Jan. 7, 1969 K. S. CARMICHAEL 3,420,367

MULTIPLE CONTAINER PACKAGE

Filed May 25, 1967

FIG. 1

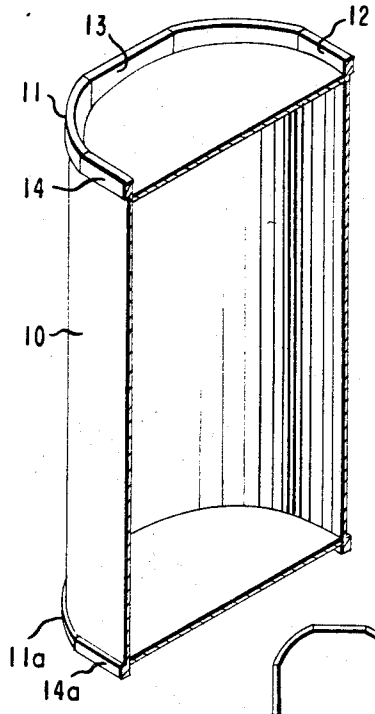


FIG. 2

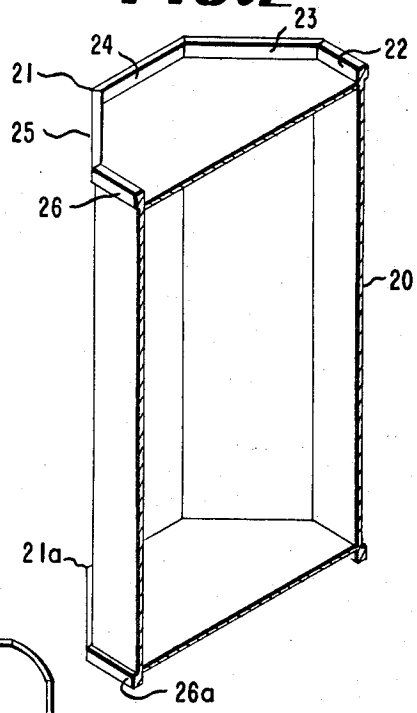


FIG. 3

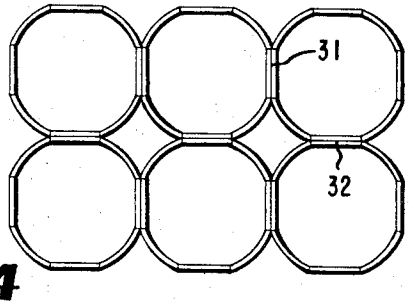


FIG. 4

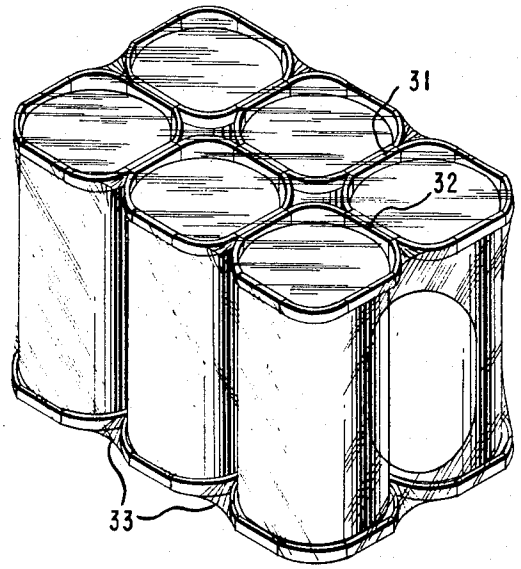
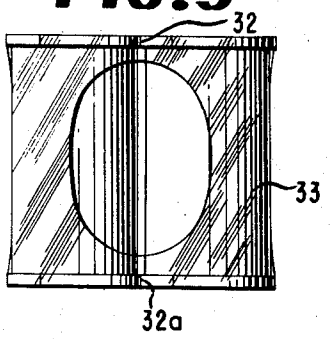


FIG. 5



INVENTOR
KEITH S. CARMICHAEL

BY Swan J. Gault

ATTORNEY

United States Patent Office 3,420,367
Patented Jan. 7, 1969

3,420,367

MULTIPLE CONTAINER PACKAGE

Keith S. Carmichael, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed May 25, 1967, Ser. No. 641,358
U.S. Cl. 206—65 6 Claims
Int. Cl. B65d 71/00

ABSTRACT OF THE DISCLOSURE

A stable package of a plurality of cans wrapped in a tightly fitting thermoplastic film wherein the stability is achieved by plane contact between flat surfaces on the chimes of adjacent cans.

