

March 12, 1968

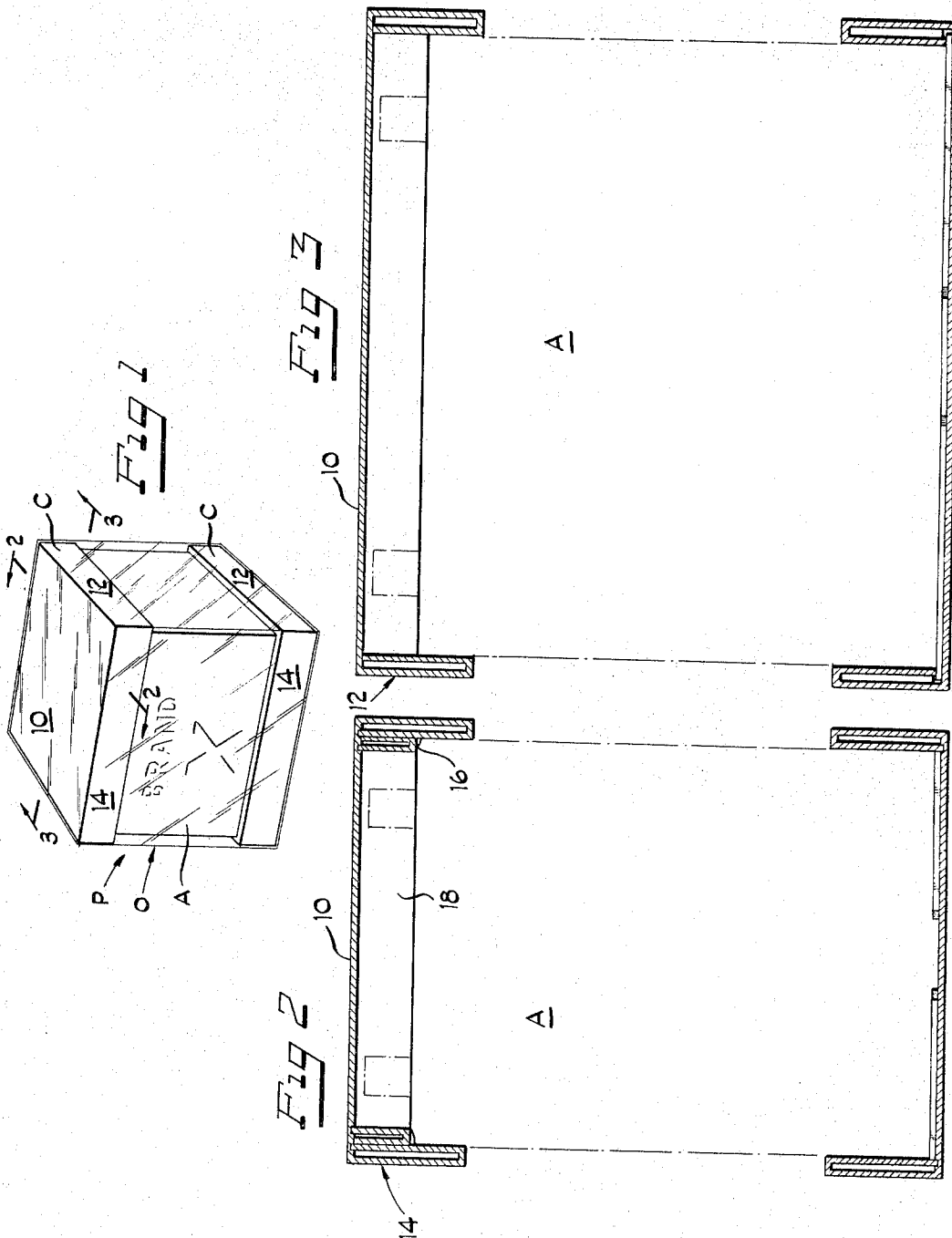
A. E. FOOTE ET AL

3,372,796

INTERCHANGEABLE CAP FOR PACKAGE

Filed Jan. 13, 1967

2 Sheets-Sheet 1



INVENTORS

ALLAN E. FOOTE
ARTHUR W. TOWER

BY *Higgs, Carpenter & Lind*
ATTORNEYS

March 12, 1968

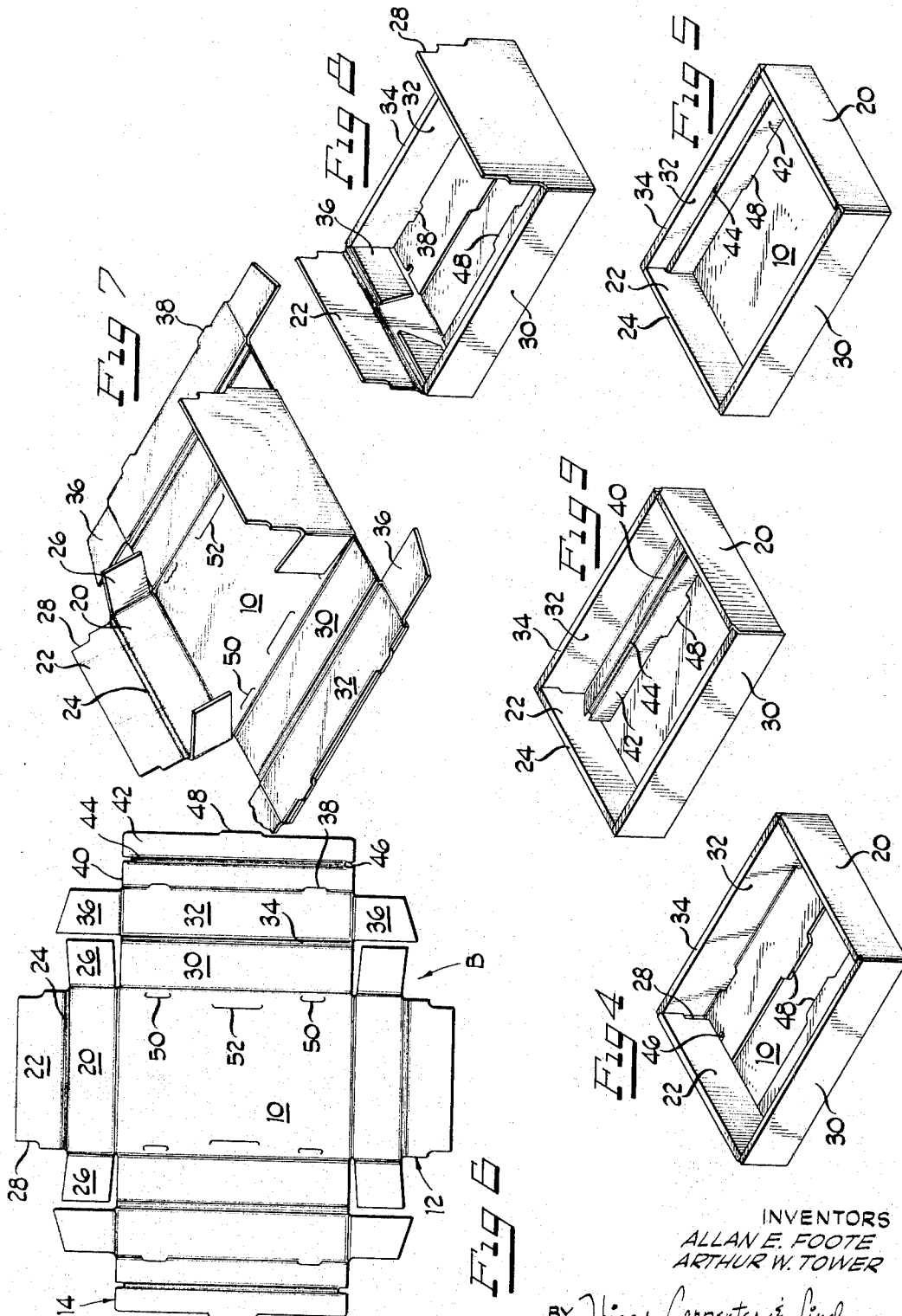
A. E. FOOTE ET AL

3,372,796

INTERCHANGEABLE CAP FOR PACKAGE

Filed Jan. 13, 1967

2 Sheets-Sheet 2



INVENTORS
ALLAN E. FOOTE
ARTHUR W. TOWER

BY *Higgs, Carpenter & Lind*
ATTORNEYS

1

3,372,796

INTERCHANGEABLE CAP FOR PACKAGE

Allan E. Foote, Naperville, Ill., and Arthur W. Tower, Wayne, Pa., assignors to Container Corporation of America, Chicago, Ill., a corporation of Delaware
Filed Jan. 13, 1967, Ser. No. 609,119
11 Claims. (Cl. 206—46)

ABSTRACT OF THE DISCLOSURE

A composite package for an article having end portions with dissimilar contours, including a pair of caps formed from identical, unitary blanks of foldable paperboard each having at least one auxiliary section adapted to be folded in different ways to provide different contours for enclosing respective end portions of the packaged article.

