Sept. 17, 1957 H. M. RUTH 2,806,273

ARTICLE CLIP

Filed June 8, 1953

FIG_1

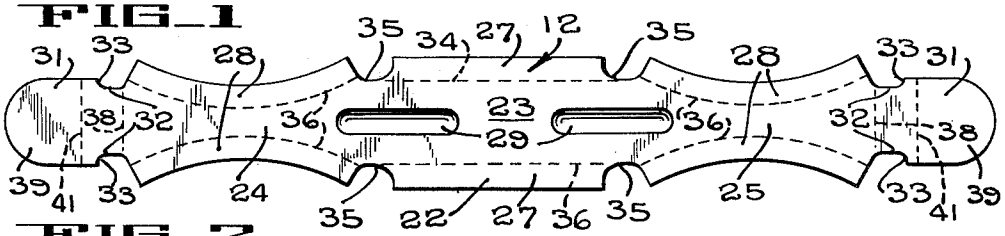


FIG_2

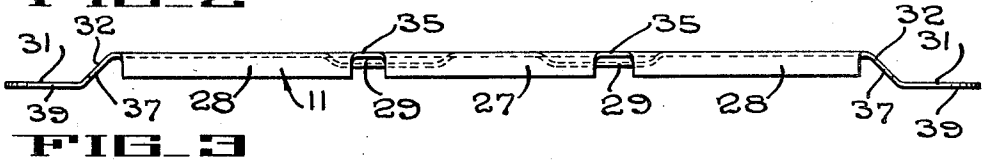


FIG_3

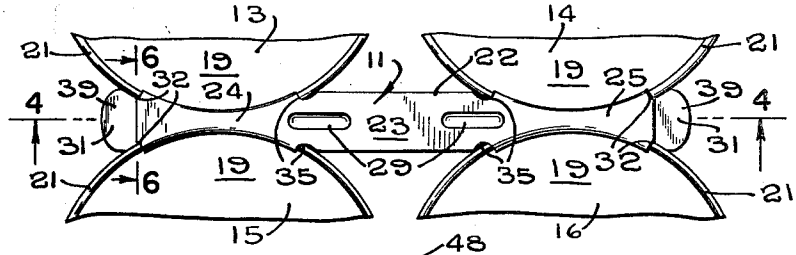


FIG_4

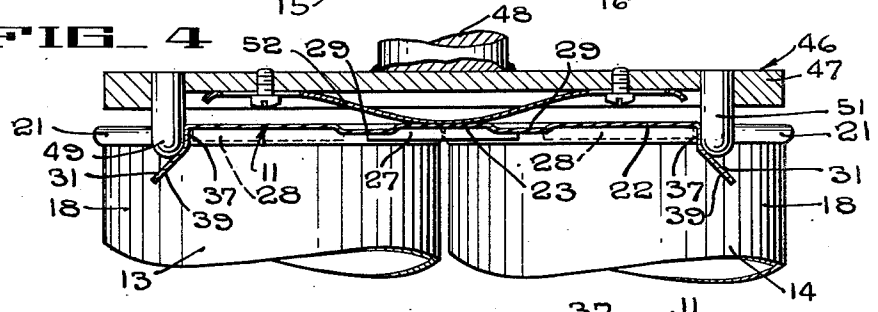


FIG_5

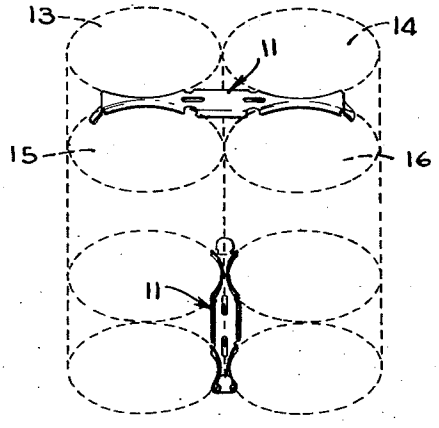
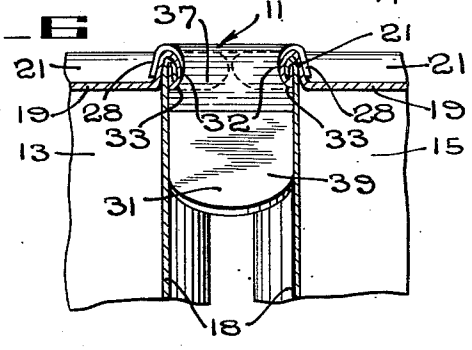