Background of the invention

This invention is related to the packaging of cans and more particularly to the packaging of a plurality of cans in a thermoplastic or elastomeric overwrap.

One of the most prevalent packages for canned goods on the market today is the multi-pack type of package. This package comprises a grouping of from two to eight cans in a common assemblage. The individual cans are generally of the three piece design wherein a cylindrical wall is terminated at either end by a beaded chime which serves as the seal between the wall of the can and the end closures for the can. One of the multi-pack designs most commonly used consists of paperboard wrappers with chime positioning slots to prevent adjacent can chimes from interlocking with one another. Such chime interlocking or "chime jumping" could result in damage to the side walls of the cans during shipment and storage. Such overwraps, however, do not completely cover the tops of the cans and permit depositions of dust, etc., to accumulate within the chimed areas of the can tops. The overwraps are also moisture sensitive which lessens their structural properties when stored in moist refrigerated atmospheres.

In another type of multi-pack can assembly a thermoplastic sheet is formed around the top chimes of the individual cans. This design provides for separation of the individual cans thus preventing chime interlocking and also for a sanitary top covering for each can. However, this type of carrier does not maintain the vertical alignment of the cans relative to one another since the cans can individually rotate about the top sheet area where the individual can tops are capsulated. This makes it difficult to tier such multi-pack packages for storage and display purposes.

A third commonly used type of multi-pack for packages of two or more cans is one having a heat shrunken, oriented, thermoplastic film overwrap. The shrinking forces of the oriented thermoplastic film can be sufficiently great to cause the cans to move relative to one another resulting in "chime jumping." To prevent this spacers must be applied between the individual cans and rows of cans which substantially add to the cost of the assembled package.

Summary of the invention

According to the present invention there is provided a package comprising a plurality of cans, each can thereof having a side wall terminating at least at one end with a chime, at least two diametrically opposite vertical coparallel flat surfaces on the chime, the flat surfaces extending radially outwardly at least as far as the side wall and at least one of the flat surfaces of each can abutting on one of the flat surfaces of the adjacent can, with the cans being

substantially enveloped by a tightly fitting sleeve of sheet material.

The invention will be described in detail by reference to the drawings.

FIGURE 1 is a sectional view of a can having four flat surfaces on the chimes.

FIGURE 2 is a setcional view of a can having octagonally shaped chimes.

FIGURE 3 is a top view of a group of cans having four flat surfaces on each chime.

FIGURE 4 is a perspective view of a package of cans having four flat surfaces on each can chime.

FIGURE 5 is an end view of the package shown in FIGURE 4.

Description of the preferred embodiment

Referring now to the drawings, FIGURE 1 shows a portion of a can comprising a side wall **10** and including chimes **11** and **11***a*. The chimes **11** and **11***a* each have four diametrically opposite vertical coparallel flat surfaces of which four, **12**, **13**, **14** and **14***a* are shown. The flat surfaces **14** and **14***a*, as well as every other top and bottom pair, are located at the same position peripherally on the chimes at both ends of the side walls. Each of these flat surfaces extend radially outwardly at least as far as the side wall, so that when two similar cans are positioned side-by-side one of the flat surfaces of one can abuts on one of the flat surfaces of the other can.

A typical grouping of these cans in accordance with this invention is shown in FIGURES 3, 4 and 5. Adjacent cans in these configurations abut one another by plane contact as shown at **31**, **32** and **32***a*. This is in contrast to the conventional point contact of the round bead chimes between abutting cans of conventionally formed packages of grouped cans. Plane contacting areas between the cans in a grouping greatly increases the stability of the package when the grouping is overwrapped in a tightly fitting wrapper. The packages of this invention do not require separate spacer pieces between the cans to prevent "chime jumping" and to achieve improved stability for handling and stacking purposes.

