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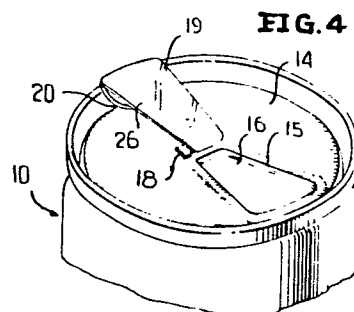
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54 Pull tab with memory.

57 This disclosure relates to an easy opening container which includes a pull tab or strip which is formed of a plastics material having a memory and wherein the pull tab is so constructed that after it has been utilized to remove a panel portion, the memory automatically moves the tab and the removed panel portion to an out-of-the-way position and holds the same in such a position, thereby not in any way interfering with the dispensing operation and while at the same time remaining attached to the container.



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PULL TAB WITH MEMORY

This invention relates in general to new and useful improvements in easy opening containers, and most specifically to a container wherein the pull tab and removable panel portion remain attached to the container after the opening thereof has been effected.

In the past the tab is either fixedly secured to the container panel and merely serves to break away and inwardly displace the displaceable panel portion, or the tab is fixedly secured to the removable
10 panel portion and is removed from the container together with the removable panel portion. In some instances there has been proposed arrangements where the tab is permanently secured to the container panel in addition to its securement to the removable panel portion so that when the removable panel portion is displaced, it is retained with the container by the tab and is shifted to an out-of-the-way position. The net result is that the removable panel portion is still exposed to a certain extent and in many instances is retained
20 in an awkward position.

The object of the present invention is to provide a pull tab for easy opening containers wherein the pull tab or strip and detached panel portion are automatically moved to and held in an out-of-the-way position.

Accordingly, the present invention provides a pull tab for attachment to an easy opening

container; said pull tab including an attaching portion or intermediate securing portion for securement to a removable panel portion, and a grip portion; said pull tab being formed of a plastics material and having a memory for moving said intermediate portion and said grip portion together with an attached removable panel portion to an out-of-the-way position when said pull tab is utilized to remove an attached panel portion.

The pull tab is preferably injection

- 10 molded so as to include an intermediate portion having joined to opposite ends thereof by reverse bends an attaching portion and a grip portion, the attaching portion and the grip portion normally overlying the intermediate portion.

The tab is applied by bonding the intermediate portion to the removable part of a panel and folding the attaching portion so as generally to eliminate the return bend connecting it to the intermediate portion and bonding the attaching portion to the panel
20 adjacent the removable panel portion. Due to the memory properties of the plastics material and the internal stressing occurring from the straightening out of the return bend, when the pull tab is utilized to remove a panel portion, after the panel portion has been completely removed, the internal stresses caused by the memory function as means to effect hinging of the intermediate portion generally 180° from its starting position to an out-of-the-way position adjacent to the resultant dispensing opening.

- 30 The pull tab is advantageously utilized when the panel has a pre-formed dispensing opening which is normally closed by a foil panel element to which the intermediate portion of the pull tab is bonded. Further, when it is desired that the pull tab be utilized as a re-closure element, the intermediate portion may be particularly configured for a snap

fit into the dispensing opening with the intermediate portion having at least a pair of offset side flanges for overlying the panel adjacent the dispensing opening and thus positioning the intermediate portion within the dispensing opening.

In an alternate embodiment, the intermediate securing portion is provided with lines of weakness to effect rolling up of the tab to a substantially compact out-of-the way position while remaining
10 attached to the container panel.

In the drawings:

Figure 1 is a fragmentary top perspective view of a can having an end unit employing the pull tab of this invention;

Figure 2 is a fragmentary vertical sectional view taken generally along the line 2-2 of Figure 1, and shows the specific configuration and position of the pull tab or strip;

Figure 3 is a fragmentary transverse vertical sectional view taken generally along the line 3-3
20 of Figure 1, and shows the seating of an intermediate portion of the tab within a dispensing opening;

Figure 4 is a fragmentary top perspective view similar to Figure 1, with the container in an opened state;

Figure 5 is a transverse longitudinal sectional view taken through the tab in its as molded state; and

