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(54) CARRIER DEVICES FOR MULTIPLE CONTAINER PACKAGES

(71) We, ILLINOIS TOOL WORKS INC., a corporation organized under the laws of the State of Delaware, United States of America, of 8501 West Higgins Road, Chicago, Illinois 60631, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to carrier devices for use in forming a package by cooperation with elastic multiple container carriers having central holes and outer edge portions defining horizontally extending edges. Such multiple container carriers are described in our British Patent No. 914,202. Such carriers are extensively used for the multi-packaging of containers, usually metal beverage cans, which are generally commercially sold in multiples of six.

A carrier device according to this invention comprises a central member and integral side members depending from the central member, and tabs integrally formed on the lower portions of the side members, these tabs being formed and positioned to engage and interlock with the horizontally extending edges of the central holes and of the outer edge portions of a plurality of the container carriers of appropriate size, when the carriers are positioned in a substantially side-by-side relationship and when the device is moved downwards into engagement with the container carriers.

A convenient use of the invention is in forming a package of twelve containers, using one carrier device and a pair of multiple container carriers. For this use there may be in combination, a pair of multiple container carriers, each formed from a sheet of a resilient, flexible, plastics material and having two adjacent rows of three apertures, the portions of the sheet between the rows of apertures having holes therein, the carriers being arranged in a side-by-side relationship: and a carrier device comprising a substantially U-shaped ele-

ment with each leg thereof directed downwards and spanning the pair of carriers, and tabs on these legs interlocking with the holes and the opposing edge portions of the pair of carriers to form a unitary container carrier arrangement.

The accompanying drawings show one example of a carrier device according to the invention. In these drawings:—

Figure 1 is a plan view of the carrier device as first formed;

Figure 2 is a plan view, on a smaller scale, of a pair of multiple container carriers cooperating with the carrier device to form a single unitary carrier package;

Figure 3 is a section of the assembly shown in Figure 2, on the scale of Figure 1, and taken substantially along the line 3—3 of Figure 2.

The carrier device of the present example is shown at 10 in Figure 1 in the form in which it is cut or otherwise formed from a sheet of plastics material. The plastics material is preferably of such kind and thickness as to be rigid or semi-rigid and may be polyethylene. The carrier device 10 has a length sufficient to span the finger holes of a pair of multiple container carriers such as those shown in Patent No. 914,202.

The multiple container carriers are shown at 11 in Figure 2 and generally comprise a flat sheet of plastics material, in which are six spaced apertures, in two rows of three. The apertures are somewhat smaller than the diameter of cans with which the carrier is to be assembled, and the plastics material generally is a resilient, flexible, plastics material which will not readily tear. Polyethylene is a preferred material. The carriers 11 are applied over the tops of the cans 12 so that the carriers 11 are positioned immediately below the top beads of the cans 12. Finger holes 13 are provided in the carriers 11 longitudinally centrally thereof. Each hole 13 lies between the rows of apertures and is in the centre of a group of four apertures. The edge portions of the carriers 11 about the finger holes 13 and at the inter-connecting web portions form

relatively stable horizontally extending edges. These edges may clearly be seen on the areas which are in section in Figure 3.

The carrier device 10 is subdivided by fold lines into a central member 14 and two integral side members 15. In using the device, the side members 15 are folded downwards to depend from the central member 14, as may be seen in Figures 2 and 3, thus producing a U-shaped element consisting of downward legs and a cross member.

Areas of the central portion 14 are cut away or otherwise removed to form a convenient integral handle 16.

The lower edge portions of each of the side members 15 are formed to have a number of integral tabs 17. In this example there are three uniformly spaced tabs 17 on each side portion 15. The side edges of the tabs 17 are formed to generally converge in a downward direction to act as cams to spread the edge portions of the carriers 11 when the device 10 is moved downwards into engagement with a pair of carriers 11 aligned as shown in Figures 2 and 3. The upper side edges of the tabs 17 have notches which interlock with the edge portions of the carriers 11 when the device 10 is completely depressed, as particularly shown in Figure 3. It should be noted that, in the interlocked condition of the device 10 with the carriers 11, the two centre tabs 17 engage the opposed longitudinal side edges of the carriers 11. The other tabs 17 each engage the opposed edges of a respective one of the finger holes 13 of the carriers 11.

