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(54) **BLISTER PACK WITH OPENER**

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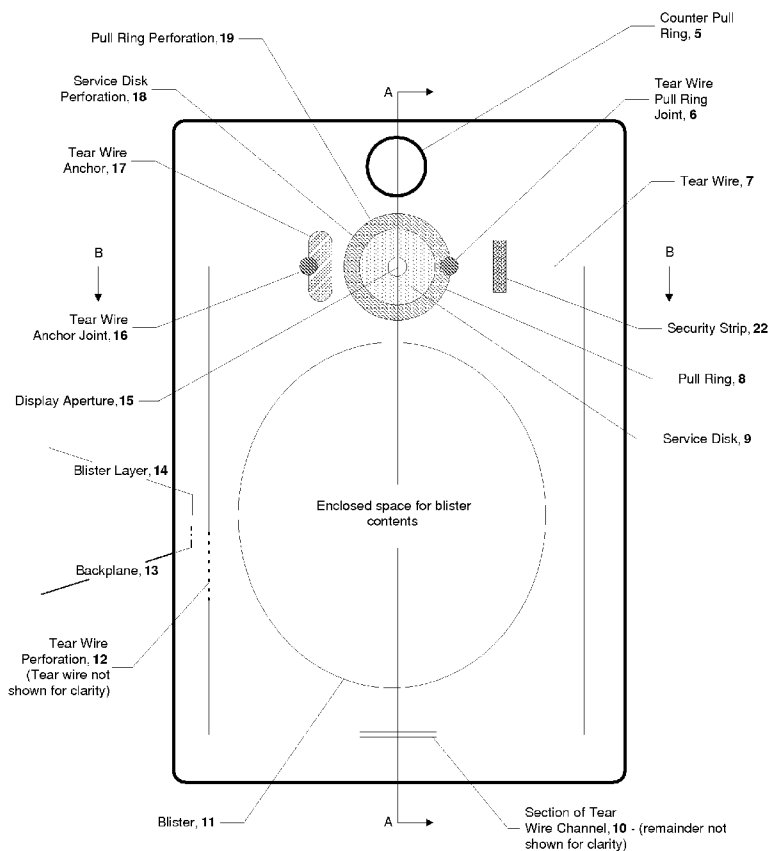
(52) **U.S. Cl.** ..... **206/532**

(57) **ABSTRACT**

A blister pack with opener of a bonded or welded sheet-sheet design having a transparent top layer with blister, an adhesive layer or welded perimeter, a means for displaying the blister pack, a means for gripping the blister pack and a means for

opening the blister pack. (Optional—a means for allowing the inclusion of additional information about the product and a means for detecting the opening of the product)

The design of the blister pack assembly FIG. 1 includes a backplane 13, a blister layer 14, an adhesive layer 20 to permanently affix the backplane to the blister layer, a counter-pull ring 5 to allow the user to control the pack while opening, a tear wire pull ring 8 attached to the first end of a tear wire 7 to allow the user to apply a tensile force sufficient to cause the tear wire to cut through the pack, a tear wire channel 10 to house the tear wire 7, a means for weakening the tear wire channel so that the tear wire may be deployed without undo force. This means may be perforation 12, a thinning of the material that forms the roof of the channel, or a change of material along the tear wire path such as aluminum foil or a similar substitute. Said assembly includes a deformation 11 in the blister layer to allow sufficient space to enclose the intended product, an anchor 17 to permanently affix the second end of the tear wire to the backplane 13, a joint 6 to allow the attachment of the tear wire ring 8 to the tear wire 7 and a joint 16 to allow the attachment of the tear wire 7 to the tear wire anchor 17, a removable service disk 9 temporarily attached to the inside perimeter of the pull ring 8 and containing an aperture 15 for product display



Blister pack with opener  
(Note: Drawings are not to scale.)