Figure 6 is a transverse sectional view
30 similar to Figure 3, and shows a modified form of tab;

Figure 7 is a top perspective view of a further embodiment of a tab formed in accordance with this invention;

Figure 8 is an enlarged fragmentary vertical sectional view taken longitudinally of the tab along the line 8-8 of Figure 7, and shows most speci-

fically the mode of securement of the tab to the end panel and the removable panel portion;

Figure 9 is an enlarged fragmentary vertical sectional view taken generally along the line 9-9 of Figure 7, and shows the manner in which the grip portion of the tab is temporarily locked to the securing portion to prevent memory means of the grip portion from effecting a rolling up of the grip portion prematurely;

10 Figure 10 is a top perspective view similar to Figure 7, and shows the container in its opened position with the tab and the removable panel portion being rolled up in response to the action of the memory means of the tab;

Figure 11 is a fragmentary schematic view showing the removable panel portion prior to the attachment of the tab thereto; and

Figure 12 is a schematic view similar to Figure 11 and schematically shows how the removable
20 panel portion is automatically folded by the tab as the opening process proceeds.

Referring now to the drawings in detail, it will be seen that there is illustrated in Figure 1 a conventional container of the easy opening type which is generally identified by the numeral 10 and includes a can body 11 having a closure unit 12 permanently secured thereto by means of a double seam 13. The closure unit has an end panel 14 with a cutout defining a dispensing opening 15, as is best shown in Figure 4.
30 The dispensing opening 15 is initially sealed by a foil panel element 16 which underlies the end panel 14 and closes the dispensing opening 15. The foil panel opening 16 is bonded to the underside of the end panel 14 surrounding the dispensing opening 15.

The container 10 is provided with a pull tab or strip generally identified by the numeral 17. The

tab 17 is formed of a suitable plastics material which may have a memory and includes an attaching portion 18, an intermediate portion 19 and a grip or pull portion 20. The intermediate portion 19 is seated within the dispensing opening 15 and is suitably bonded to the upper surface of the foil panel element 16. The intermediate portion 19 is hingedly connected to the end panel 14 by the attaching portion 18, as is best shown in Figure 2. The grip
10 portion 20 is preferably provided with a finger receiving opening 21 and while it normally closely overlies the intermediate portion 19, it is movable upwardly to be gripped in the position shown in Figure 2.

Referring now to Figure 5, it will be seen that the tab 17 is initially formed with the attaching portion 18 overlying the intermediate portion 19 and integrally connected thereto by a reverse bend 22. In a like manner, the grip portion 20 overlies the attach-
20 ing portion 18 and is integrally connected thereto by a reverse bend 23. It will be apparent that the attaching portion 18 and the grip portion 20 are coplanar, having their free ends opposing one another and are spaced apart as at 24. Further, the attaching portion 18 and the grip portion 20 are spaced from the intermediate portion 19 by the construction of the reverse bends 22, 23.

A comparison of Figures 2 and 5 will show that when the tab 17 is applied, it is necessary to
30 rotate the attaching portion 18 180° so that it will overlie the end panel 14 immediately adjacent the dispensing opening 15. In the tensioning of the attaching portion 18 through an angle of 180° from its as molded position, an intermediate part 25 of the pull tab 17 is internally stressed, primarily with the upper part thereof, in tension. Thus, when the pull tab

17 is utilized to tear out that part of the foil panel element 16 which is aligned with the dispensing opening 15 and which is bonded to the underside of the intermediate portion 19 is torn completely from the panel element 16, the internal stresses in the part 25 effected by the memory of the plastics material causes the intermediate portion 19, the grip portion 20 and the torn out portion of the foil panel element 16 immediately to fold to an out-of-the-way position, as shown in Figure 4. The torn out portion of the foil panel element 16 is identified by the numeral 26 for identification purposes. Thus the pull tab and the removed panel portion 26 remain attached to the container 10 while being held in an out-of-the-way position automatically by the memory of the pull tab.

