Nov. 24, 1964 L. G. CALLEGARI 3,158,279

RESEAL PLUG FOR CANS

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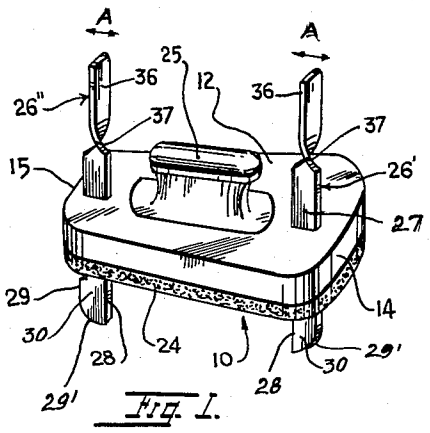


Fig. 1.

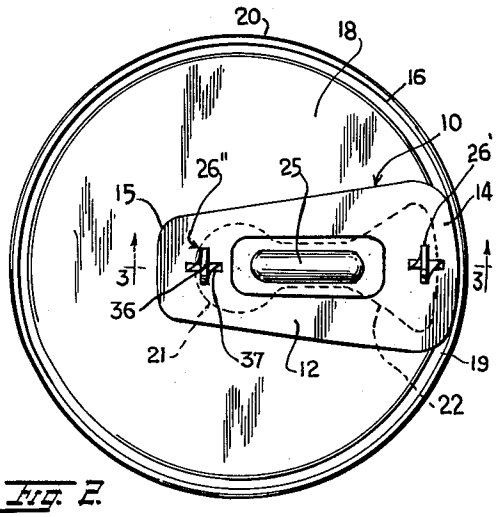


Fig. 2.

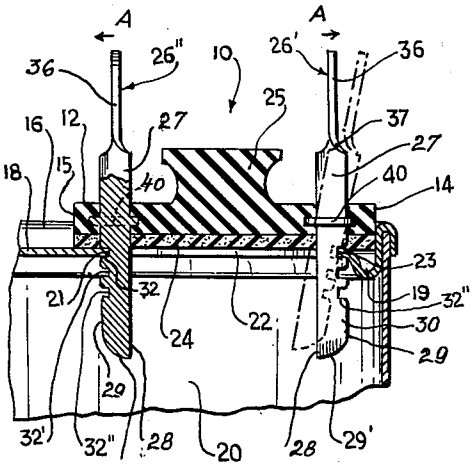


Fig. 3.

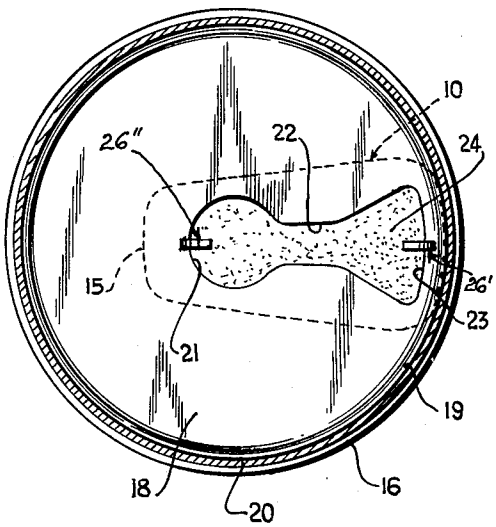


Fig. 4.

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RESEAL PLUG FOR CANS

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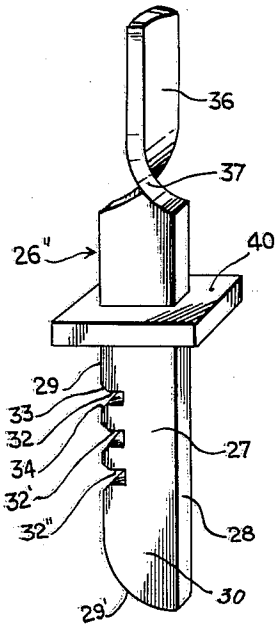


Fig. 5.

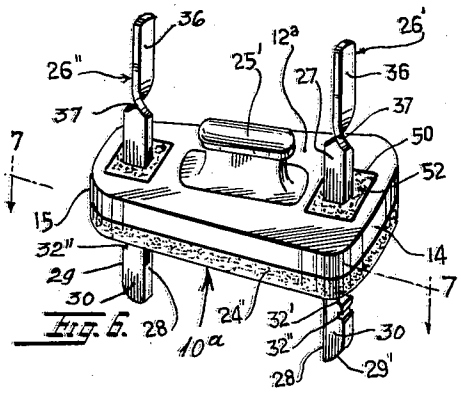


Fig. 6.

