April 18, 1961 R. E. PAIGE 2,980,249

CARRIER FOR CONTAINERS

Filed June 6, 1958 2 Sheets-Sheet 1

Fig. 1.

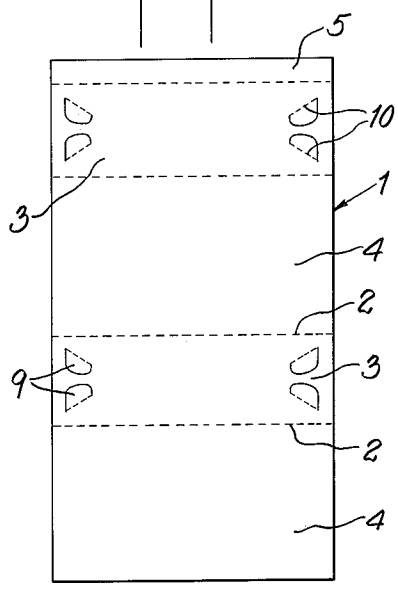


Fig. 2.

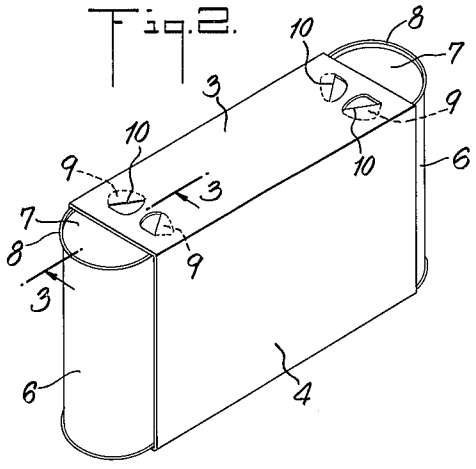


Fig. 3.

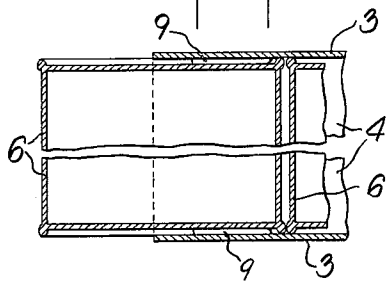
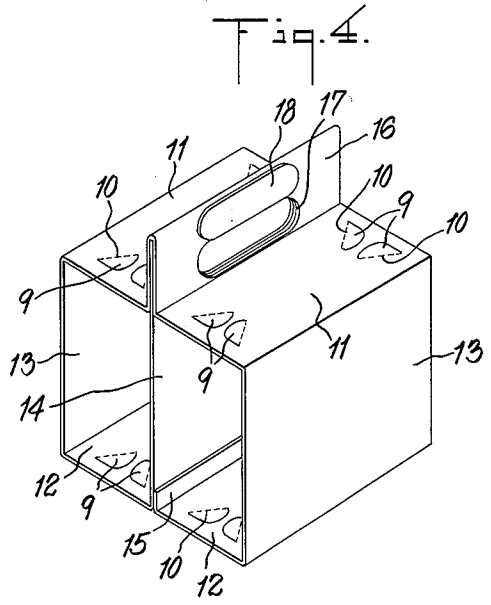


Fig. 4.



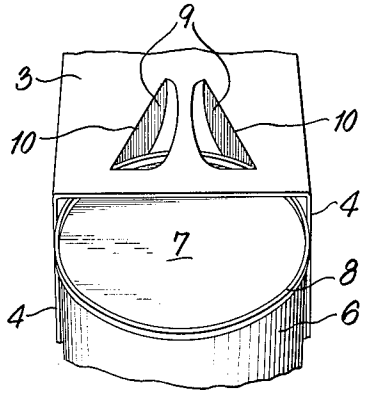


Fig. 5.

INVENTOR.
RICHARD E. PAIGE
BY Davis, Hoxie, Faithfull & Hapgood
ATTORNEYS

April 18, 1961 R. E. PAIGE 2,980,249

CARRIER FOR CONTAINERS

Filed June 6, 1958 2 Sheets-Sheet 2

Fig. 6.

