size of said recess

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through which the bottle is received in assembly, and an interference member between said ring and said base requiring the lateral displacement of the bottom of the bottle during assembly, said interference member extending into the vertical projection of said opening and said recess and being receivable in interfitting relation with the constriction of the assembled bottle.

5. A bottle carrier for selectively receiving bottles having an intermediate constriction in the body thereof comprising a base having side walls defining a plurality of spaced recesses for receiving and closely confining the bottoms of a corresponding number of bottles, a plurality of ring-shaped members having bottle receiving openings therein each arranged in coaxial relation with one of said recesses, means supporting said ring shaped members above and in spaced relation with said base, and interference members carried by said supporting means and located at an intermediate position between said recess and said ring members and having portions projecting into the direct path of movement of said bottles as assembled and requiring lateral displacement of the bottoms thereof during assembly, said interference portions being received within said constrictions.

6. A bottle carrier for selectively receiving bottles having an intermediate constriction in the body thereof comprising a base having side walls defining a plurality of spaced recesses for receiving and closely confining the bottoms of a corresponding number of bottles, a plurality of ring-shaped members having bottle receiving openings therein each arranged in coaxial relation with one of said recesses, an upright supporting member positioned adjacent each of a plurality of said recesses and supporting said ring-shaped members above and in spaced relation with said base, and an annular interference member carried by said upright member and located at an intermediate position between said recess and said ring members, said interference member projecting laterally beyond the walls of said plurality of recesses adjacent said upright member to prevent assembly therein of straight-sided bottles while allowing assembly of said constricted bottles.

7. A bottle carrier comprising a base member adapted to receive a plurality of bottles therein, uprights on said base of less height than said bottles, means supported on said uprights above and in spaced relation with said base and including ring members adapted to receive and retain said bottles in assembled position on said base, a handle having a grip and a plurality of leg portions attached thereto, said leg portions being constructed for sliding engagement with said uprights providing for the collapsing of said grip below the tops of said bottles to facilitate the stacking of said carriers upon each other, and means for locking said leg portions to said uprights following limited upward sliding movement thereof to provide for the raising of said grip above the tops of said bottles for convenient carrying.

8. A bottle carrier comprising a base member adapted to receive a plurality of bottles therein, hollow uprights on said base of less height than said bottles, a handle having a grip and leg portions attached thereto, said leg portions having sliding engagement within said hollow uprights providing for the lowering of said grip below the tops of said bottles to facilitate stacking of said carriers upon each other, said leg portions and

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said uprights having interengaging parts providing for limited sliding movement of said legs to allow said grip to be raised above the tops of said bottles while preventing complete withdrawal thereof.

9. A bottle carrier comprising a base member adapted to receive a plurality of bottles therein, hollow uprights on said base formed with an internal shoulder, a handle having a grip and leg portions formed integrally therewith, locking members formed integrally at the lower ends of said leg portions and deformable to provide for interfitting sliding engagement in said hollow uprights above said shoulder, said locking members expanding to a locking position beneath said shoulder to interlock said handle in operative relation with respect to said uprights.

10. A bottle carrier comprising a base member constructed to receive a plurality of bottles therein, uprights carried by said base member and of less height than said bottles, a handle having leg portions attached thereto, means carried by said uprights and spaced from said base member and having means for receiving said bottles when inserted by longitudinal movement there-through into the base receiving member, and means for slidably connecting said handle to said bottle holding members and constructed to position the handle below or above the tops of the bottles.

11. A bottle carrier comprising a base member having a plurality of bottle receiving recesses therein, a plurality of uprights on said base of less height than the bottles, a handle having a grip and a plurality of leg portions attached thereto, said leg portions having sliding engagement with said uprights providing for the collapsing of said grip below the tops of said bottles to facilitate the stacking of said carriers upon each other, means for locking said leg portions to said uprights following limited upward sliding movement thereof to provide clearance of said grip above the tops of said bottles for carrying, and means for releasing said locking means to allow complete withdrawal of said grip from said uprights.