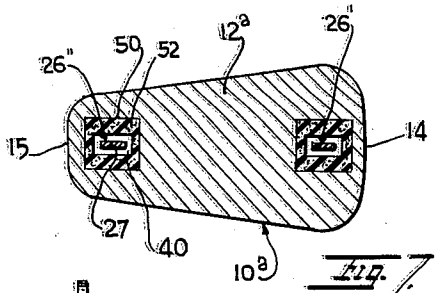


Fig. 7.

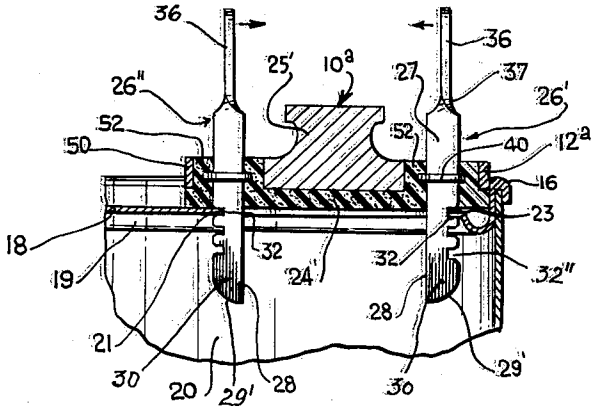


Fig. 8.

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RESEAL PLUG FOR CANS

Filed Aug. 12, 1963 3 Sheets-Sheet 3

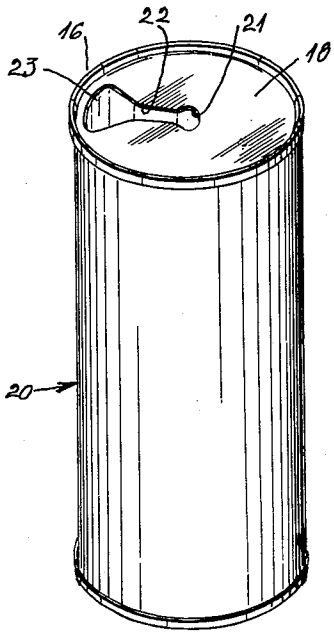


Fig. 9.

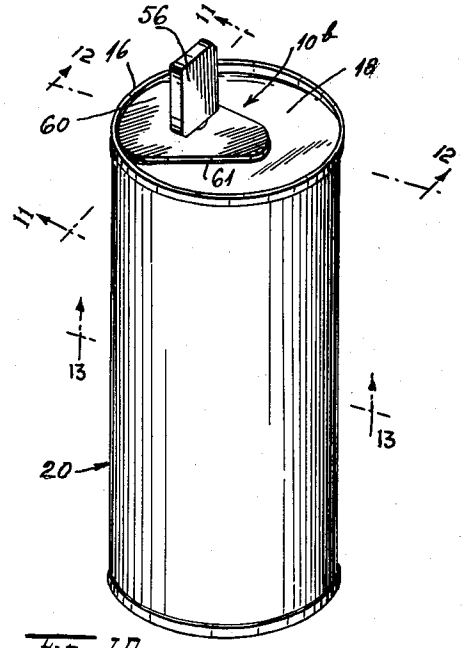


Fig. 10.

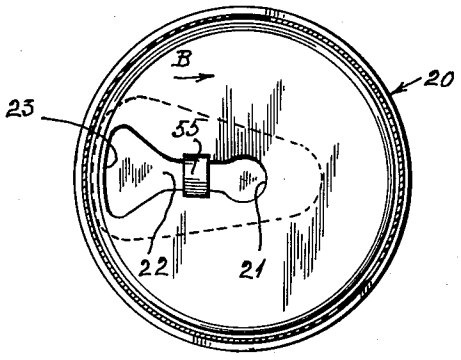


Fig 13.

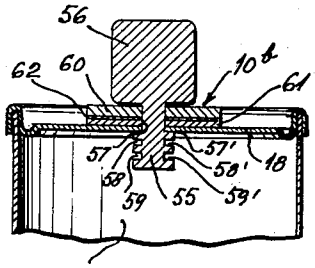


Fig. 11.

