

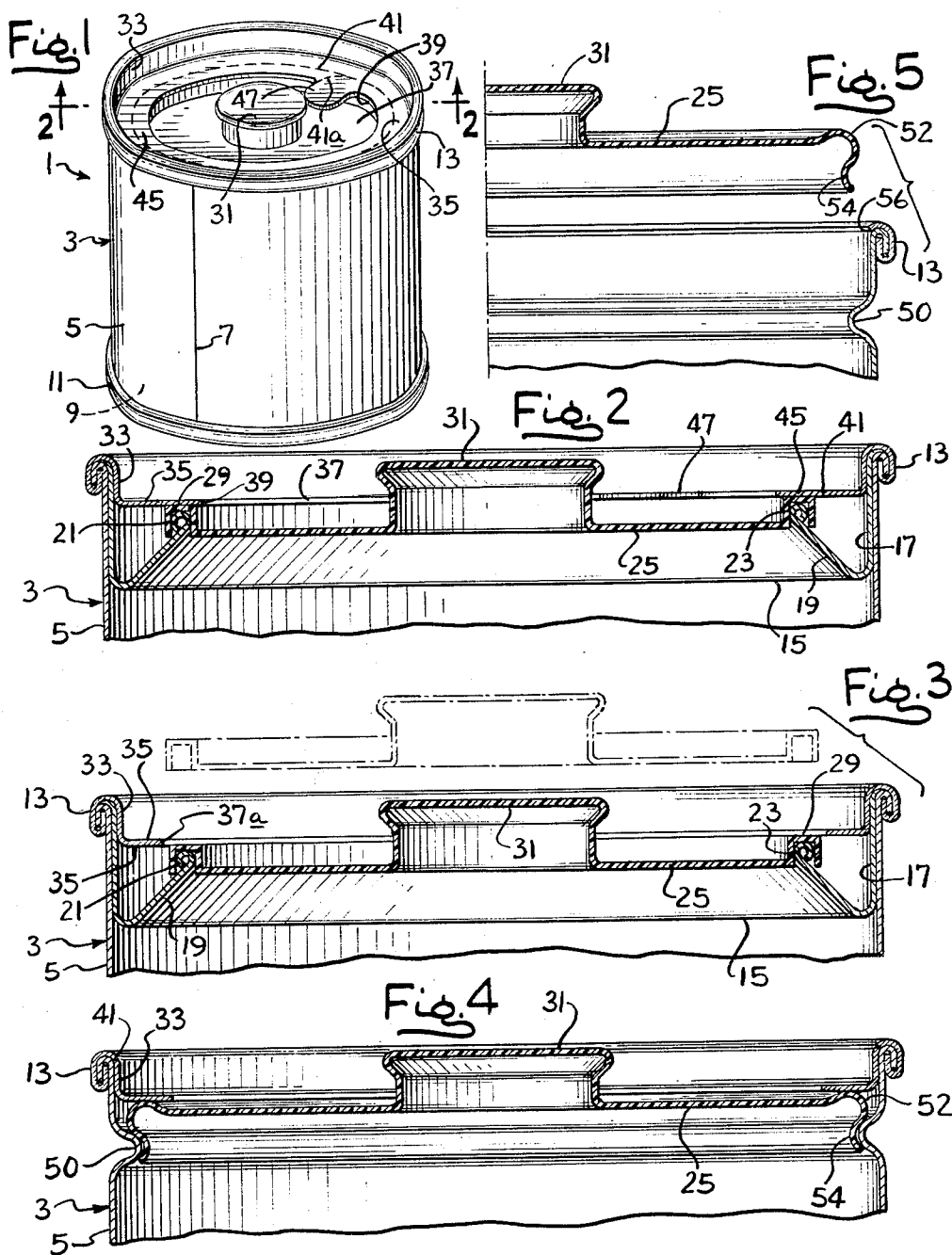
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RECLOSABLE CAN

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3,208,627

RECLOSABLE CAN

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1 Claim. (Cl. 220—54)

This invention relates to cans, and, more particularly, to a can having a removable and replaceable closure.