FIGURE 4 shows a typical package of this invention having a heat shrunken thermoplastic overwrap **33**. All of the shrinking forces exerted on the grouping of cans by the overwrap upon being shrunken are transmitted from can to can via either the flat surfaces on the adjacent chimed caps of the cans or a combination of the abutting flat surfaces and the abutting cylindrical walls of the adjacent cans. This eliminates the possibility of chime interlocking and can wall indentation due to the shrinking of the overwrap which is common in the conventional package formations which do not employ can separators.

The end view of the can grouping shown in FIGURE 4 is shown in FIGURE 5.

Another embodiment of the can design used in the practice of this invention is shown in FIGURE 2. In this can design the side wall **20** and the chimes **21** and **21***a* are octagonal in shape. The chimes **21** and **21***a* each have eight diametrically opposite vertical coparallel flat surfaces of which six, **22**, **23**, **24**, **25**, **26** and **26***a* are shown. The flat surfaces **26** and **26***a*, as well as every other top and bottom pair, are located at the same position peripherally on the chimes at both ends of the side walls. Each of these flat surfaces extend radially outwardly at least as far as the side wall, so that when two similar cans are positioned side-by-side one of the flat surfaces of one can abuts on one of the flat surfaces of the other can.

The flat surfaces on the chimes can be formed during the capping operation or as a separate post-capping operation by inserting preformed dies in the upper and lower

dished portions of the caps and subsequently impact forming the chimes to the contour of the dies.

It is preferred in the practice of this invention that a can having both a top and bottom chime be employed. However, sufficient handling stability can be achieved without the use of can separators if a can having only a top chime is used, providing the top chime of each can is formed to have the above described vertical flat surfaces to permit the flat surface on one chime to abut the corresponding flat surface on the chime of the adjacent can upon being aligned for packaging.

The primary advantage of the instant invention is the stability of the package completely eliminating the need for can spacers. Furthermore, the overwrap provides a sanitary covering for the can tops. As an additional advantage the formed packages are not moisture sensitive and are readily stacked for transport or display purposes.

What is claimed is:

1. A package comprising a plurality of cans, each can thereof having a tubular side wall circular in cross section throughout substantially its entire length and terminating at least at one end with a chime, at least two diametrically opposite vertical coparallel flat surfaces on said chime, said flat surfaces extending radially outwardly at least as far as said side wall and at least one of said flat surfaces of each can abutting on one of said flat surfaces of the adjacent can, with said cans being substantially enveloped by a tightly fitting sleeve of sheet material.

2. The package of claim **1** wherein each of said chimes contains at least four of said flat surfaces.

3. The package of claim **1** wherein said side wall terminates at both ends with said chimes and wherein said flat surfaces are located at the same position peripherally on said chimes at both ends of said side wall.

4. The package of claim **3** wherein each of said chimes contains at least four of said flat surfaces.

5. A can having a tubular side wall circular in cross section throughout substantially its entire length and terminating at least at one end with a chime, at least two diametrically opposite vertical coparallel flat surfaces on said chime, said flat surfaces extending radially outwardly at least as far as said side wall so that when two similar cans are positioned side-by-side one of the flat surfaces of one can abuts on one of the flat surfaces of the other can.

6. The can of claim **5** wherein said side wall terminates at both ends with said chimes and wherein said flat surfaces are located at the same position peripherally on said chimes at both ends of said side wall.

References Cited

UNITED STATES PATENTS

1,338,688	5/1920	Harbeck	220—67 X
2,097,917	11/1937	Frederick	229—5.5
2,866,543	12/1958	Then	206—56
2,893,549	7/1959	Jensen	206—65
3,073,440	1/1963	Jones	206—65
3,206,020	9/1965	Billingsley et al.	206—65
3,217,874	11/1965	Potter	206—65

MARTHA L. RICE, *Primary Examiner.*

U.S. Cl. X.R.

220—1, 66, 23.4