

Aug. 31, 1965

R. B. WHERRY
CAN CARRIER CLIP

3,203,581

Filed June 5, 1962

2 Sheets-Sheet 1

FIG. 1

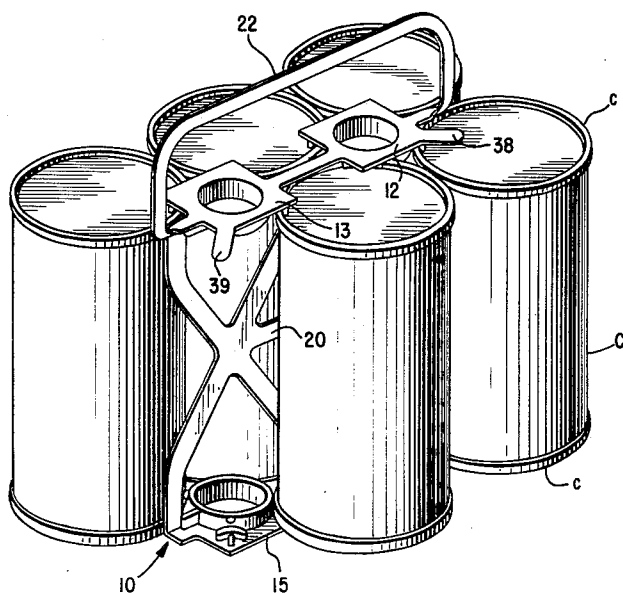


FIG. 2

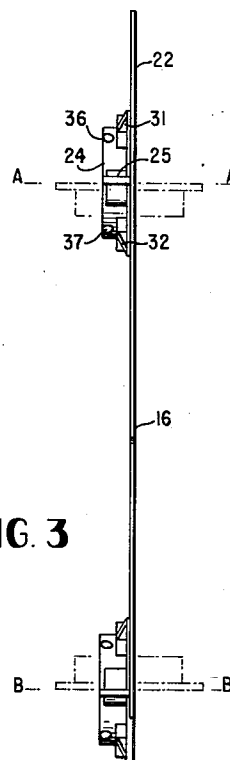
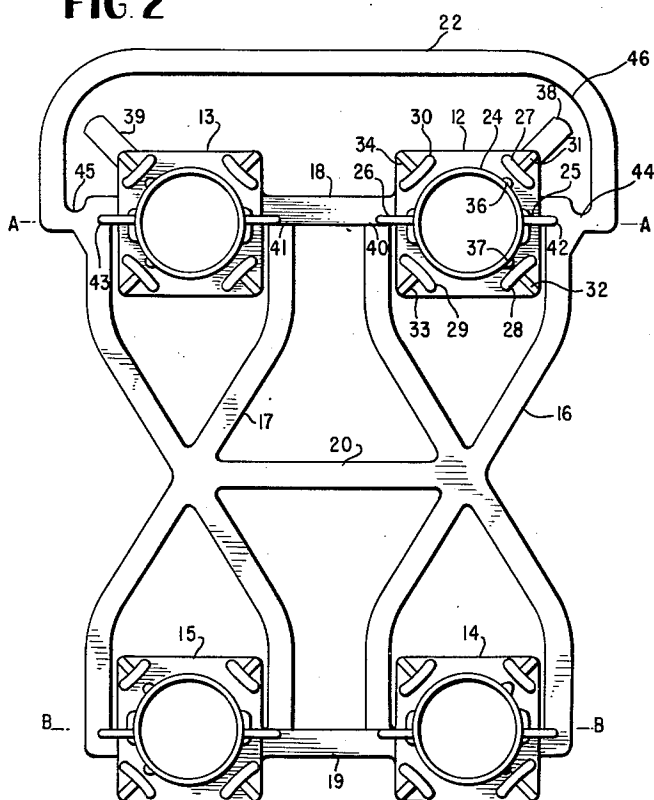