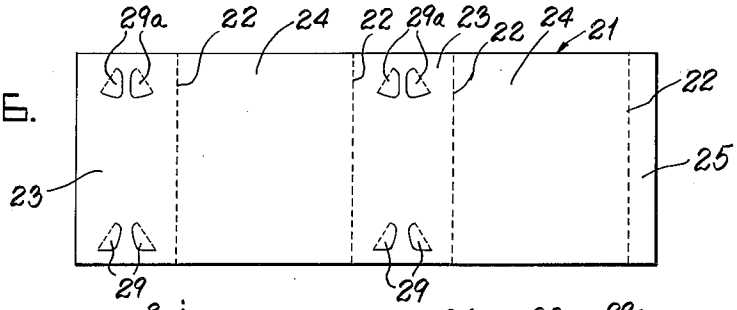


Fig. 7.

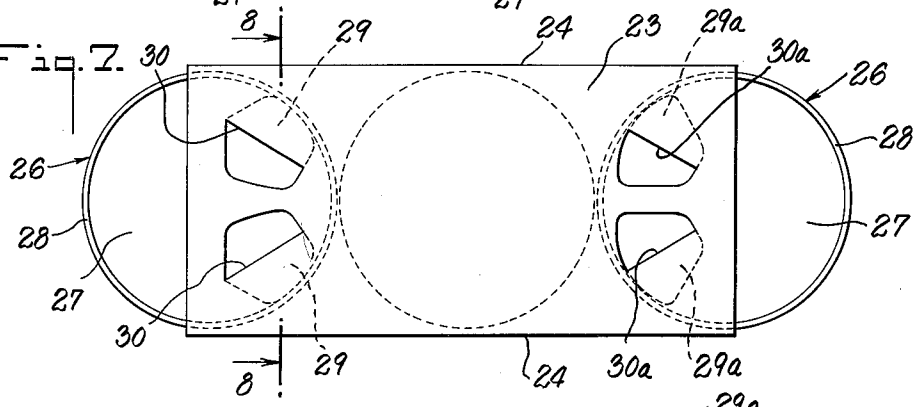


Fig. 8.

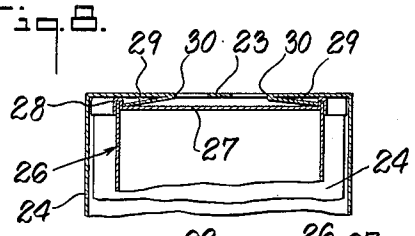


Fig. 9.

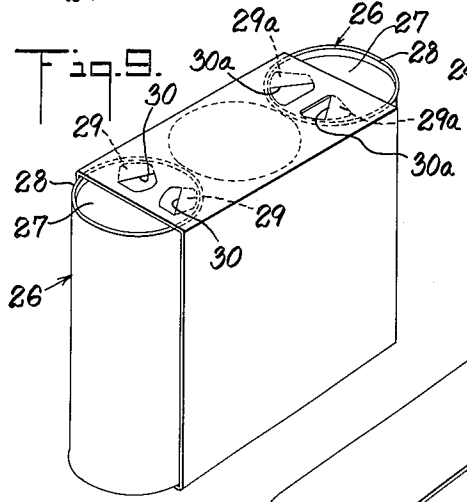


Fig. 10.