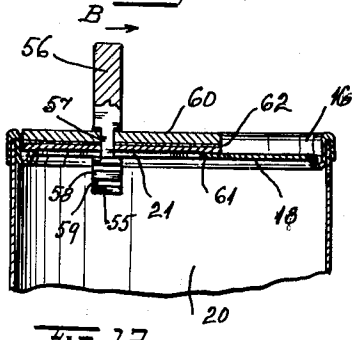


Fig. 12.

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United States Patent Office 3,158,279
Patented Nov. 24, 1964

3,158,279

RESEAL PLUG FOR CANS

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Filed Aug. 12, 1963, Ser. No. 301,375
8 Claims. (Cl. 220—24)

This invention relates to the art of can closures and more particularly concerns a device for resealing an open can.

There has recently become commercially available a type of can for containing a beverage in which the top of the can has a tab opener. When the tab is removed an elongated keyhole-shape opening is formed in the top of the can. The present invention is directed at providing a plug or closure which can be used to reseal such a keyhole-shape opening in one end of a can.

One object of the invention is to provide a plug having a soft, resilient base for sealing a keyhole-shape can opening, with notched blades extending out of the plug for engaging opposing edges of the can opening.

Another object is to provide a plug as described, wherein the blades are pivotally mounted for engaging on and disengaging from the edges of the can opening, with parts of the plug in which the blades are supported formed of flexible material.

A further object is to provide a re-usable plug for repeatedly resealing a can opening of keyhole-shape.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a perspective view of a plug embodying the invention.

FIG. 2 is a top plan view of the plug shown mounted on the upper end of a can.

FIG. 3 is a fragmentary sectional view taken on line 3—3 of FIG. 2.

FIG. 4 is a bottom plan view of the upper end of the can with plug mounted thereon.

FIG. 5 is a perspective view on an enlarged scale of an anchoring blade employed in the plug.

FIG. 6 is a perspective view of another plug embodying the invention.

FIG. 7 is a horizontal sectional view taken on line 7—7 of FIG. 6.

FIG. 8 is a sectional view similar to FIG. 3, showing details of the plug of FIG. 6 mounted on a can.

FIG. 9 is a perspective view showing a can with the closing tab removed.

FIG. 10 is a similar view showing a modified form of plug applied thereto.

FIG. 11 is an enlarged sectional view taken on the line 11—11 of FIG. 10.

FIG. 12 is an enlarged sectional view taken on the line 12—12 of FIG. 10.

FIG. 13 is a sectional view taken on the line 13—13 of FIG. 10.

Referring first to FIGS. 1–4, there is shown a reseal plug **10** including a flat elongated plate **12**. The plate is generally tapered in form with a wider end **14** circularly curved to conform with the inner curvature of bead **16** at the upper end **18** of a cylindrical can **20**. The narrower end **15** of the plate **12** overlays the inner circular end **21** of opening **22** in the can end **18**. The wider end **14** of the plate overlays the wider end **23** of the opening **22** and a portion of groove **19** at bead **16**.

Secured to the underside of plate **12** is a resilient pad

24 made of spongy rubber, plastic or other soft, flexible material. The plug has a handle **25** which extends upwardly from the center of plate **12** and may be integral with it. Plate **12** is preferably formed of a flexible rubber or plastic material which is less resilient than the pad **24**.

Extending through both plate **12** and pad **24** near opposite ends thereof are two flat blades **26'**, **26''**. Each of the blades, as best shown in FIGS. 3 and 5, has a flat lower portion **27** with straight opposing vertical edges **28**, **29**. Edge **29** has a lower curved portion **29'** which meets edge **28** at the bottom end **30** of the blade. Three notches **32**, **32'** and **32''** extend inwardly from edge **29**. These notches have beveled portions **33**, **34** to facilitate engagement of opposite ends **21**, **23** of opening **22** in the notches.

Upper ends **36** of the blades are twisted 90° at **37** so that the planes of ends **36** are perpendicular to the planes of lower portions **27**. At an intermediate portion of each blade between the uppermost notch **32** and twist **37** is an annular rectangular or oval flange **40**. Flange **40** is embedded in the flexible plate **12**. This flange anchors the blade in the plug. However, the blade can be pivoted in its vertical plane perpendicular to the horizontal plane of plate **12** as indicated by dotted lines in FIG. 3. Since the flat upper portions **36** of the blade are disposed in planes tangential to ends **14** and **15** of the plug, the blades can be readily tilted by pressing the portions toward or away from each other.