FIG_6



INVENTOR
HAROLD M. RUTH

BY Hans G. Hoffmeister

ATTORNEY

United States Patent Office 2,806,273 Patented Sept. 17, 1957

2,806,273

ARTICLE CLIP

Harold M. Ruth, San Jose, Calif., assignor to Food Machinery and Chemical Corporation, San Jose, Calif., a corporation of Delaware

Application June 8, 1953, Serial No. 360,062

1 Claim. (Cl. 24—81)

The present invention relates to a clip for fastening together in a closed polygonal pattern articles, such as cans, having a bead on their outer periphery.

In the marketing of canned goods, it is frequent practice to bundle a plurality of cans together in order that they may be more conveniently handled, stored, and displayed. For instance, bundles of four cans arranged in either a square-shaped grouping or a diamond-shaped grouping (also called a nest) are very much in demand by both retailers and customers since they are readily packed and unpacked, stacked, lifted and carried. It is highly desirable that such can bundles may be made up quickly and inexpensively by either machine or by hand, and that the bundles may be readily unfastened manually without the aid of a tool. Other desirable features of these can bundles are low tare weight, minimum space requirements, and exposure of the body of the cans to view so that the identity of the product packed therein and its advertising, usually displayed on the can body, may be seen.

One object of the present invention is to provide a clip for fastening together cans into a bundle that is possessed of all the desirable characteristics mentioned above.

Another object of the present invention is to provide a simple and inexpensive clip for quickly and easily fastening together in a closed polygonal pattern a group of articles having a peripheral bead.

Another object of the present invention is to provide a clip for fastening together peripherally beaded articles into a firm bundle.

These and other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings in which:

Fig. 1 is a plan view of a blank from which the clip of the present invention is made.

Fig. 2 is an elevation of an article clip formed from the blank shown in Fig. 1.

Fig. 3 is a reduced fragmentary plan view of a square-shaped group of four cans to which the clip shown in Fig. 2 has been applied.

Fig. 4 is a fragmentary section taken along the line 4—4 of Fig. 3 and showing in addition a longitudinal section of a clencher for applying the present clip to a square-shaped group of four cans.

Fig. 5 is a reduced perspective view of a square bundle of four cans fastened together by a pair of the present clips, the cans being shown in phantom.

Fig. 6 is an enlarged fragmentary section taken approximately along the line 6—6 of Fig. 3.

The present article clip 11 (Fig. 2) is preferably formed from a blank 12 (Fig. 1) of thin, stiff, deformable material, such as cold rolled sheet steel, and is specifically designed for fastening together into a square bundle four cylindrical articles, such as cans 13, 14, 15 and 16 (Figs. 3 to 6, inclusive) of the type in which comestibles are commercially preserved. Each of the cans 13, 14, 15 and 16 is usually made of metal and comprises a hollow cylindrical body 18 and a pair of end closures 19 (Figs. 3 and 6), only one of which is shown. The closures 19 are hermetically sealed to the can body 18 by can seaming machines which fold together the adjacent edge portions of the body and the closures, thereby forming an annular, peripheral bead 21 (Figs. 3, 4 and 6) around both end margins of the can. Said beads 21 extend axially away from the end of the can and also radially outward from the can body 18, as best seen in Fig. 6, and are usually approximately elliptical in cross-section.

The clip blank 12 (Fig. 1) comprises an elongated web 22 having a rectangular central portion 23 from the opposite ends of which extend somewhat hourglass-shaped wing portions 24 and 25. The central portion 23 of the web is provided with rectangular side flanges 27, and the wing portions 24 and 25 have concavely curved side flanges 28. In addition the web 22 has a pair of longitudinal depressions 29 spanning the portions of the web which connect the central portion 23 with the wing portions 24 and 25 to strengthen these connecting portions of the web 22 against bending stresses. From the free end of the wing portions 24 and 25 of the web 22 extend tabs 31 each lateral edge of which is provided adjacent the web 22 with a curved notch 32 that furnishes an arcuate shoulder 33 spaced from said web. A similar notch 35 is provided on each side of the blank between the central portion 23 and the wing portions 24 and 25, respectively.