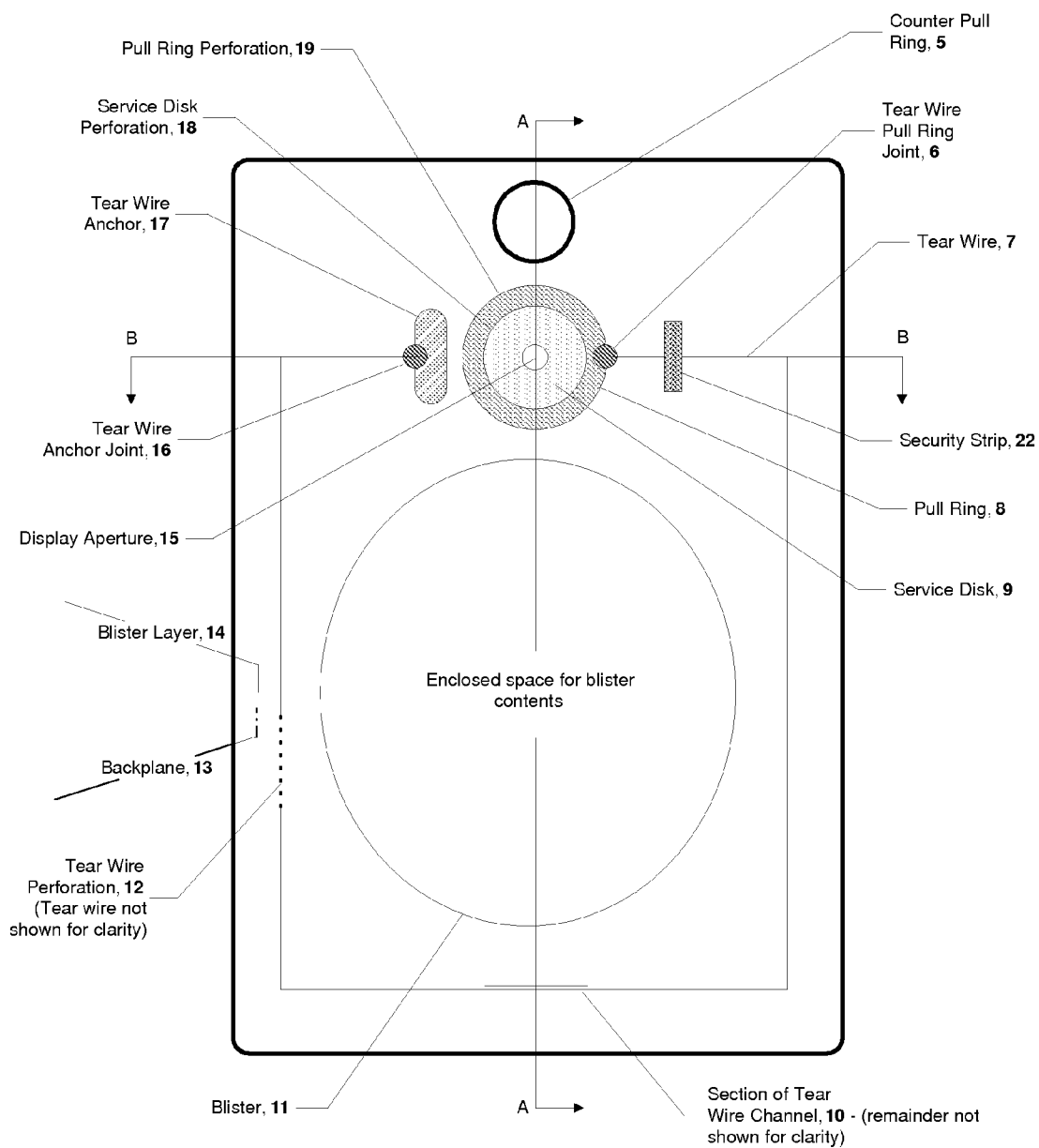


Fig 1 Blister pack with opener  
 (Note: Drawings are not to scale.)