FIG. 3

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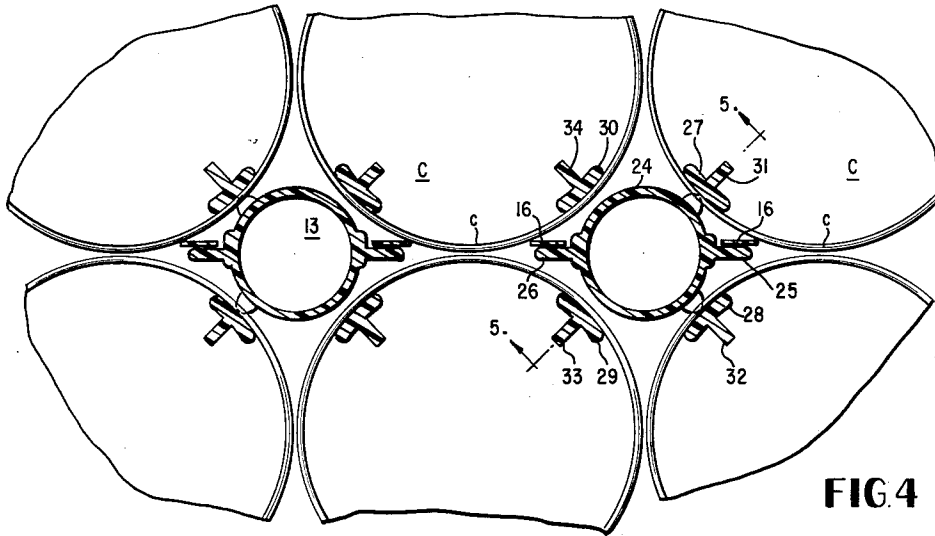


FIG. 4

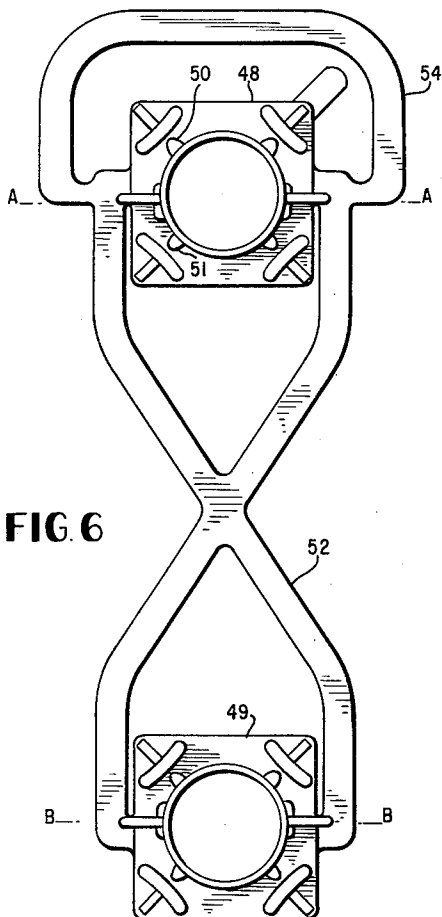


FIG. 6

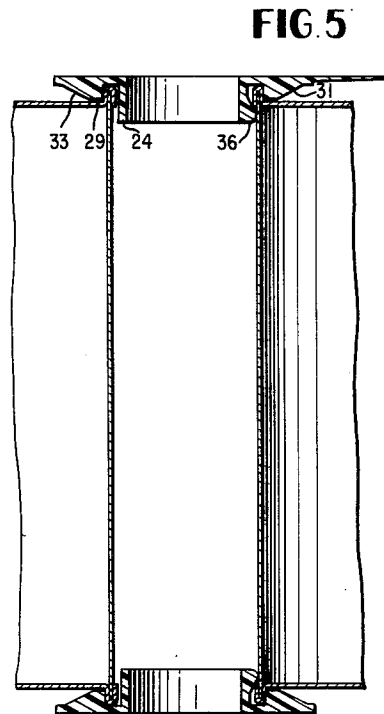


FIG. 5

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CAN CARRIER CLIP

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Filed June 5, 1962, Ser. No. 200,126
5 Claims. (Cl. 220-102)

This invention relates to improvements in can carrier clips of the type shown in the patent application to Erickson (S.N. 63,580).