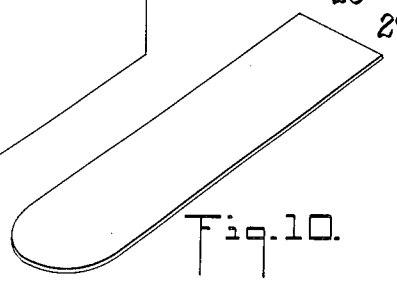
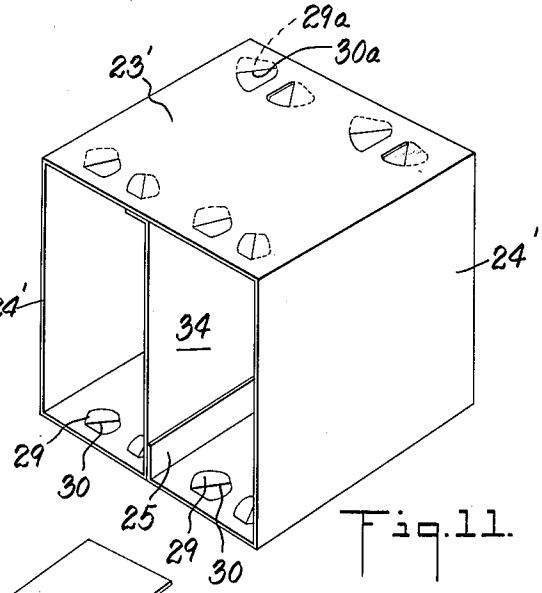


Fig. 11.



INVENTOR.
RICHARD E. PAIGE
BY Davis, Hoxie, Faithfull & Hapgood
ATTORNEYS

United States Patent Office 2,980,249 Patented Apr. 18, 1961

2,980,249

CARRIER FOR CONTAINERS

Richard E. Paige, New York, N.Y., assignor to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Filed June 6, 1958, Ser. No. 740,220

5 Claims. (Cl. 206—65)

My invention is an improved carrier or holder for containers, particularly cylindrical containers with projecting rims at each end. This application is a continuation-in-part of my application Serial No. 307,261, filed August 30, 1952.

My purpose is to provide a holder which can be made from a minimum of material and loaded at a maximum speed and yet is strong enough to carry a considerable number of cylindrical containers. To accomplish this purpose I employ the tubular holder well known currently for its use with beer cans. This holder, made of hinged panels, is slightly longer and wider in cross section than the containers it holds. It is designed to receive containers from loading machines at high speeds and to hold them with their ends against opposite panels. According to my invention the holder is combined with a locking tab connected to one or more of the panels against which the ends of the incoming container will impinge along a hinge that enables the tab to swing away from the path of the incoming container.

The drawings illustrate several preferred embodiments of the invention. Fig. 1 is a plan view of a blank of sheet material to be made into a holder that can be loaded from both ends. Fig. 2 is a perspective view of that holder with cans in it. Fig. 3 is a section along line 3—3 in Fig. 2. Fig. 4 is a perspective view of a variant of the holder of Figs. 1–3. Fig. 5 is a perspective view of one end of the holder of Fig. 1, enlarged, to show the action of the retaining tabs. Fig. 6 is a plan view of a blank to be made into a holder that can be loaded from one end. Fig. 7 is a plan view of that holder with cans in it. Fig. 8 is a sectional view of a can and holder taken on line 8—8 of Fig. 7. Fig. 9 is a view in perspective of the holder and cans in it. Fig. 10 is a view in perspective of a tool or device used to aid the consumer in removing the cans from the holder. Fig. 11 is a view in perspective of a variant of the holder of Figs 6–9.

The holder shown in Figs. 1–3 is made of a blank **1** of cardboard or other flexible sheet material, rectangular in outline with transverse parallel score lines **2**. These lines, four in number, divide the blank into narrow sections **3** and wide sections **4**. At one end of the blank is a connector tab **5**. The holder is set up by bending the blank along the score lines **2** and gluing or otherwise affixing the tab **5** to the inner face of the opposite section **4** along the inner edge of the latter. It will receive four cans in all, one at each end and two between them.