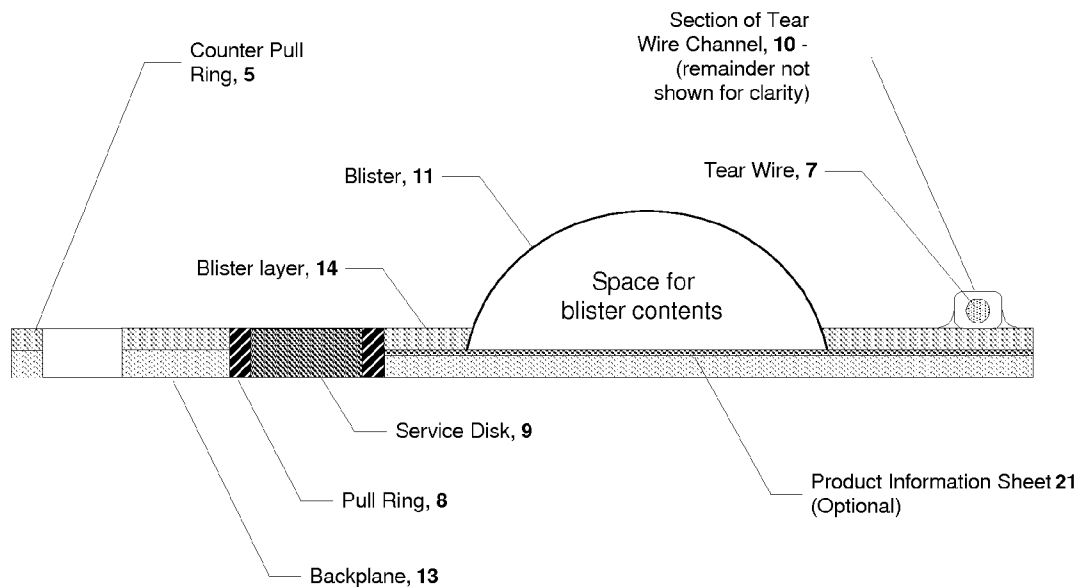


Fig 2 – View of Cross Section A-A  
 (Note: Layers are exaggerated for clarity)