In the packaging of certain articles, such as wet cell storage batteries, for example, it is often desirable to enclose the opposite end portions of the article between a pair of caps which are then secured together in such a way as to expose the major portion of the packaged article. One way in which this can be done is a plastic shrink film overwrap, but it also may be accomplished by one or more circumferential bands. In packages of this type generally the caps of each pair are of identical shape or form; however, when the contours of opposite portions of the packaging article are dissimilar it is often necessary to provide caps of different shapes for enclosing the respective portions of the article. In such cases the cost of the package may be greatly increased because of the necessity of providing two different types of caps for each package.

It is therefore a primary object of this invention to provide, in a package of the type described, a cap construction which will permit caps of different shape to be formed from identical blanks of foldable paperboard.

A more specific object of the invention is to provide, in a package of the type described, a cap construction wherein the caps are formed from identical unitary blanks of foldable paperboard and each include an auxiliary section or sections adapted to be folded one way to provide a contour for enclosing one portion of an article and adapted to be folded another way to provide a different contour for enclosing another portion of the article.

These and other objects of the invention will be apparent from an examination of the following description and drawings, wherein:

FIGURE 1 is a perspective view of a composite package embodying features of the invention;

FIGURES 2 and 3 are transverse and longitudinal vertical cross sections taken on lines 2—2 and 3—3, respectively, of FIGURE 1;

FIGURES 4 and 5 are perspective views of the caps illustrated in FIGURE 1 of the drawing with the caps shown as assembled in two different ways for covering the bottom and the top of the packaged article, respectively;

FIGURE 6 is a plan view of the blank from which either of the caps illustrated in the other views may be formed;

FIGURES 7, 8 and 9 are perspective views of the blank shown in FIGURE 6 illustrating the manner in which the blank is erected to form the structures shown in FIGURES 4 and 5.

It will be understood that, for purposes of clarity, certain elements have been intentionally omitted from certain views where they are believed to be illustrated to better advantage in other views.

2

As best seen in FIGURE 1, the composite package, indicated generally at P, embodying features of the invention includes a packaged article, indicated generally at A, enclosed between a pair of crowns or caps, indicated generally at C, which may be held together in any desired manner such as by plurality of straps or bands or by a plastic shrink film overwrap, indicated generally at O.

Although many types of articles may be packaged in a composite package of this type, in order to illustrate the invention, the article shown in the drawings is a standard wet-cell storage battery which has a flat lower surface and a plurality of terminals projecting from the upper surface. Because the upper and lower surfaces of the battery are of dissimilar contour it is necessary that the upper and lower caps be formed with slightly different shapes to accommodate receipt of the opposite ends of the battery. Thus, the upper cap must be provided with an inner ledge or abutment which will be described later in the specification; whereas, in the lower cap no such abutment is required.

As best seen in FIGURE 6, the cap construction is such that both the upper and lower caps may be formed from identical blanks, indicated generally at B, one of which is shown in FIGURE 6 of the drawing.

Each cap comprises a preferably rectangular, generally flat main wall 10 having opposed pairs of end and side walls 12 and 14, respectively, hinged to the end and side edges thereof and hingedly connected to each other to form a generally box-like enclosure open on one side. The upper cap, as illustrated in FIGURE 5, also includes an abutment or ledge 16 associated with each of the side walls 14 of the cap. As best seen in FIGURES 2 and 3, the function of the ledge is to engage an upper edge of the packaged article, which in this case is a battery with upwardly projecting terminals, to provide a space 18 for receipt of the battery terminals between the upper surface of the battery and the main wall 10 of the cap.

