

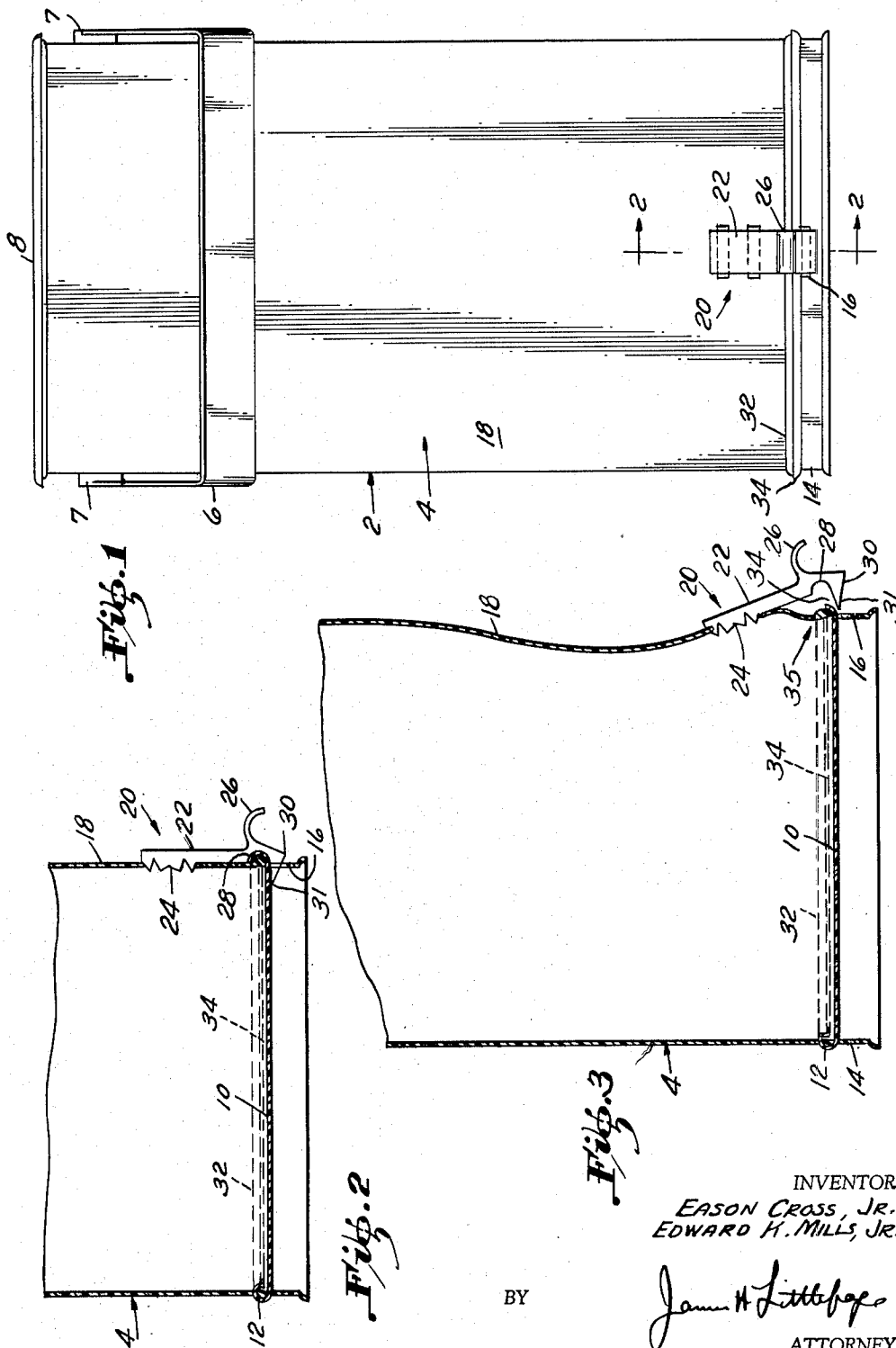
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CATCH MECHANISM

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CATCH MECHANISM

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This invention relates to a catch mechanism and, more particularly, to a catch for releasably holding a container closure.

The primary object of the invention is to provide an extremely simple catch which, as distinguished from the usual type having pivoted or sliding parts, has no moving parts and consists of a single element. In further contradistinction from conventional catches utilizing springs or weights, or even the springiness of the catch itself to bias it closed, it is an object of this invention to provide a single rigid element which is affixed on a container wall, and which relies on the flexibility of the container wall to permit the catch to be opened away from engagement with the closure, relying on the springiness of the supporting wall to bias the catch closed.

More specifically, it is intended now to provide a catch and an associated container wall both formed of plastic such as polyvinyl resin, the wall being a thin sheet characterized by springiness and yieldability under manual pressure, the catch having sufficient thickness and width to be rigid from end-to-end so that it will not bend to any significant extent under manual forces applied during normal use. Still another object is to provide for a trigger-like action resulting in a positive release of the container closure as the catch opens.

These and other objects will be apparent from the following specification and drawing, in which:

FIG. 1 is a front elevation of a container embodying the invention;

FIG. 2 is a vertical cross section through the lower portion of the container along the line 2-2 showing the catch closed; and,

FIG. 3 is a view similar to FIG. 2, but showing the catch open, at the point of release of the closure.