It is an object of the present invention to provide a can that has a removable and replaceable cap which is retained in place by a ring-shaped can end that exposes the cap and through which the cap may project, and wherein a portion of the ring-shaped can end is fractureable to permit the cap to be removed and replaced.

It is also an object of the present invention to provide a can of the type stated in which the ring overlies and retains the peripheral part of the cap in place on the can and wherein the overlaid part of the ring is severable along the score line radially outwardly of the peripheral part of the cap to increase the size of the ring opening an amount sufficient to permit removal of the cap.

It is another object of the present invention to provide a can of the type stated in which the overlaid part of the end constitutes a tear strip that is easily severable along the score line, as for example, by a tear tab that is integral with the tear strip and is easily accessible at the ring opening.

It is a further and important object of the present invention to provide a can of the type stated in which the end ring is seam-sealed to the can body and wherein the raw edge remaining on the end ring after removal of the tear strip lies radially inwardly of the seam and axially inwardly of the end of the can so as to reduce the possibility of the raw edge cutting a person handling the can.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawing forming a part thereof.

In the drawing:

FIG. 1 is a perspective view of a can constructed in accordance with and embodying the present invention;

FIG. 2 is a fragmentary sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional view similar to FIG. 2 and showing the can after removal of the tear strip;

FIG. 4 is a fragmentary sectional view similar to FIG. 2 and showing a modified form of can constructed in accordance with and embodying the present invention; and

FIG. 5 is a fragmentary sectional view of the can of FIG. 4, shown after the tear strip has been removed.

Referring now in more detail to the drawing, which illustrates preferred embodiments of the present invention, 1 designates a can fabricated of sheet metal, such as coated black plate, tinplate, or the like, used in the can making art, and comprising a can body 3 having an enveloping or side wall 5 that surrounds the central axis of the can body. The side wall 5 is preferably a rectangular piece of sheet metal shaped into a cylinder with the mating edges locked and solder-sealed together in the provision of a longitudinally extending side seam 7. Closing the lower end of the can body 3 is a bottom can end 9 that is secured to the side wall 5 by a double lock seam 11.

Marginally secured to the upper end of the side wall 5 by a double lock seam 13 is an annular sheet metal neck ring 15 that is channel-shaped in cross section and comprises a radially outer wall 17 and an upwardly inclined radially inner wall 19. The axially outer end of the wall 19 terminates below the seam 13, and the metal

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of the inner wall 19 at said axially outer end thereof is outwardly turned in the provision of an annular bead 21 that forms an opening 23 into the interior of a can body 3.

Mounted across the neck opening 23 is a removable and replaceable cap 25 that may be fabricated of any suitable material, such as, high impact strength polystyrene or linear polyethylene. The cap 25 has an inverted channel-shaped peripheral portion 29 that overlies and receives the bead 21. The cap 25 also has a central lift knob 31 that projects upwardly, terminating below the axially outer end of the seam 13.

Marginally secured by the seam 13 is a ring-like end member 33, of, for example, sheet steel, that has an annular cap-retaining flange 35 which overlies and presses against the peripheral portion 29 of the cap 25. The end member 33 has a large central hole 37 through which the lift knob 31 projects, the dimension of the hole preferably being such that the radially inner edge 39 of the flange 35 lies slightly radially inwardly of the peripheral portion 29. The flange 35 has an annular score line 41 that lies radially outwardly of the peripheral portion 29 of the cap and radially inwardly of the seam 13 also preferably radially inwardly of the body wall 5. That part of the flange 35 that is bounded by the score line 41 and inner edge 39 constitutes a tear strip 45 which includes a radially inwardly projecting pull tab 47, bounded on one side by a short score line 41a.