12. A bottle carrier having a base for receiving a plurality of bottles, tubular uprights on said base, a handle having a grip and leg portions formed integrally therewith and slidably received within said uprights, said leg portions being split and having integral deformable locking members thereon, shoulders on said tubular uprights in position to engage said locking members upon limited withdrawal of said handle providing for the lifting of said grip above said bottles during carrying, said locking means being deformable to clear said shoulders providing for complete withdrawal of said handle.

13. A bottle carrier having a base for receiving a plurality of bottles, tubular uprights on said base open at their lower ends, a handle having a grip and leg portions formed integrally therewith and slidably received within said uprights, the lower ends of said leg portions being split and having integral deformable locking members thereon, shoulders on said tubular uprights in position to engage said locking members upon limited withdrawal of said handle providing for the lifting thereof above said bottles during carrying, the lower ends of said locking members having cam surfaces thereon, and a tool receivable through the open end of said uprights for engaging said cam surfaces to de-

form said members to a clearance position allowing complete withdrawal of said handle.

14. A bottle carrier for selectively receiving bottles having an intermediate constriction comprising a base having a side wall forming recesses for receiving and closely confining the bottoms of the bottles, a pair of tubular uprights upon said base, a bottle retaining member upon said uprights and having ring-shaped bottle receiving openings above and in corresponding relation with said recesses, interference members supported upon said uprights at an intermediate position between said retaining member and said base and preventing insertion of a straight-sided bottle in said recess while allowing insertion of said constricted bottle, a handle having a grip and leg portions slidably received in said tubular uprights providing for the collapsing of said handle below the tops of the bottles when said carriers are stacked, the lower ends of said legs having locking members thereon, and internal shoulders on said uprights for engagement with said locking members after limited withdrawing movement of said legs providing for the lifting of said handle to a clearance position above the tops of said bottles for carrying.

15. A two-piece bottle carrier for selectively receiving bottles having an intermediate constriction comprising a base having a side wall forming recesses for receiving and closely confining the bottoms of the bottles, a pair of tubular uprights affixed upon said base, bottle retaining members affixed upon said uprights and having ring-shaped bottle receiving openings above and in corresponding relation with said recesses, interference members affixed to said uprights at an intermediate position between said retaining member and said base and preventing insertion of a straight-sided bottle in said recess while allowing insertion of said constricted bottle, a handle having a grip and integral leg portions slidably received in said tubular uprights providing for the collapsing of said handle below the tops of the bottles when said carriers are stacked, the lower ends of said legs having integral locking members thereon, and internal shoulders on said uprights for engagement with said locking members after limited withdrawing movement of said legs providing for the lifting of said handle to a clearance position above the tops of said bottle for carrying.

16. A bottle carrier for selectively receiving bottles having an intermediate constriction in the body thereof comprising a base having side walls defining a plurality of spaced recesses for receiving and closely confining the bottoms of a corresponding number of bottles, means provid-

ing a plurality of ring-shaped retaining members each arranged in coaxial relation with one of said recesses and each being of a diameter sufficient to permit the passage of one of said bottles therethrough, means supporting said retaining members in spaced relation with said base providing for insertion of said bottles by movement primarily in the lengthwise direction of the bottle and substantially preventing sidewise movement of said bottles in said carrier, and interference members located at an intermediate position between said recesses and said retaining members and having portions projecting partially into the direct path of movement of said bottles as assembled, said spaced relation of said retaining members and said base providing for adequate lateral displacement of the bottoms of said bottles to clear said interference members upon insertion, said interference members being adapted to interfit within said constrictions in said bottles and preventing the insertion in said carrier of straight sided bottles of substantially the same maximum diameter.

17. A bottle carrier having a base for receiving a plurality of bottles, tubular uprights on said base open at their lower ends, a handle including a grip and having leg portions slidably received within said uprights, the lower ends of said leg portions being split and having deformable locking members thereon, shoulders on said tubular uprights positioned to engage said locking members upon limited withdrawal of said handle and providing for the lifting thereof above said bottles during carrying, the lower ends of said locking members having thereon cam surfaces having their faces inclined toward the axis of said lower leg ends for engagement within the annular end portion of a tool receivable through said open lower end of said uprights to deform said members to a clearance position allowing complete withdrawal of said handle.

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