As best seen in FIGURE 6, each end wall 12 includes an outer panel 20 hingedly attached to end edge of main wall 10 and an inner panel 22 which may be connected to panel 20 by a relatively thin narrow connecting strip or panel 24. If desired the panels 20 and 22 may be hinged directly to each other and the connecting strip 24 may be eliminated. Hingedly attached to the opposite end edges of end wall outer panel 20 are a pair of flaps 26 which are received between inner and outer panels of adjacent side walls when the cap is in erected condition. End wall outer panel 22 may be provided at its corners with recesses 28 the purpose of which is described later in the specification.

Side walls 14 may be formed in similar manner, and each comprises outer panel 30 hinged to the side edge of main wall 10 and an inner panel 32 which may be hingedly attached to a corresponding edge of outer panel 30 by a relatively narrow elongated connecting strip or panel 34. Likewise the panels 30 and 32 may be directly connected to each if desired. Side wall inner panel 36 may be provided at its opposite ends with closure flaps which are adapted to be received between the inner and outer panels of the end wall to provide an interlocking connection when the carton is in erected condition. Side wall inner panel 32 may also be provided with one or more lock tabs 38 which are disposed to project downwardly and be received within corresponding recesses 50 in main wall 10 of the cap to provide a walker-lock type connection of maintaining the side wall of the carton in erected condition.

Again referring to FIGURE 6 it will be seen that each of the side walls 14 is provided with an auxiliary section including a first or outer panel 40 hingedly attached to the adjacent edge of side wall inner panel 32 and a second

or inner panel 42. Panels 40 and 42 may be hingedly connected to each other by means of a relatively narrow elongated connecting strip or panel 44 or if desired panels 40 and 42 may be hinged connected directly to each other. It is desirable in most cases, however, to utilize the connecting panel, because it affords a wider ledge or abutment for engagement with a corner of the packaged article, as shown in FIGURE 2, to provide a space between the upper surface of the packaged article and the main wall 10 of the cap, which space is used for receiving the projecting terminals of the battery.

Still referring to FIGURE 6, it will be noted that the auxiliary section is provided at opposite ends with recesses 46 in the ends of connecting panel 44 the purpose of which is described later in the specification. Also auxiliary section second or inner panel 42 may be provided at its free edge with a lock tab 48 which is receivable in recess 52 in main wall 10 when the auxiliary section is folded to form a ledge as shown in FIGURE 5. The connection between tab 48 and recess 52 forms a walker-lock type connection.

In assembling the structure of the cap, the end and side wall outer panels are folded at right angles to the main wall 10 and the end and side wall inner panels are folded back inside of the outer panels toward the main wall 10 with the end wall flaps 26 being interposed between the inner and outer panels of the side walls and the side wall flaps 36 being interposed between the inner and outer panels of the end walls.

At this point the cap may be erected to form either the structure shown in FIGURE 4, if the cap is to be used to enclose the bottom of the battery as illustrated in FIGURES 2 and 3, or the cap illustrated in FIGURE 5, if the cap is to be used to enclose the top of the battery.

First to describe the manner of forming the structure illustrated in FIGURE 4. After the side walls have been erected the two panels of the auxiliary section are folded flat against the inside surface of the main wall 10 of the cap. In order to accomplish this the end wall inner panels 22 may be folded back up and then back down into position in order to permit the auxiliary section panels to be folded against the main wall. After the end wall panels inner panels have been folded back into position their lower edges serve as an abutment engaging the upper surfaces of the auxiliary panels sections to maintain the inner panel sections in position.

Now to describe the assembly of the structure shown in FIGURE 5. After the side walls are formed the first and second panels of the auxiliary section are folded in back-to-back relationship against the inner panel of the side walls until lock tab 48 is received within recess 52 in the main wall of the cap. In order to accomplish this end wall inner panels 22 are folded out of the way to permit the folding of the auxiliary panels and then are folded back into the position shown in FIGURE 5. It will be noted that the recesses 28 in the end wall inner panels are provided to receive end portions of the auxiliary section and that the notches 46 at opposite ends of the auxiliary section are provided to cooperate with the recesses 28 to maintain the assembly in locked condition.

Thus, it will be seen that the invention comprehends a composite package with a pair of caps which may be formed from identical blanks of paperboard but which may be folded in different ways to provide different contours for receiving dissimilar portions of the packaged article.