In use, the carrier device 10 as shown in Figure 1, but with the side members 15 in a depending arrangement, is simply moved downwards onto the multiple container carriers 11 as shown in Figure 2 to interlock the device 10 with the carriers 11 in the manner shown in Figure 3. The resulting unitary package is a simple, convenient arrangement for retaining and transporting the cans 12. The carriers 11 are firmly and positively held together by the device 10, and the individual cans are easily removed from the package when desired. If the carriers 11 are applied axially below the chimes of the cans, then the device 10 will be aligned substantially on the upper surfaces of the cans and a plurality of such unitary packages may conveniently be vertically stacked.

Carrier devices according to the invention may be made to cooperate with carriers having other numbers of container apertures, for example two rows of five, or three rows of three. Moreover carrier devices according to the invention may be made to cooperate with more than two carriers, for example three carriers side-by-side, for

which purpose greater length and more tabs 65 each side are required.

WHAT WE CLAIM IS:—

1. A carrier device for use in forming a package by cooperation with elastic multiple container carriers having central holes and outer edge portions defining horizontally extending edges, the device comprising a central member and integral side members depending from the central member, and tabs integrally formed on the lower portions of the side members, these tabs being formed and positioned to engage and interlock with the horizontally extending edges of the central holes and of the outer edge portions of a plurality of the container carriers of appropriate size, when the carriers are positioned in a substantially side-by-side relationship and when the device is moved downwards into engagement with the container carriers.

2. A device as defined in claim 1, wherein each of the tabs has converging side edges acting as cams to deflect respective edges of the container carriers when the device is moved downwards, and each of the tabs has notches above the converging side edges for interlocking with respective edges of the container carriers upon completion of downward movement of the device.

3. A device as defined in claim 2, including integral handle means formed in the central member.

4. A device as defined in claim 1, in which each of the side members has three of the tabs, uniformly spaced along the side member so that the centre tab on each side member can engage the opposed edges of two container carriers and the other tabs can each engage one of the central holes of a respective one of the container carriers.

5. In combination, a pair of multiple container carriers, each formed from a sheet of a resilient, flexible, plastics material and having two adjacent rows of three apertures, the portions of the sheet between the rows of apertures having holes therein, the carriers being arranged in a side-by-side relationship: and a carrier device comprising a substantially U-shaped element with each leg thereof directed downwards and spanning the pair of carriers, and tabs on these legs interlocking with the holes and the opposing edge portions of the pair of carriers to form a unitary container carrier arrangement.

6. A combination as defined in claim 5, in which there is integral handle means formed in the cross member of the U-shaped element for transporting the unitary container carrier arrangement.

7. A combination as defined in claim 5, wherein there are three of the tabs formed

relatively stable horizontally extending edges. These edges may clearly be seen on the areas which are in section in Figure 3.

The carrier device 10 is subdivided by 5 fold lines into a central member 14 and two integral side members 15. In using the device, the side members 15 are folded downwards to depend from the central member 14, as may be seen in Figures 2 and 3, thus producing a U-shaped element 10 consisting of downward legs and a cross member.

Areas of the central portion 14 are cut away or otherwise removed to form a convenient integral handle 16.