The clip 11 (Fig. 2) is fashioned from the blank 12 (Fig. 1) by bending each of the flanges 27 and 28 down along the dotted lines 34 and 36, respectively, until they are at approximately right angles with the web 22, and by bending each of the tabs 31 in two places so that the inner portion 37 of the tabs 31 is bent down from the web 22 approximately 45 degrees along the dotted line 38 and the outer portion 39 of the tabs is bent upwardly from the inner tab portion 37 approximately 45 degrees along the dotted line 41. Each of the wing flanges 28 is bowed in toward the center of the web 22 (Figs. 3 and 5) and is shaped to conform to the inner periphery of the bead 21 on one of the cans 13, 14, 15 and 16. The clip flanges 27 are straight and act to strengthen the center portion 23 of the web against bending stresses.

The clip 11 is adapted to be applied to a square group of four laterally adjacent cans either manually or by machine. In both cases the procedure is the same. Four cans 13, 14, 15 and 16 (Fig. 5) are arranged in a closed square, as described above, with the adjacent beads 21 on the neighboring ends of the cans tangent to each other. The clip 11 (Fig. 2) is then placed across one end of the square group of cans so that the wing portions 24 and 25 of the web 22 rest on the beads 21 over the points of tangency of the cans 13 and 14, and 15 and 16, respectively (Figs. 3 and 5), with their curved flanges 28 in contact with and closely overlying the similarly curved inner periphery of the beads 21 of said cans. The tabs 31 extend generally outwardly from the group of cans in opposite directions and the beads of the cans project into the notches 32 and 35, respectively.

The inner portion 37 of the tabs 31 is then bent downwardly and inwardly between the converging body portions 18 of the cans 13 and 14, and 15 and 16 until it is substantially perpendicular with the adjacent wing portion 24 or 25, respectively. This movement of the inner tab portions 37 may be accomplished manually by depressing the outer tab portions 39 whereby the tabs will bend almost exclusively along the bend lines 38, 38 (Fig. 1) due to the reduced width of the tabs along these lines and due to the fact that the moment of the tab depressing force at these lines is greater than at any other portion of the tab. This bending of the inner portion 37 of the tabs 31 may also be achieved by means of a clencher 46 (Fig. 4). Said clencher may either

be incorporated in a machine adapted to perform automatically the entire clip applying operation or it may be used as a hand tool to aid in the manual application of the clip.

The clencher **46** comprises a plate **47** to one side of which an actuating member **48**, only part of which is shown, is centrally attached. Two pins **49** and **51** extend normally from the opposite side of the plate **47** and are so arranged thereon that the clencher may be initially placed above the clip **22** with the pins resting on the inner portions **37** of the tabs **31**. Movement of the clencher **46** from this position toward the square group of cans **13**, **14**, **15** and **16** will quickly turn down the inner tab portions **37** into a position perpendicular with the web portions **24** and **25**, as shown in Figs. 3 and 4. To prevent the web **22** from bowing upwardly during the above described tab depressing operation the clencher plate **47** has a flat spring **52** (Fig. 4) secured in a downwardly arched position to its underside. During the tab depressing operation the spring **52** bears against the central portion **23** of the clip web **22** thereby maintaining the web wings **24** and **25** in contact with the can beads **21**. The pins **49** and **51** may also be spaced so as to contact the outer tab portions **39** whereby upon movement of the clencher **46** toward the cans the inner portions **37** will be bent perpendicular to the web **22** in the manner previously described in connection with the fully manual depression of the tabs **31**.

As the inner portion **37** of the tabs **31** is depressed the oppositely arranged shoulders **33** (Figs. 1 and 6) thereon closely follow the curved outer periphery of the adjacent can beads **21** and when the inner tab portion **37** reaches its final position, perpendicular to the web **22**, the shoulders **33** closely underlie the adjacent can beads **21**. With the inner tab portion **37** in this position the beads at the selected end of the square group of cans **13**, **14**, **15** and **16** are clamped between the tab shoulders **33** and the adjacent curved flanges **28**, thereby fastening all four cans **13**, **14**, **15** and **16** to the clip **11**.