It will be noted that the lower portions **27** of the two blades are disposed coplanar with each other with the notched edge **29** in outer blade **26'** facing outwardly toward wider plug end **14** while the notched edge of blade **26''** faces outwardly toward narrow plug end **15**. The notches are so located that any one of the notches in each blade will engage at inner or outer ends **21**, **23** of opening **22**. The soft, resilient pad will be pressed into the opening **22** and will seal it effectively when notches such as upper notches **32** engage ends **21**, **23** of the opening **22** as clearly shown in FIG. 3. The lower curved ends **29'** of the blades facilitate insertion of the blades into the opening **22**. It may be necessary to press blade ends **36** apart as indicated by arrows A in FIG. 3 to facilitate insertion of the blades into the opening **22** and to clear the lower notches **32'** and **32''**. When the blade ends **36** are released upon engagement of the ends **21**, **23** of the opening **22** in notches **32**, the pad **24** will be pressed into opening **22** and the can end **18** will be sealed. Removal of the plug **10** is accomplished by pressing blade ends **36** apart and by grasping handle **25** to lift the plug off the top of the can.

FIGS. 6 to 8 show another plug **10a** which is similar to plug **10** and corresponding parts are identically numbered. Plug **10a** differs from plug **10** in that the plate **12a** is a rigid member formed of metal or plastic material. This plate has two rectangular, round or oval holes **50** formed near opposite ends **14**, **15**. In these holes are disposed resilient inserts **52** integral with or secured to pad **24'**. The flat portions **27** of the blades **26'**, **26''** extend through the inserts and through bottom resilient pad **24'**. Flanges **40** are embedded in the inserts. The blades can be tilted or pivoted in the same manner as in plug **10** for engaging ends **21**, **23** of can opening **22** in notches **32** of the blades. Handle **25'** is integral with the body of plate **12a** for lifting the plug off of the can end and for pressing the plug down on the can end. The inserts **50** can be separate from or integral with the pad **24'**. Pad **24'** in any case will be cemented or otherwise secured to the underside of plate **24a**.

There has thus been provided a plug adapted to reseal an opening of keyhole-shape in one end of a can. The plug includes notched blades for engaging the rim

of the can opening to insure a firm grip thereon. A resilient pad seals the opening and a top plate serves as a backing, reinforcement and support for the pad as well as a support for the blades. The plug is provided with means for pivotally mounting the blades to facilitate engagement and disengagement of the notches of the blade with the edge of the can opening.

In FIGS. 9 and 10, the can 20 is shown in full. Its upper end 18 has the key-shaped opening 22 with its circular inner end 21 at the center of the upper can end 18 and its wider end 23 conforming to the curvature and running near to bead 16 of the upper can end 18. The opening 22 has been provided by the removal of a tab opener provided on the commercially available types of beer cans.

FIGS. 10 to 13 show another closure plug 10b in which but one securing portion 55 is utilized for securing the plug 10b to the opening 21 in the can end 18. This securing portion is integral with an upstanding flat-shaped handle 56. The portion 55 is enlarged at its lower end and is provided with a series of opposed notches 57, 57', 58, 58', 59 and 59'. The notches 57, 57' include a resilient rubber flat plate 60 and a sponge rubber pad 61 adhered to the underside of the resilient plate 60 by an adhesive layer 62. This same side groove 57 will accommodate upon sponge rubber 61 being compressed the thickness of the edge of the opening 21 of the can end 18 as best viewed in FIGS. 11 and 12.

For a different shaped can end 18 the sealing can be effected by engagement of the edges of the can opening 22 with the opposing notches 58, 58' or 59, 59'.

To attach the closure 10b the securing portion 55 is pressed through the enlarged end 23 of the opening and is slid inwardly so that the opposing edges of the opening 22 will be accommodated by any of the opposing notches, such as 57, 57'. The inward movement of the closure is continued until the enlarged end of the closure as indicated at 63 slides down over the bead 16 of the can end 18. Because of the resiliency of the plate 60 of the sponge rubber pad 61 the handle and its securing portion 56 can easily be worked to fix the notches to the edges of the opening 22 of the can end.

To remove the closure 10b the same can be given a continued movement in direction of arrow B, FIGS. 12 and 13, so that the securing portion 15 can be relieved through the inner circular end 21 of the opening 22 in the can end 18.

It should be aparent that in all forms of the invention that the handle with the securing blades or portions are workable due to the same being mounted in resilient and sponge rubber materials.