Referring now to Figure 6, it will be seen that when it is desired that the pull tab may be utilized for reclosing the dispensing opening 15, the intermediate portion 19 is formed snugly to fit in the dispensing opening 15. Further, to position the intermediate portion 19 within the dispensing opening 15, at least the side edges of the intermediate portion 19 are provided with flanges 27 which are offset from the plane of the intermediate portion 19 and seat on the outer surface of the end panel 14 so as to limit movement of the intermediate portion 19 into the general plane of the end panel 14.

In Figure 7 is shown a tab for an easy opening container formed in accordance with an alternate embodiment of this invention, the container being generally identified by the numeral 40. The container 40 includes a conventional body 42 having at least the upper end thereof closed by a separately formed end unit generally identified by the numeral 44. The end unit 44 is secured to the body 42 by a conventional

double seam 16 and includes an end panel 48. As is best shown in Figure 11, the end panel 48 is provided with a removable panel portion 50 which is outlined by lines of weakness 52 preferably in the form of scoring. The removable panel portion 50 is illustrated as being of a generally triangular configuration, but may assume other shapes. It does, however, have a starting end 54 which is preferably provided with an integral rivet 56.

10 This embodiment particularly relates to the provision of a tab for effecting first the removal of the removable panel portion 50 and then the folding and concealing of the removed removable panel portion in an out-of-the-way position while still retained on the container. The tab formed in accordance with this invention is generally identified by the numeral 58 and is preferably formed of a plastics material which is injection molded so as to have a memory. The tab 58 is formed with three portions, an anchoring portion 60, a
20 securing portion 62, and a grip portion 64.

 The anchoring portion 60 is preferably rectangular in outline for reasons to be described hereinafter and extends to that edge of the removable panel portion 50 disposed remote from the starting end 54. The anchoring portion 60 is divided into a plurality of panels by transversely extending memory fold lines 66. The panel of the anchoring portion 60 disposed remote from the removable panel portion 50 is permanently secured to the end panel 48 by a suitable
30 fastener 68 which is preferably in the form of an integral rivet.

 The securing portion 62 is generally triangular in outline and is joined integrally with the anchoring portion 60 along the memory fold lines 66. The outline of the securing portion 62 generally corresponds to that of the line of weakness 52 although it has a square cut remote end as opposed to the rounded

starting part of the line of weakness. The securing portion 62 is also provided with a plurality of memory fold lines 70 which extend transversely of the securing portion and are spaced in accordance with the spacing of the memory fold lines 66 for a reason to be described hereinafter.

The grip portion 64 has the same generally triangular outline as the securing portion 62, but is provided with a circular opening 72 for receiving one's
10 fingers to effect a gripping thereof. The grip portion 64 is also provided with memory fold lines 74 which are aligned with the memory fold lines 70.

The forward end of the grip portion 64 is integrally connected to the forward end of the securing portion 62 by a reverse bend 76. The rear corner parts of the grip portion 64 are releasably secured to the underlying parts of the securing portions 62 by molded-in snaps 78 as is best shown in Figures 7 and 9. The molded-in snaps 78 prevent the premature folding of
20 the grip portion 64.

The rivet or like fastening means 56 of the removable panel portion 50 extends through and secures the front end parts of the securing portions 62 and the grip portion 64 to the front end 54 of the removable panel portion 50 which the already aligned memory fold lines 70 and 74 being aligned with the transverse lines of weakness 80 formed in the removable panel portion 50. These transverse lines of weakness are illustrated as being in the form of scores which extend only partially
30 across the removable panel portion 50, leaving central parts which are not subject to weakening.

Further, the underside of the securing portion 62 is suitably bonded to the upper surface of the removable panel portion 50. Normally, the end panel 48 will have a plastic coating to which the plastic pull

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tab 58 may be heat sealed. If not, a suitable adhesive (not shown) may be utilized.

When it is desired to open the container 40, the rear part of the grip portion 64 is lifted with the hold-down snaps 78 being disengaged. An upward pull is then exerted on the rivet 56 or other fastening means so as to effect rupture of the end panel 48 along the lines of weakness 52 at the starting end 54 on the removable panel portion 50. Once rupture is initiated, 10 the grip portion is pulled rearwardly so as to tear out the removable panel portion in the manner generally shown in Figure 12 to effect the definition of a dispensing opening 82 in the end panel 48 as shown in Figure 10. If desired, the end panel 48 may be provided with a protecting bead 84 adjacent to the opening 82.