The cans have slightly depressed tops and bottoms **7** with projecting rims or chimes **8**. Each section **3** has pairs of tabs **9** attached along score lines **10**. To lock cans in the holder these tabs are folded into it along score lines **10** to impinge against rims or circular chimes **8**. The tabs **9** engage the inner half of the rims of the two cans at the extremities of the tube so that these two cans are held securely in place, but their curved lateral faces project so that about half of each of the two cans is exposed. The distance between the tabs **9** of each section **3** is such that two extra cans may be located in

the holder between the cans at its extremities, all cans being in contact with one another and retained in a single compact row. When the tabs **9** are bent into the holder they project from the inner faces of the sections **3** and their surfaces are inclined to right and left with respect to the length of these sections. When a can is inserted the rims press against the tabs which yield and fold against the top and bottom so that the cans may slip past them. When the holder is filled part of the rims **8** of the two cans at the extremities are moved just far enough beyond these tabs to clear them. Due to the resiliency of the material the tabs tend to unfold and their free edges then impinge against the rims **8**. All the cans are thus held against displacement.

The free edges of the tabs **9** can be curved to conform somewhat to the rims **8**. Any pull on the tabs by the cans, if the holder is held inclined or vertical, will not be perpendicular to the score lines **10**, but will make a smaller angle therewith. Hence the liability of tearing, bending or breaking the tabs is reduced, and all the cans in the holder will be held securely.

The holder of Fig. 4 is constructed for two rows of cans placed side by side. It, too, is made of a blank of sheet material bent into shape, with two top sections **11** and two bottom sections **12**. The outermost hinge edges of the top and bottom sections are connected by sides **13** and the blank has a portion or section **14** that rises from the inner edge of one section **12** and forms a partition dividing the holder into two compartments, open at the opposite ends. The inner edge of the other section **12** has a tab **15** bent up and secured to the partition **14**. Between the top sections **11** is an upstanding portion **16** in which apertures **17** are cut for the hand and to which tabs **18** are hinged along the upper edge to leave no sharp edges at the tops of the apertures **17**.

The holder of Figs. 6–9 is made of a blank **21**, rectangular in outline, with transverse parallel score lines **22** dividing the blank into narrow sections **23**, wide sections **24** and a hinged connector tab **25** at one edge. It is set up by bending the blank along the score lines **22** and gluing or otherwise affixing the tab **25** to the inner face of the opposite section **24** along the free edge of that section. It is wide and long enough inside for the cans **26** to fit in snugly with the ends of the cans abutting the narrow sections **23**. The holder of Figs. 6–9 will receive three cans in all.

The cans have depressed tops and bottoms **27** and projecting rims or chimes **28**. Each section **23** has a pair of tabs **29** at one end attached along score lines **30** so that they are foldable into the holder along the score lines **30**. The score lines **30** diverge toward the end nearest them. Each section **23** has at its opposite end another pair of tabs **29*a***, attached along diagonal score lines **30*a***. The score lines **30*a*** differ from score lines **30** in that they converge towards the end nearest them. Tabs **29** are in such a position and of such a shape that when they are swung inward and backward a part of the free edge of each remote from its hinge is in line with a semi-circle of a size and shape approximating that of the end rim of a can with its diameter at the open edge of the section **23**. This is true of the tabs **29*a***, too, despite the converging of the score lines **30*a*** (see Fig. 7).

As stated above, all loading can be effected from one end of the holder of Figs. 6–9. In the first step the tabs **29** and **29*a*** are bent inward. Then a can is inserted in the left end so that the leading edge of its rims **28** presses against the inbent tabs, causing them to yield and fold against the inner faces of the top and bottom. The can then slips all the way past them. It is followed by a second and third which push the first to engagement with the tabs **29*a*** at the opposite end. When the leading, or forward, part of the rim **28** of the first can meets

the tabs 29*a* it causes them to swing inward and backward until they are pressed against the inner face of the top and bottom sections 23 and the leading edge slips past them. They then spring back into contact with the ends 27 of the can so that their free edges catch the trailing, or backward, part of the rims 28. This action arrests the can so that although one half of it projects outside the holder it can go no further. The last can loaded, i.e., the can at the entrance end, is held as described in connection with Figs. 1–3. The second can loaded is held by the cans at each side.