From the foregoing it will be apparent that the flange 35 on the end member 33 assures that the cap 25 remains in place on the bead 21. When it is desired to gain access to the interior of the can body 3, the pull tab 45 may be grasped and pulled to tear the sheet steel tear strip 45 along the score lines 41a, 41, whereupon the tear strip, thus removed, may be discarded. Since the score line 41 was radially outwardly of the peripheral portion 29 of the cap, the hole 37a (FIG. 3) in the end member 33 is sufficiently large to enable the cap 25 to be withdrawn therethrough, namely, to the position shown in broken lines in FIG. 3. Thereafter, the cap 25 may be removed and replaced as access to the interior of the can body 3 is desired. The dimensions of the bead 21 and peripheral portion 29 may be such as to insure a reasonably snug fit between the two, but yet permit ready removal of the cap 25 by an upward pull on the lift knob 31.

The raw edge of metal that remains on the end member 33 is that which defines the hole 37a and such raw edge lies in such position that it is not likely to cut the hand of a person handling the can.

FIGS. 4 and 5 illustrate a modified form of can constructed in accordance with the present invention, and wherein like reference characters indicate those parts that correspond to the parts of can of FIGS. 1-3, previously described. In the can of FIGS. 4 and 5, the side wall 5 is formed with an annular radially inwardly extending bead 50 that lies adjacent to the lock seam 13. The peripheral portion of the cap 25 comprises a bulge or rib 52 that is arcuate in cross section and merges with a reversely curving depending skirt 54 that seats upon the bead 50. The end member 33 in FIGS. 4 and 5 differs from that in FIGS. 1-3 in that the score line 41 is located on the radially inwardly presented side of the seam 13 and preferably also radially inwardly of the side wall, just axially inwardly of the end of the seam 13. The end member 33 overlies and engages the rib 52 to insure retentive engagement of the skirt 54 and bead 50, thereby insuring that the cap remains in closure-wise position over the opening into the can body that is defined by the bead 50.

When the tear strip is removed, the raw edge 56 (FIG. 5) will remain, but since this raw edge is radially in-

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wardly, and to some extent axially inwardly, presented, the danger of a person cutting his hand while handling the can is minimized. Removal of the tear strip enables the cap 25 to be removed, as shown in FIG. 5. The cap skirt 54 and rib 52 has sufficient resiliency, within elastic limits, to be readily removed from the bead 50 after the tear strip has been removed from the end member 33.

While the score line in FIGS. 1-2 is shown in such position as to provide only a small clearance for removal of the cap after severance of the tear strip, it is apparent that the score line could be placed in a position similar to that in FIG. 4 or at any other place between those two places illustrated. Likewise, the score line in FIG. 4 may be radially inwardly on the end member for the position shown. However, it must provide for a large enough opening for the cap to be removed when the tear strip is severed.

In compliance with the requirements of the patent statutes I have herein shown and described a preferred embodiment of the invention. It is, however, to be understood that the invention is not limited to the precise construction herein shown, the same being merely illustrative of the principles of the invention. What is considered new and sought to be secured by Letters Patent is:

A can comprising a can body having an enveloping body wall that surrounds the central axis of said can body, an end member at one end of the can body and secured thereto by a lock seam formed by the peripheral material of the end member and the adjacent material of the body wall, an annular neck ring channel shaped in cross section and opening toward said one end of the can body, said neck ring having a radially outer wall and an upwardly and inwardly inclined radially inner wall which cooperate to form the channel, said outer wall being adjacent to the body wall and being secured at its axial

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outer end by said lock seam, said inner wall terminating at its axial outer end in an annular bead that defines an opening into the interior of the body, a removable and replaceable one piece plastic cap closing said opening, said cap having a channel shaped peripheral portion that receives the bead to provide a snug fit therebetween but of insufficient snugness to inhibit manual removal of the cap, said end member having a hole exposing said cap, a knob on said cap and projecting through said hole, said end member having an annular score line radially outwardly of and surrounding said peripheral portion, the part of said end member radially intermediate the hole and score line constituting a tear strip that overlies and abuts the peripheral part of the cap and by engagement therewith prevents retraction of the cap from the bead, said tear strip also spanning the opening in the channel so that there is substantial clearance between said tear strip and the bottom of the channel, and a tab that forms part of said end member and is capable of being pulled to remove the tear strip by tearing along the score line to form an enlarged hole that is defined by the raw edge of metal that remains thereon and through which enlarged hole the cap may be removed and replaced.

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