In carrier clips of the type shown in the above-mentioned patent application it is desirable, from the standpoint of the ultimate user, to provide means for lifting the portions of the clip which engage the cans so that the cans may be removed from the clip. It is therefore an object of this invention to provide a carrier clip with lift tabs on platens to enable cans to be easily removed from the clip. These clip tabs are provided on at least one corner of each of the top platens.

The carrier clip must be formed of a material which is inexpensive enough to allow the clip to compete economically with other can packaging devices such as cardboard cartons and the like. As mentioned in the above cited patent application, the clip could be made of metal or plastic. However, at the present time plastic is more economic than metal. After extensive experiments it has been found that polypropylene plastic has a number of unexpected advantages when a can carrier clip is formed therefrom. This plastic does not need to be formed by heating and may be shipped flat and then bent by ordinary mechanical means to assume the shape for insertion of the cans. Furthermore, it has been found that polypropylene has peculiar properties when bent along a hinge line such as would be necessary for setting up a flat clip for insertion of cans therein. Apparently, the molecules in polypropylene tend to orient themselves during repetitive bending and form what is known in the plastic art as a "living hinge." This feature of the polypropylene plastic actually provides a stronger part at the bend line than other parts of the plastic and the clip may be bent innumerable times without breaking or weakening at the bend point.

In commercial practice the cans of different manufacturers or food packagers such as brewers are slightly different in size. Although adapted for manufacture in mass quantities, it is desirable that the carrier clip fit fairly close to the size of the can actually being used. It is an object of this invention to form a carrier clip which may be made with a multipart mold so that small portions of the carrier clip may be molded different for different size cans or different shaped chimes on cans of the same height while the remainder of the mold need not be changed. This may be accomplished by having removable inserts for forming the bottom sides of the carrier clip platens in the molding.

A can carrier clip must be of a construction to facilitate rapid and automatic machine loading of the cans therein. This is accomplished in the present invention by providing loading ramps on the platens leading up to the chime engaging lugs. The lugs themselves are tailored to fit the chimes of any particular type can and may be changed by changing an insert in a mold as noted above. Further-

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more, additional holding projections are provided for holding the chimes of the cans within the lugs for the cans which are held by only a single lug. These projections abut the can below the chime to assist in holding the chime in the lug.

In forming a can carrier clip of polypropylene plastic, it is necessary to provide means for assuring that each platen is rigid. This may be accomplished by providing a cylindrical inner extension and projecting wings as in the subject construction. The projecting wings or ribs may also furnish a surface for knockout pins of a mold where the clip is molded.

A number of structural improvements over the cited patented construction have been incorporated to add strength, save on the plastic material used, etc. For example, the inner connecting pieces for connecting opposite platens are X shaped to save plastic and provide more flexibility for inserting cans in the device. A handle construction is undercut so that it may bend easily and will clear the platen by more than an amount necessary for picking up the carrier and is constructed to place the strain from the handle on the connecting pieces rather than on the platens.

In a modification of the invention only two platens and one X shaped connector together with the handle are utilized. This amounts to a sixty percent reduction in the amount of material needed for carrying four cans instead of six cans. Of course, further corresponding platens may be added for carrying additional cans.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose by way of example, the principle of the invention and the best mode which has been contemplated of applying that principle.

In the drawings:

FIGURE 1 is a perspective view of the carrier clip of this invention with five cans secured thereto and illustrating the device as applicable to holding a plurality of cans together in a unitary package.