Referring now to the drawings, in which like reference numerals denote similar elements, the catch mechanism with which the invention is concerned is a part of a bottom opening refuse container 2 constructed entirely of plastic, and including a tubular body 4 of generally rectangular configuration having a handle 6 pivoted at 7 near the upper end, a top 8 and bottom 10 both hinged, as indicated at 12, to body 4. The details of the hinges are more fully disclosed in my copending application filed concurrently herewith, entitled End Structure and Hinge for Plastic Containers.

Depending from bottom 10 is a base band 14 having a horizontal slot 16 in the front. The front wall 18, as are the other sides of body 4, is of plastic sheet material, approximately $\frac{1}{16}$ of an inch in thickness. Many plastics, such as the polyvinyl resins, are suitable, the critical characteristics being that the selected material be tough, somewhat flexible, slightly stretchable, manually bendable, and sufficiently springy so that it quickly returns to its normal plane when released after having been bent or stretched. Such materials are concurrently in widespread use in "squeeze bottles" for medicines and cosmetics, plastic wastebaskets and other containers. Near the lower end of front wall 18 is a centrally disposed catch 20 whose shank 22 is affixed to the front wall by a connection 24 more fully detailed in our co-pending application filed concurrently herewith, entitled Plastic Deformable Mountings, it being sufficient to note here that the upper end of the shank is affixed against the front surface of the front wall 18 and the intermediate portion and lower end

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of the shank, from the lowermost point of fixation, are free. Above the lower end of catch 20, on the front thereof, is a finger piece 26, and on the inner side is a curved sear or notch 28. The lower end of the catch is beveled to provide a cam surface 30 inclining upwardly and inwardly and terminating in a nose 31 at its juncture with the lower end of notch 28. Catch 20 is also formed of plastic, but is of sufficient width and thickness so as to be rigid from end-to-end, at least to the extent that it will not bend appreciably in response to the forces manually applied thereto in ordinary usage.

Extending around the lower edge of body 4 is a half-round convex plastic bead 32, and around the upper edge of bottom 10 is a concavo-convex quarter round lip 34 which, when bottom 10 is closed, engages closely over the lower half of bead 32. Bead 32 stiffens and reinforces the edge of the container body, and lip 34 seals against the bead to prevent leakage of liquid contents of the container.

In operation, when bottom 10 is closed, lip 34 engages over the lower half of bead 32, and the concave surface of notch 28 engages over lip 34, with nose 31 extending inwardly through slot 16 in the front of base band 14, as shown in FIGS. 1 and 2. When finger piece 26 is manually engaged and pulled forwardly, the lower portion of catch 20 swings forwardly, and front wall 18 of body 4 distorts inwardly. When the lower portion of catch 20 has been pulled to the FIG. 3 position, in which nose 31 is about to clear lip 34, there results an outward force, indicated by the arrow 35 which, but for the confinement of bead 32 within lip 34, would distort the lower central portion of wall 18 and bead 32 slightly forwardly. Thus, as nose 31 clears lip 34, the forward force of half-round bead 32 against the curved inner surface of quarter-round lip 34 cams the lip downwardly so that it swings away from bead 32 with a slight snap or pop. Upon manual release of finger piece 26, front wall 18 springs back to its flat shape illustrated in FIGS. 1 and 2 and, when bottom 10 is pivoted closed, lip 34 engages against cam surface 30 so as to swing the lower end of catch 20 outwardly until lip 34 slides over nose 31. The springiness of front wall 18, in returning to its flat condition, forces the lower end of catch 20 forwardly until the parts resume the FIG. 1, FIG. 2 condition.

The invention is not limited to a catch and closure for the bottom only of a plastic container, it being adaptable by mechanical skill to other closures for other plastic-walled receptacles.

We claim:

1. In combination with a container having a tubular side wall of flexible springy plastic material and an edge at one end thereof, a closure plate pivoted to one side of said side wall adjacent said end and having a peripheral edge, the improvement which comprises: a latch having an elongate stiff shank with the length thereof extending in the axial direction of said side wall, said shank having a fixed end portion, an intermediate portion, and a free end portion, all of said portions being integral with one another, means fixedly attaching the fixed end portion against the exterior of said side wall at a location axially spaced from said edge and on the outer side of the side wall opposite that to which the closure plate is pivoted, said intermediate portion and the free end portions being free of said side wall, and a finger piece on one of said intermediate and free end portions, said free end portion extending beyond said end edge and overlapping the peripheral edge of said closure plate in the closed position of the latter, said free end portion having a notch engaging over said peripheral edge for holding the plate closed, whereby when said free end portion is lifted outwardly from said peripheral edge, the side wall of said container

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flexes adjacent the location of attachment of the fixed end portion and constitutes a spring hinge for said latch, said container wall having a convex head surrounding the side wall adjacent the end edge, the peripheral edge of said closure plate comprising an outwardly convex, concavo convex lip, the concave side of said lip engaging over said head.

2. The combination claimed in claim 1, said bead being substantially one half round, said lip being substantially one quarter round.

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3. The combination claimed in claim 2, the notch in the free end of said latch shank being of rounded configuration and nesting over said lip and bead.

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