While the notches **32** are shown in Fig. 6 exactly fitting the can beads **21**, so that the clip **11** will firmly grasp the can beads and hold the four cans rigidly together, in actual practice the beads **21** vary considerably in their cross-sectional dimensions and consequently the fit between the notches and the can beads is not always as close as that shown in Fig. 6. Nevertheless, the clip **11** will still dependably fasten the cans **13**, **14**, **15** and **16** together. In fact, a certain amount of looseness between the clip and the beads **21** may be desirable in many instances, since it allows the cans to be similarly oriented for display purposes after they have been fastened together.

It should be pointed out that when only one clip **11** is applied to the top end of a square group of four cans the entire group may be picked up as a unit by grasping and lifting the pair of cans at either side of the clip, namely, the cans **13** and **14**, or the cans **15** and **16**, as shown in Figs. 3 and 5. But, with only one clip **11** fastening the group of four cans together they may not be lifted as a group by picking up a pair of cans that is bisected by the clip **11**, namely, the cans **13** and **15**, or the cans **14** and **16** (Figs. 3 and 5). In the latter case the lifting of either designated pair of cans will strip the clip from the other pair of cans. However, if another clip **11** is installed at the bottom of the square group of cans so that it lies crosswise of the clip **11** applied at the top of the group, as shown in Fig. 5, an extremely rigid and stable bundle is thereby attained which may be picked up by grasping and lifting any one of the cans in the bundle. Such a bundle may be very roughly handled without danger of the cans therein separating.

Since the clips **11** are easily applied either by machine or by hand a number of can bundles may be made up quickly at the factory or other distribution points with the aid of machinery before displaying the canned produce for retail sale, or the cans may be displayed in bulk and the customer supplied with clips and allowed to bundle the cans if he so desires. The clips **11** may be readily removed from the group of cans **13**, **14**, **15** and **16** without the aid of a tool by merely grasping the outer tab portions **39** (Figs. 3 and 5) and bending the tabs **31** outward, thereby removing the shoulders **33** from contact with the beads **21**. The clips may then be lifted from the can beads **21**, and since said clips are relatively inexpensive they may be discarded.

Although the embodiment of the present invention shown in the drawings and described herein is specifically adapted for fastening together a square group of four cylindrical metal cans, it is apparent that the present invention is equally adaptable to the joining of different sized and shaped groups of articles which are neither cylindrical nor made of metal, such as square cross-sectioned, cardboard containers and the like, so long as they are provided with a bead or similar protuberance which may be grasped by the clip. Naturally, the configuration of the web, flanges and tabs of the clips to be applied to differently shaped articles and differently arranged groups thereof must conform to the contour and position of the beads of the various articles in the various groups.

While I have described a preferred embodiment of the present invention, it will be understood that various changes and modifications may be made in the details thereof without departing from the spirit and scope of the appended claim.

Having thus described the invention, what I claim as new and desire to protect by Letters Patent is:

A clip for securing together in a closed polygonal pattern a group of cylindrical articles having peripheral beads, comprising an elongated body having a channel-shaped central portion including a web portion and downturned flanges, similar channel-shaped wing portions spaced from said central portion by extensions of said web portion at opposite ends thereof, each of said wing portions being adapted to straddle the beads on a pair of transversely adjacent articles with its web engaging the top and its flanges engaging the inner surfaces of said beads, the end edges of the flanges on said central portion being adapted to engage the outer surfaces of all of said beads, a transversely rigid locking tab projecting from the free end of each of said wing portions substantially coplanar with the web thereof and deformable to a position substantially perpendicular to said web between said adjacent articles, and laterally projecting shoulders on said tabs adapted to be moved into locking contact with the under surfaces of the beads of said adjacent articles when said tabs are deformed to a position between said adjacent articles to maintain said wing portions in bead-straddling position and to thereby retain said articles in secured relation with said clip.

References Cited in the file of this patent

UNITED STATES PATENTS

603,455	Pinney	May 3, 1898
1,516,232	Kratzer	Nov. 18, 1924
1,800,109	Selig	Apr. 7, 1931
1,973,568	Keith	Sept. 11, 1934
2,090,477	Graham	Aug. 17, 1937
2,212,476	Kielberg	Aug. 20, 1940
2,384,112	Meyer	Sept. 4, 1945
2,440,902	Lutey	May 4, 1948
2,566,804	La Flamme	Sept. 4, 1951
2,637,475	Gialanella	May 5, 1953
2,646,911	Holmberg	July 28, 1953
2,702,641	Arthur	Feb. 22, 1955

FOREIGN PATENTS

182,378	Great Britain	July 6, 1922