In order to insure the effectiveness of the tab 29*a* it is preferable to shape it so that when it swings inward and backward until it is pressed against the inner face of the panel a part of its free edge a substantial distance from its hinge extends to or intersects the inner half of a circle passing through the innermost part of its hinge with its diameter equal to the inner diameter of rim 28 and its center on the longitudinal center line of the panel.

The holder of Fig. 11 is constructed for two rows of cans, three in each row. It is made of a blank of sheet material, longer than the blank shown in Fig. 6, bent into shape with a top section 23' of double width and a similar bottom section. The outermost hinge edges of its top and bottom sections are connected by sides 24'. It has a portion 34 that rises from the middle of section 23' with a bent strip 25 secured to the other section 23' to form a partition dividing the holder into two compartments, both open at the opposite ends. Each half of the bottom section has at one end a pair of tabs 29 and at the other end a pair of tabs 29*a*, and the top section has four corresponding pairs of tabs. All the tabs are formed and disposed as described above.

The invention is not limited to the embodiments shown, of course, advantage being achieved by any tab that swings away from the lonigtudinal center line of the panel to which it is attached, i.e., the path of the incoming container. When a single tab is used instead of a pair it is preferable to have it larger with respect to the rest of the carrier than any of the tabs shown in the drawing. When a tab with hinge parallel to a hinge edge of its panel is used it is preferable to have the hinge extend as close as any other part of the tab to the open end nearest it.

A knife blade or the flat strip of Fig. 10 may be inserted under the tabs to release the cans at once and save the carrier, or the holder can be torn apart around the cans if it is to be discarded.

I claim:

1. A carrier for a plurality of chimed cans comprising an open end tube made of hingedly connected panels, at least one of which has a first locking mechanism folded out of the plane of the panel, said mechanism including a pair of die cut tabs nearer one end of the panel than the other, the tabs being folded upon score lines diverging toward the near end, and a second locking mechanism folded out of the plane of the panel, said second mechanism including a second pair of die cut tabs near the other end of the panel, the second pair being folded upon score lines converging toward the other end.

2. A carrier for a plurality of chimed cans comprising an open end tube made of hingedly connected panels, at least one of which has a locking mechanism folded out of the plane of the panel, said mechanism including a pair of die cut tabs nearer one end of the panel than the other, the tabs being folded upon score lines diverging toward the near end.

3. A carrier for a plurality of chimed cans comprising an open end tube made of hingedly connected panels, at least one of which has a locking mechanism folded out of the plane of the panel, said mechanism including a pair of die cut tabs nearer one end of the panel than the other, the tabs being folded upon score lines converging toward the near end.

4. A carrier for a plurality of chimed cans comprising an open end tube of sheet material, said tube being formed of top, bottom and side panels hingedly connected along fold lines, the top and bottom panels being similar and rectangular, the top panel having a die cut locking tab at each open end of the tube, the tab being hinged along a fold line, the fold line making an acute angle with a line lying in the plane of the top panel perpendicular to a hinged edge thereof, the tab being die cut from the material of the panel lying within the acute angle, said tab in operative position being folded approximately 180 degrees toward the inner face of the top panel, whereby the tab can lie upon the recessed end of a can with part of its cut edge abutting the inner periphery of a chime.

5. A carrier having a plurality of chimed cans comprising an open ended tube of sheet material, said tube being formed of top, bottom and side panels hingedly connected along parallel fold lines, the top and bottom panels lying in parallel planes, the top panel having a die cut locking tab at each open end of the tube, the tab being hinged along a fold line, the fold line making an acute angle with a line lying in the plane of the top panel perpendicular to a hinged edge thereof, the tab being die cut from material of the panel lying within the acute angle, said tab in operative position being folded approximately 180° toward the inner face of the top panel, whereby the tab can lie upon the recessed end of a can with part of its cut edge abutting the inner periphery of a chime.

References Cited in the file of this patent

UNITED STATES PATENTS

2,614,737	Parker	Oct. 21, 1952
2,814,385	Stone	Nov. 26, 1957
2,846,062	Paige	Aug. 5, 1958