What is claimed is:

1. In a package the combination of:
 - (a) an article having opposite end portions with dissimilar contours;
 - (b) a pair of caps enclosing respective end portions of said article;
 - (c) means for retaining said caps snugly against said end portions;
 - (d) said caps being formed entirely from identical,

unitary blanks of foldable paperboard and each including an integral auxiliary section adapted to be folded one way to provide a particular contour for enclosing one portion of the article and adapted to be folded another way to provide a different contour for enclosing the other portion of the article.

2. In a multi-piece package for an article having separate portions with dissimilar contours, a pair of caps formed from identical unitary blanks of foldable paperboard and each comprising:

- (a) a main wall having pairs of opposed side walls connected thereto and to each other to form a box-like enclosure open on one side for receiving a portion of the article;
- (b) each of said side walls including:
 - (i) an outer panel hingedly connected to a side edge of the main wall;
 - (ii) an inner panel hingedly connected to the outer panel and disposed inwardly adjacent said outer panel in parallel relation therewith;
- (c) a pair of auxiliary sections associated with respective side walls of one of said pairs;
- (d) each of said auxiliary sections being adapted to be folded to form an abutment adjacent a related side wall to provide a contour for enclosing one portion of the article and being adapted to be folded flat against said main wall to provide a different contour for enclosing another portion of the article;
- (e) said auxiliary sections each including:
 - (i) a first panel hingedly connected to said inner panel;
 - (ii) a second panel hingedly connected to said first panel;
 - (iii) means for maintaining said first and second panels in back-to-back relation and against said side wall inner panel when said auxiliary section is formed into an abutment;
 - (iv) means for maintaining said first and second panels against said main wall when said auxiliary section is not formed into an abutment.

3. In a multi-piece package for an article having separate portions with dissimilar contours, a pair of caps formed from identical unitary blanks of foldable paperboard and each comprising:

- (a) a main wall having pairs of opposed side walls connected thereto and to each other to form a box-like enclosure open on one side for receiving a portion of the article;
- (b) a pair of auxiliary sections associated with respective side walls of one of said pairs;
- (c) each of said auxiliary sections being adapted to be folded to form an abutment adjacent a related side wall to provide a contour for enclosing one portion of the article and being adapted to be folded flat against said main wall to provide a different contour for enclosing another portion of the article.

4. A package according to claim 3, wherein each of said side walls include:

- (a) an outer panel hingedly connected to a side edge of the main wall;
- (b) an inner panel hingedly connected to the outer panel and disposed inwardly adjacent said outer panel in parallel relation therewith.

5. A package according to claim 4, wherein each of said auxiliary sections includes at least one panel hingedly attached to said side wall inner panel.

6. A package according to claim 4, wherein each of said auxiliary sections includes:

- (a) a first panel hingedly connected to said inner panel;
- (b) a second panel hingedly connected to said first panel.

7. A package according to claim 6, wherein each of said auxiliary sections each include:

- (a) means for maintaining said first and second panels

5

in back-to-back relation and against said side wall inner panel when said auxiliary section is formed into an abutment;

(b) means for maintaining said first and second panels against said main wall when said auxiliary section is not formed into an abutment. 5

8. A package according to claim 6, wherein the first and second panels of said auxiliary section are hingedly interconnected by a relatively narrow, elongated connecting panel with presents an abutment surface adjacent the related side wall. 10

9. A package according to claim 7, wherein the means for maintaining said auxiliary section panels in back-to-back relation against said side wall inner panel include cooperating pairs of interlocking portions on said auxiliary section and the inner panels of the side walls of the other pair. 15

10. A package according to claim 7, wherein the means for maintaining said auxiliary section panels in back-to-

6

back relation against said side wall inner panel include locking tabs projecting downwardly from said auxiliary section second panels into cooperating recesses in said main panel.

11. A package according to claim 7, wherein the means for maintaining the panels of said auxiliary section against said main wall comprise abutment edges on the inner panels of the side walls of the other pair.

References Cited

UNITED STATES PATENTS

1,495,336	5/1924	Loomis	217—5
2,143,957	1/1939	Petter	206—45.33
3,087,666	4/1963	Kitchell	229—15
3,198,327	8/1965	Boehling et al.	
3,314,532	4/1967	Henry.	

WILLIAM T. DIXSON, JR., *Primary Examiner.*