FIGURE 2 is a plan view of one side of the blank for the carrier clip.

FIGURE 3 is a side view of the blank shown in FIGURE 2 showing in phantom lines how the platens are bent 90 degrees for the insertion of the cans.

FIGURE 4 is a sectional elevation through a completed package showing the gripping of the chimes by the lugs on the platens and showing the construction of the carrier clip platens.

FIGURE 5 is a sectional view taken along line 5-5 of FIGURE 4, and

FIGURE 6 is a plan view of a modified form of the blank adapted for carrying four cans rather than six.

Referring to the drawings; there is shown in FIGURES 1-3 the carrier clip 10 adapted to secure, in the preferred embodiment, six cans C together in a unitary package. The cans are of the well known construction having upper and lower chimes c, c, about the ends of each can.

The general construction of the can carrier clip is similar to that shown in the patent application (S.N. 63,580). That is, the clip includes platens with inwardly extending projection for engaging chimes as well as inside

pieces and carrying means. However, a number of improvements have been made on this overall construction as will be apparent from this detailed description. The carrier clip blank shown in FIGURE 2 includes platens 12, 13, 14 and 15. The platens are interconnected by X shaped inside connections 16 and 17 which in turn are molded into a top connection 18 and bottom connection 19. A center connection 20 is also provided. A handle 22 is included in the blank.

The individual platens 12, 13, 14 and 15 are generally flat and rigid. The specific construction of all four platens is substantially the same and therefore only the specific construction of platen 12 will be described in detail. Platen 12 includes a cylindrical barrel 24 having side ribs or extensions 25 and 26 extending outwardly therefrom. The barrel 24 assists in stiffening the blank as do ribs 25 and 26. These ribs also function as abutments for knocking a molded blank out of a mold. Inwardly extending projections or lugs 27, 28, 29 and 30 project inwardly from the face of the platen 12 and are arcuately formed to the curvature of the chimes *c* of cans C as shown for example in FIGURE 4. Leading up to the top of each lug there is provided ramps such as ramps 31, 32, 33 and 34 for lugs 27, 28, 29 and 30 respectively. These ramps extend from the top surface of the lug down to the surface of the platen as shown for example in FIGURES 3 and 5. The purpose of the ramps is to allow the cans to be moved into the clip by automatic loading equipment and automatically ride over the lugs during the loading operation. The inherent resilience of the plastic from which the clip is formed will allow the platens to deflect enough to secure the cans in place.

To assist in holding the outer cans there are provided holding lugs 36 and 37 as shown in FIGURES 2, 3, 4 and 5. These holding lugs extend outwardly from the stiffening barrel 24 at the position of the lugs 27 and 38. As can be seen, the outer cans on the ends of the package are held by only one lug and the holding projections about the can below the chime as shown in FIGURE 5 to aid in holding these outer cans by only one lug and one holding projection.

In order to enable the cans to be removed from the unitary relatively rigid package, lift tabs such as tab 38 on platen 12 and tab 39 on platen 13 are provided. Lift tab 38 allows the corresponding corner of the platen 12 to be lifted upwardly to remove a can C held thereby. Once one can is removed from the package, it will be easier to remove the others as there is no counter balancing backing force as there is when the package is complete with all of the cans.

For different diameter cans and different type chimes only the mold for the under side of the platens need be changed and this may be accomplished by mold inserts.

As shown in FIGURE 3, when the carrier clip blank is formed for holding the cans, the platens 12 and 13 are bent 90 degrees about line AA forming a living hinge at 40, 41, 42 and 43 of the X shaped connectors 16 and 17. Similarly, the lower platens 14 and 15 are bent 90 degrees about hinge line BB. It can be seen that the hinge line extends through the central part of the platens and along one edge of the connectors 18 and 19.