Once the removable panel portion 50 has been fully torn from the end panel 48 and the grip portion 64 has been released, the memory fold lines 70 and 74 become effective to effect a rolling up or folding of not 20 only the grip portion 64 and the securing portion 62 but also the removed removable panel portion 50 along the lines of weakness 80 into a generally triangular cross sectional tube or pup tent arrangement. Further, the memory fold lines 66 are operative to effect a continuous folding up of the tab 58 so that the removable panel portion 50 which was disposed outermost of the folded up grip portion 64 and the securing portion 62 will be encaged within the folded up anchoring portion 60 as is best shown in Figure 10. Since the anchoring 30 portion 60 is rectangular in outline and the removable panel portion 50 is triangular in outline, it will be seen that there will be a full encasement of the removable panel portion 50 so that there will be no exposed raw edges.

The anchoring portion 60 being permanently

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attached to the end panel 48 by the fastener 68, serves to hold the folded up tab 58 and the removed removable panel portion 50 in an out-of-the-way position spaced from the dispensing opening 82.

CLAIMS

1. A pull tab for attachment to an easy opening container; said pull tab including an attaching portion, an intermediate securing portion for securement to a removable panel portion, and a grip portion; characterized by said pull tab being formed of a plastics material and having a memory for moving said intermediate portion and said grip portion together with an attached removable panel portion to an out-of-the-way position when said pull tab is utilized to remove an attached panel portion.

2. A pull tab according to claim 1, characterized in that said memory is formed by injection molding said pull tab such that said attaching portion and said grip portion overlies said intermediate portion and are integrally attached thereto by reverse bends such that the free ends of said attaching portion and said grip portion oppose one another and are spaced from said intermediate portion.

3. A pull tab according to claim 1, wherein said panel has a dispensing opening therethrough outlining said removable panel portion, and said removable panel portion is part of a foil panel element forming part of said panel, said foil panel element overlapping said dispensing opening and being sealed to the remainder of said panel surrounding said dispensing opening, characterized in that said intermediate portion is seated in said dispensing opening.

4. A pull tab according to claim 3, characterized in that said intermediate portion has offset flanges for seating on said panel adjacent said dispensing opening to facilitate said intermediate portion forming a reclosure element.

5. A pull tab according to claim 1, characterized in that said memory is provided in said intermediate securing portion for effecting automatic folding of said securing portion to folded out-of-the-way position when released.

6. A pull tab according to claim 5, characterized in that said grip portion also has memory means for effecting folding of said grip portion when said grip portion is released.