While various changes may be made in the detailed construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

Having thus described my invention, what I claim as new, and desire to secure my United States Letters Patent is:

1. A sealing device for a diametral opening in a circular end of a can, said opening having a keyhole-shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, and a pair of blades pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, said plate being formed of a resilient material slightly less flexible than the pad attached to the plate to serve as a reinforcement and support for the pad and a yielding support for the pivotable blades, whereby said blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening.

2. A sealing device for a diametral opening in a circular end of a can, said opening having a keyhole-shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, and a pair of blades pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, said plate being formed of a resilient material slightly less flexible than the pad attached to the plate to serve as a reinforcement and support for the pad and a yielding support for the pivotable blades, whereby said blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening, each of said blades having an annular flange located between opposite ends of the blade and embedded in the plate to anchor the blade therein.

3. A sealing device for a diametral opening in a circular end of a can, said opening having a key-hole shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, and a pair of blades pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, said plate being formed of rigid material and having a pair of holes located near opposite ends thereof, and resilient inserts filling said holes, said blades extending through said inserts, each of said blades having an annular flange embedded in a resilient insert to anchor the blade therein, whereby said blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening.

4. A sealing device for a diametral opening in a circular end of a can, said opening having a key-hole shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, a pair of blades pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, whereby said blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening, and a handle extending outwardly of the other side of said plate to facilitate pressing said pad and inserting said blades into said opening.

5. A sealing device for a diametral opening in a circular end of a can, said opening having a key-hole shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, and a pair of blades pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, each of said blades having an inwardly tapered lower end to facilitate insertion of the blades into said opening, the upper end of each blade being twisted into a plane perpendicular to the plane of the lower end of the blade, whereby the blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening, said plate being formed of a resilient material slightly less flexible than the pad attached to the plate to serve as a reinforcement and support for the pad and a yielding support for the pivotable blades.

6. A sealing device for a diametral opening in a circular end of a can, said opening having a key-hole shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, and a pair of blades pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, said plate being formed of rigid material and having a pair of holes located near opposite ends thereof, resilient inserts filling said holes, said blades extending through said inserts, each of said blades having an annular flange embedded in a resilient insert to anchor the blade therein, whereby said blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening, said inserts being integral with said resilient pad, and a handle extending outwardly of the other side of said plate to facilitate pressing said pad and inserting said blades into said opening.

7. A sealing device for a diametral opening in a circular end of a can, said opening having a key-hole shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, and a pair of blades

pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, said plate being formed of rigid material and having a pair of holes located near opposite ends thereof, and resilient inserts filling said holes, said blades extending through said inserts, each of said blades having an annular flange embedded in a resilient insert to anchor the blade therein, whereby said blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening, each of said blades having an inwardly tapered lower end to facilitate insertion of the blades into said opening, the upper end of each blade being twisted into a plane perpendicular to the plane of the lower end of the blade to facilitate pivoting the blades in the plate for engaging the notches of the blades on edges of the can opening and for disengaging the notches from edges of the can opening.

8. A sealing device for a diametral opening in a circular end of a can, said opening having a key-hole shape with rounded opposite ends, said can having an annular bead at the periphery of the can end with one end of said opening located near said bead, comprising a plate having a curved end conforming in curvature to the bead of the can, a resilient pad attached to one side of the plate for entering and sealing said opening, said plate and pad being longer and wider than said opening for completely closing the same, a pair of blades pivotably supported by said plate and pad and extending therethrough in parallel disposition near opposite ends of the plate and pad, each of said blades having at least one notch in an outer edge thereof facing toward an adjacent end of the plate and pad for engaging one of the ends of the can opening, said plate being formed of rigid material and having a pair of holes located near opposite ends thereof, and resilient inserts filling said holes, said blades extending through said inserts, each of said blades having an annular flange embedded in a resilient insert to anchor the blade therein, whereby said blades can be pivoted outwardly of said opening at upper ends of the blades to disengage the notches of the blades from the ends of said opening, each of said blades having an inwardly tapered lower end to facilitate insertion of the blades into said opening, the upper end of each blade being twisted into a plane perpendicular to the plane of the lower end of the blade to facilitate pivoting the blades in the plate for engaging the notches of the blades on edges of the can opening and for disengaging the notches from edges of the can opening, and a handle extending outwardly of the other side of said plate to facilitate pressing said pad and inserting said blades into said opening.

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