The lower edge portions of each of the side members 15 are formed to have a number of integral tabs 17. In this example there are three uniformly spaced tabs 17 on each side portion 15. The side edges of the tabs 17 are formed to generally converge in a downward direction to act as cams to spread the edge portions of the carriers 11 when the device 10 is moved downwards into engagement with a pair of carriers 11 aligned as shown in Figures 2 and 3. The upper side edges of the tabs 17 have notches which interlock with the edge portions of the carriers 11 when the device 10 is completely depressed, as particularly shown in Figure 3. It should be noted that, in the interlocked condition of the device 10 with the carriers 11, the two centre tabs 17 engage the opposed longitudinal side edges of the carriers 11. The other tabs 17 each engage the opposed edges of a respective one of the finger holes 13 of the carriers 11.

In use, the carrier device 10 as shown in Figure 1, but with the side members 15 in a depending arrangement, is simply moved downwards onto the multiple container carriers 11 as shown in Figure 2 to interlock the device 10 with the carriers 11 in the manner shown in Figure 3. The resulting unitary package is a simple, convenient arrangement for retaining and transporting the cans 12. The carriers 11 are firmly and positively held together by the device 10, and the individual cans are easily removed from the package when desired. If the carriers 11 are applied axially below the chimes of the cans, then the device 10 will be aligned substantially on the upper surfaces of the cans and a plurality of such unitary packages may conveniently be vertically stacked.

Carrier devices according to the invention may be made to cooperate with carriers having other numbers of container apertures, for example two rows of five, or three rows of three. Moreover carrier devices according to the invention may be made to cooperate with more than two carriers, for example three carriers side-by-side, for

which purpose greater length and more tabs 65 each side are required.

WHAT WE CLAIM IS:—

1. A carrier device for use in forming a package by cooperation with elastic multiple container carriers having central holes and outer edge portions defining horizontally extending edges, the device comprising a central member and integral side members depending from the central member, and tabs integrally formed on the lower portions of the side members, these tabs being formed and positioned to engage and interlock with the horizontally extending edges of the central holes and of the outer edge portions of a plurality of the container carriers of appropriate size, when the carriers are positioned in a substantially side-by-side relationship and when the device is moved downwards into engagement with the container carriers.

2. A device as defined in claim 1, wherein each of the tabs has converging side edges acting as cams to deflect respective edges of the container carriers when the device is moved downwards, and each of the tabs has notches above the converging side edges for interlocking with respective edges of the container carriers upon completion of downward movement of the device.

3. A device as defined in claim 2, including integral handle means formed in the central member.

4. A device as defined in claim 1, in which each of the side members has three of the tabs, uniformly spaced along the side member so that the centre tab on each side member can engage the opposed edges of two container carriers and the other tabs can each engage one of the central holes of a respective one of the container carriers.

5. In combination, a pair of multiple container carriers, each formed from a sheet of a resilient, flexible, plastics material and having two adjacent rows of three apertures, the portions of the sheet between the rows of apertures having holes therein, the carriers being arranged in a side-by-side relationship; and a carrier device comprising a substantially U-shaped element with each leg thereof directed downwards and spanning the pair of carriers, and tabs on these legs interlocking with the holes and the opposing edge portions of the pair of carriers to form a unitary container carrier arrangement.

6. A combination as defined in claim 5, in which there is integral handle means formed in the cross member of the U-shaped element for transporting the unitary container carrier arrangement.

7. A combination as defined in claim 5, wherein there are three of the tabs formed



- on each of the legs of the U-shaped element, these three tabs on each leg being aligned transversely of the rows, with the centre tab between the pair of carriers and the end tabs in the holes in the sheets, and there are means on the tabs providing an interlocking engagement of the centre tabs with the opposed edge portions of the carriers, and of the end tabs with opposed edge portions of the holes.
8. A combination as defined in claim 7, wherein the means on the tabs providing an interlocking arrangement comprises downwardly converging side edges formed on the tabs acting as cams to deflect the opposed edge portions of the carriers and of the holes upon downward movement of the carrier device onto a pair of carriers, and further comprises notches formed in the side edges of the tabs above the converging side edges for receiving the opposed edge portions of the carriers and of the holes upon further downward movement of the carrier device.
9. A carrier device according to claim 1, substantially as described with reference to the accompanying drawings.

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