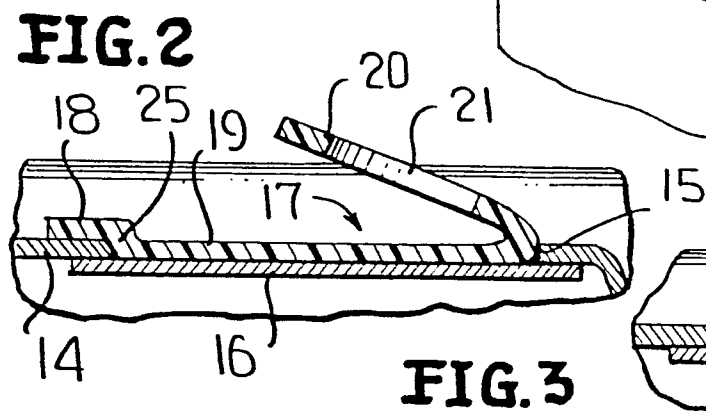
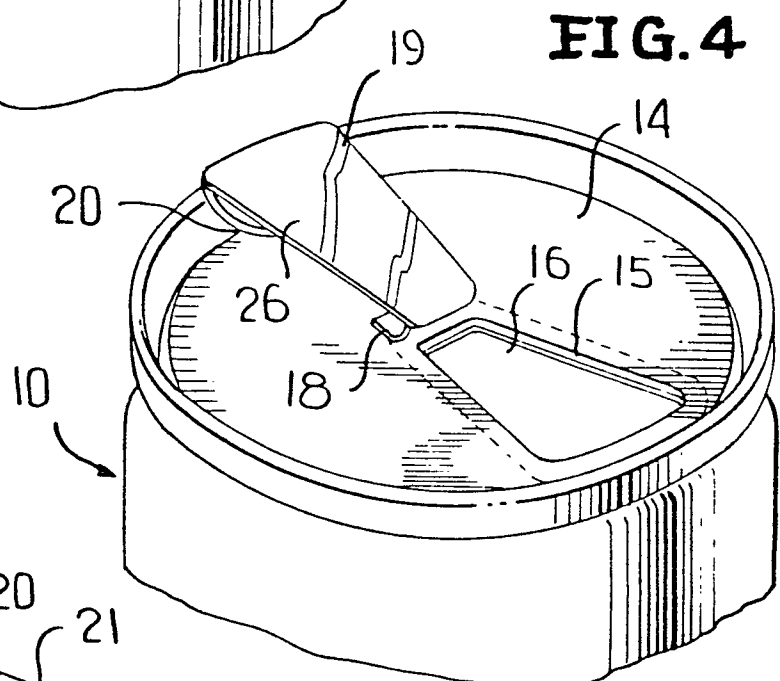
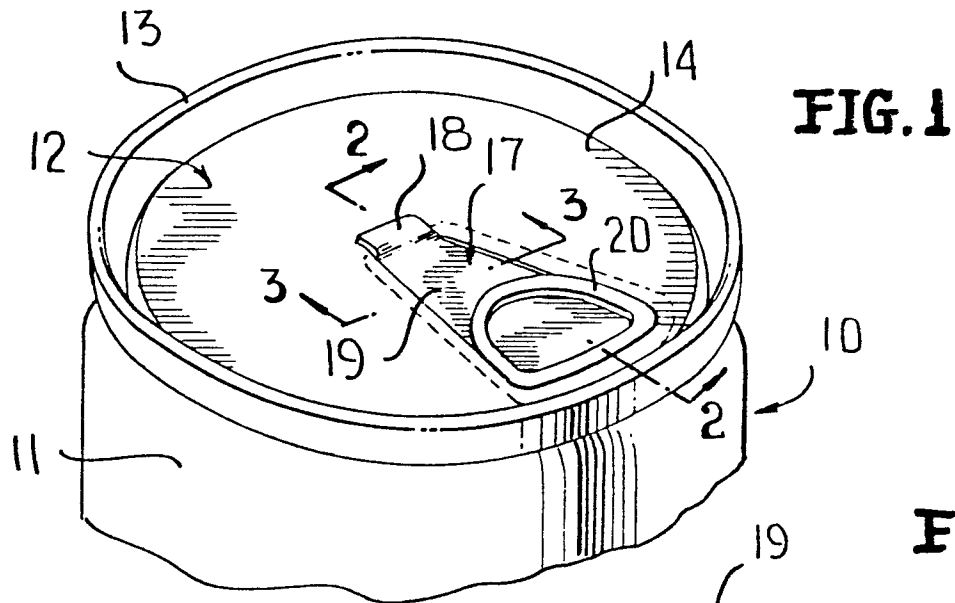
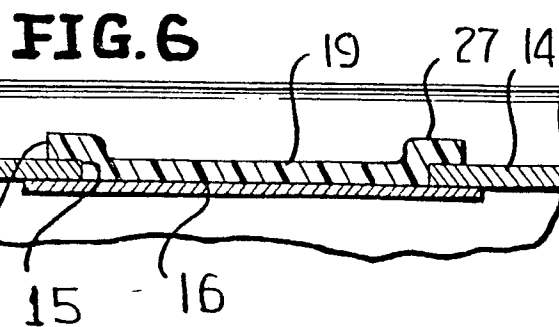
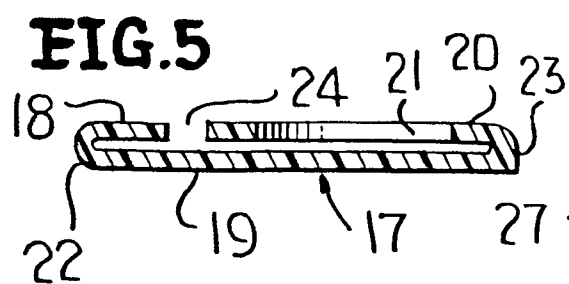
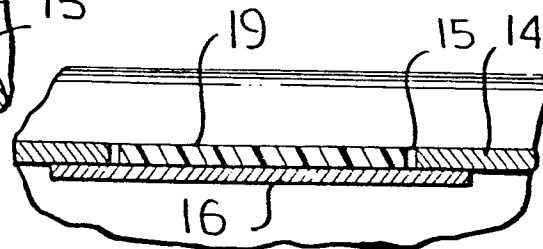
7. A pull tab according to claim 6, characterized in that said memory means of said grip portion are aligned with said memory means of said securing portion for effecting folding of said grip portion within said securing portion.