The handle 22 is undercut at 44 and 45 where it connects to the outside leg of X shaped connecting pieces 16 and 17. This allows the handle to be easily bent from a position normally in a plane with the top platens 12 and 13 and parallel to the top of cans C to the position shown in FIGURE 1. The radius 46 for the inside of the handle is generous to allow it to clear the platens and provide plenty of room for the hand of a person carrying the package.

FIGURE 6 shows a modification of a can carrier blank for carrying four cans instead of six cans. In this case the constructional features are quite similar to that shown

in the FIGURES 1-5 embodiment. There are two platens 48 and 49 connected by an X shaped connector 52 attached to portions so that the platens 48 and 49 may be bent along the lines AA and BB. The platens are identical in shape to platen 12 with the addition of other holding projections 50 and 51 as each can in the four can package will be held by only one of the holding lugs and therefore four holding projections are desirable. The handle 54 is similar to the handle 22 only shorter as would be necessary for a four can carrier clip. As will be evident, this carrier clip will carry four cans or approximately 67% of the number of cans in a six pack, while the amount of material used is only about 40% of the amount of material used for the FIGURES 1-5 embodiment.

As can be seen from the foregoing, applicant has taken the basic construction disclosed and claimed in patent application (S.N. 63,580) and improved thereon with a number of improvements to adapt the basic construction to a successful commercial embodiment.

While there have been shown and described and pointed out fundamental novel features of the invention as applied to the preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims.

I claim:

1. A can carrier clip of the type including an integral one-piece body formed as a substantially flat plank, having a flat inside portion, at least one pair of substantially flat relatively large platens integral with the inside portion and hingedly connected thereto to be bendable from the plane of the inside portion to planes parallel to one another for holding cans by their chimes at the top and bottom of the cans, and inwardly extending lugs integral with the platens for engaging can chimes, with the structural improvements comprising; at least one lift tab on one of a pair of platens, bevel loading ramps extending from the outer edge of the platens inwardly and upwardly to the level of the inwardly extending lugs, cylindrically stiffening barrels extending from each platen on the same side as the holding lugs, and holding projections on the outside of the cylindrical barrel at the position of the inwardly extending lugs to aid in holding the chimes.

2. A can carrier clip as defined in claim 1 wherein the clip is constructed of polypropylene plastic so that the integral hinge means forms a living hinge.

3. A can carrier clip as defined in claim 2 further comprising an integral handle hingeably connected to the connecting pieces on opposite sides of the platens and easily bendable from the plane of the blank and the plane of the platens for carrying purposes.

4. A can carrier clip of the type including an integral one-piece body formed as a substantially flat blank, having a flat inside portion, at least one pair of substantially flat rigid relatively large platens integral with the inside portion and hingedly connected thereto to be bendable from the plane of the inside portion to planes parallel to one another for holding cans by their chimes at the top and bottom of the cans, and inwardly extending lugs integral with the platens for engaging the can chimes, with the structural improvements comprising; cylindrical stiffening barrels on each of the platens and extending inwardly therefrom in the same direction as the lugs, the lugs being arcuate in shape and positioned outwardly of the stiffening barrels so that the can chimes are engaged between the lugs and the stiffening barrels.

5. A can carrier clip of the type formed from plastic, metal and the like and including an integral one-piece body formed as a substantially flat blank, the body having a flat inside portion, at least one pair of substantially flat, rigid, relatively large platens integral with the inside

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portion and hingedly connected thereto to be bendable from the plane of the inside portion to planes parallel to one another, lugs rigidly integral with and extending inwardly from the platens for engaging and holding cans by their chimes at the top and bottom of the cans, with the structural improvements in the can carrier clip comprising; at least one lift tab integral with one of the pair of platens and extending outwardly from an outer edge of the platen, and bevel loading ramps rigidly integral with the platens and extending from the outer edge of

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the platens and rising from the surface thereof inwardly and upwardly to the level of the inwardly extending lugs.

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10 GEORGE O. RALSTON, *Primary Examiner.*