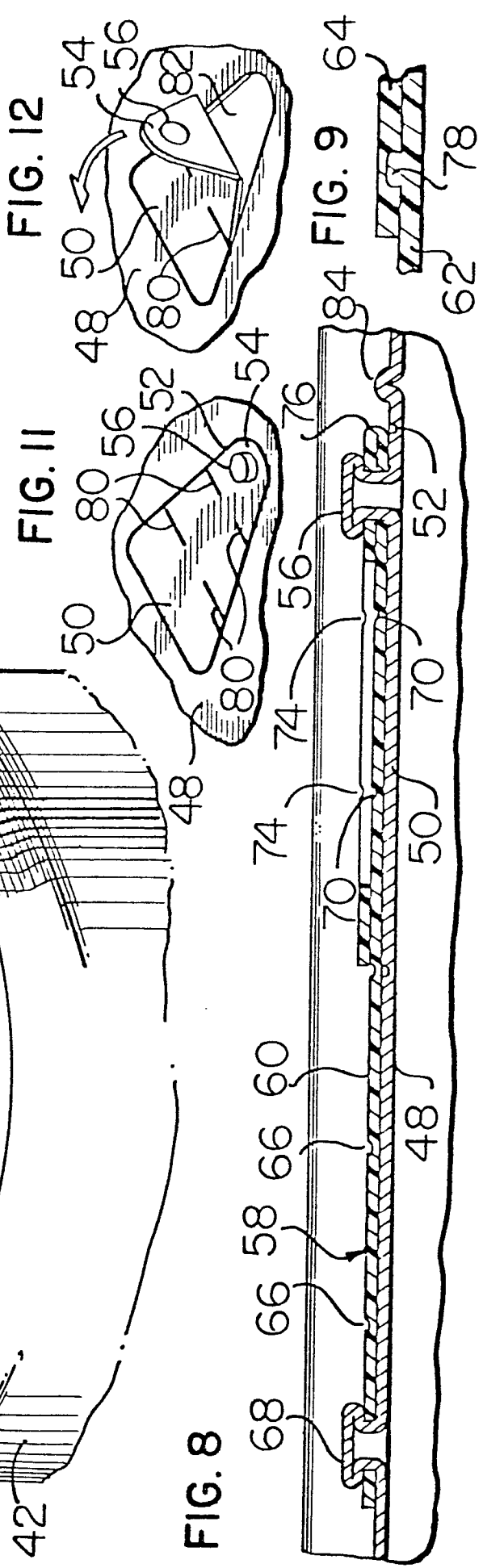
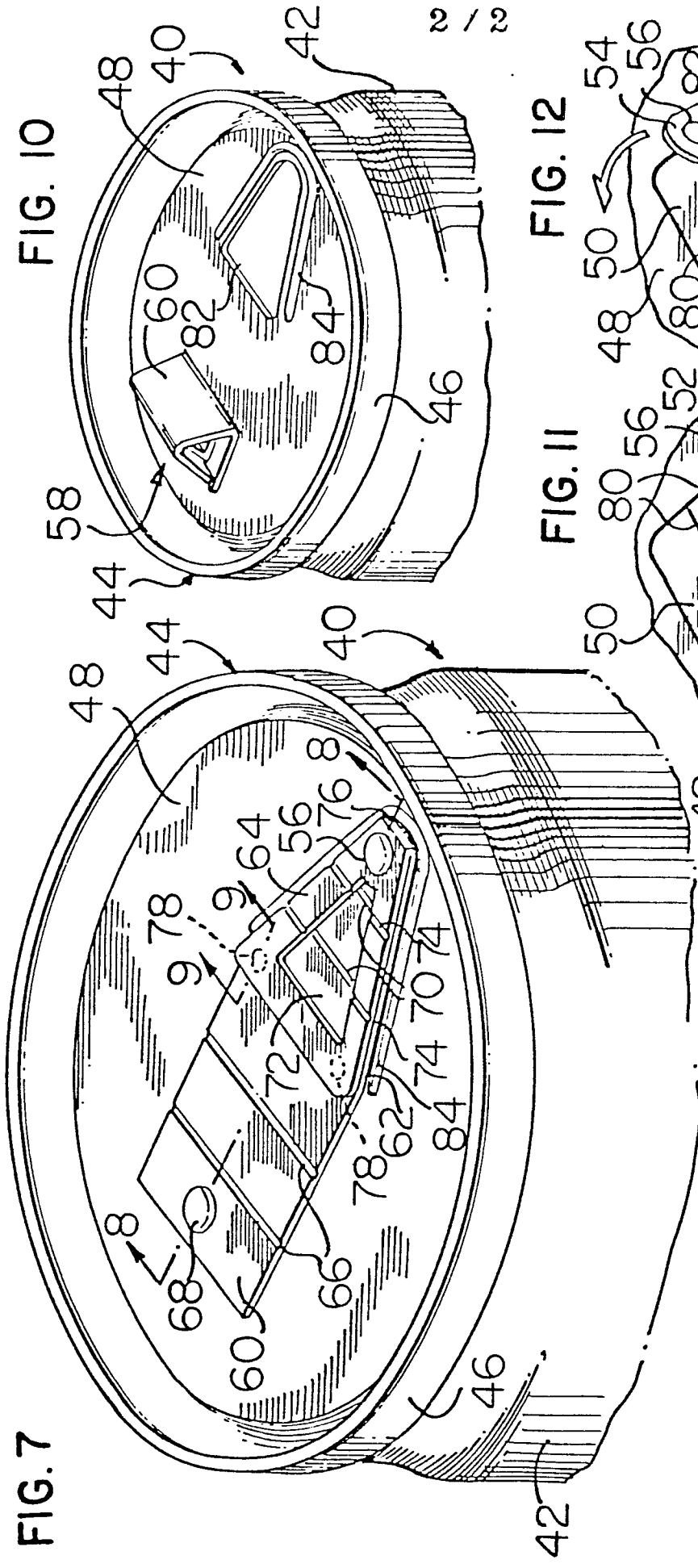
8. A pull tab according to claim 6 or 7, characterized by means releasably securing said grip portion to said securing portion normally to prevent separate folding of said grip portion.

9. A pull tab according to claim 6, 7 or 8, characterized in that said attaching portion also has memory means for folding said attaching portion about said securing portion.

10. A pull tab according to claim 1, characterized in that said removable panel portion has lines of weakness aligned with said intermediate securing portion memory means for folding of said removable panel portion when removed by and together with said securing portion.

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**FIG. 3**





European Patent
Office

EUROPEAN SEARCH REPORT

0024163

Application number

EP 80 30 2692

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
PX	US - A - 4 203 528 (ON APPLICANTS NAME) * In its entirety * -- FR - A - 2 334 573 (MINNESOTA MINING MANUFACTURES CY) * Page 5, line 3 - page 6, line 20; figures 1-3 * --	1,9 3,4	B 65 D 17/32
P	US - A - 4 164 303 (WATERBURY) (14-08-1979) * Column 2, line 21 - column 3, line 33; figures 1,2 * -- US - A - 3 813 000 (UNDERWOOD) * In its entirety * ----	3,4 8	TECHNICAL FIELDS SEARCHED (Int. Cl. 3) B 65 D
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
X	The present search report has been drawn up for all claims		&: member of the same patent family, corresponding document
Place of search The Hague		Date of completion of the search 18-11-1980	Examiner MARTENS