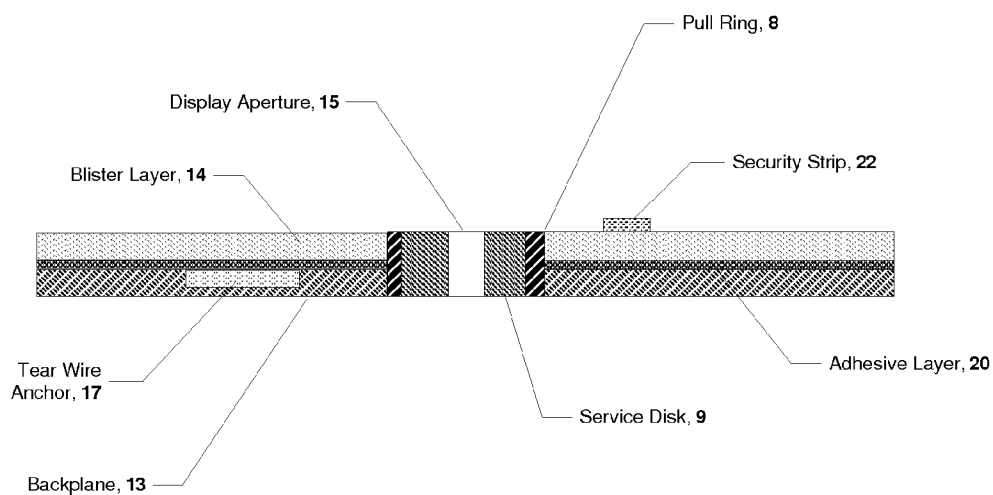


Fig 3 – View of Cross Section B-B

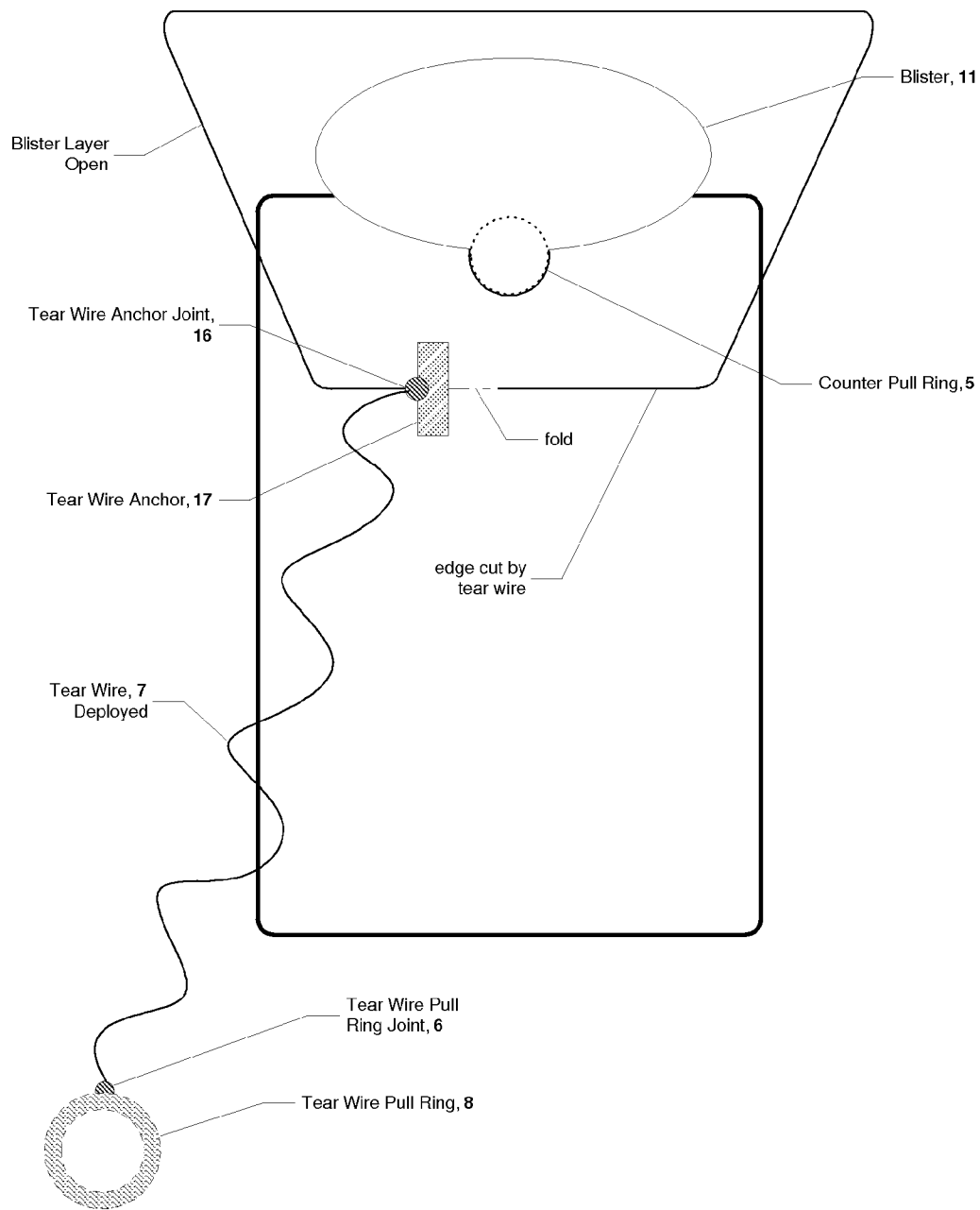


Fig 4 Blister pack open

**BLISTER PACK WITH OPENER**

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] None

FEDERALLY SPONSORED RESEARCH

[0002] Not Applicable

SEQUENCE LISTING

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] 1. Field of the Invention

[0005] The Blister pack with opener relates to the means for separating a standard generic retail blister pack into two halves for easy access to the product(s) therein.

[0006] 2. Prior Art

[0007] Every year millions of products are sold in plastic blister packs that essentially form a clear hard transparent shell over the product. They are popular with manufacturers as they are inexpensive, accommodate any shape product, protect the product from dirt and moisture and are see-through allowing the customer to see exactly what they are buying. However, they have one serious drawback—they are difficult and potentially dangerous to open. Nearly always, some kind of tool is required; either a knife, scissors, razor. When using a knife or razor considerable force must be exerted to force the blade through the pack and steer it along the edge which is downward dangerous as it provides the possibility of a severe cut to the hands. Certain tools are on the market to open blister packs but one must buy the tool, keep it handy and if necessary periodically sharpen it. The Blister pack with opener is to build into the blister pack a means for opening it safely and conveniently. Said means will perform properly regardless of the size or shape of the blister pack.

[0008] A patent search has revealed the following patents under the heading of “Blister Pack Opener” and “Blister Pack”. As there were 2393 entries under “Blister Pack” the search criteria for reference was restricted blister packs with the following characteristics as these define the field in which the Blister pack with opener competes:

- [0009] Non-hinged welded blister packs
- [0010] Utility blister packs
- [0011] Generic blister packs that is those not intended for a specific product or medication
- [0012] Non-reusable blister packs
- [0013] Non-dispensing blister packs

Under the above

Name	U.S. Pat. No.	Date
Ewing; William D	5,236,749	Aug. 17, 1993
Hagner; Hans	5,307,934	May 3, 1994
Vaessen; Leonardus H. F.	6,155,414	Dec. 5, 2000
Logan; Alan George	6,513,655	Feb. 4, 2003
Gould; Phillip John		
Logan; Alan George	6,789,676	Sep. 14, 2004
Gould; Phillip John		

-continued

Name	U.S. Pat. No.	Date
Kancsar; Peter Zellweger; Laurenz, Krohn; Michael, Schmauder; Claudia, Marti; Susanne	6,705,467	Mar. 16, 2004
Kalvelage; John D Salditch; Ian E. Nickey, Jr.; Galen Ots; Toomas	6,802,422	Oct. 12, 2004
Briscoe; Gary Malcolm	7,207,440	Apr. 24, 2007

Review by Patent Number

[0014] U.S. Pat. No. 5,236,749—A blister packaging system is disclosed that is a sheet/film or sheet/sheet package designed to be easily recycled and may be of materials that have a high recycled content without degradation in performance. The blister package is composed of a thermoformed or vacuum formed front blister made from polyethylene terephthalate (PET), PET-G or R-PET which may have a significant pre or post-consumer recycled content sealed to a back film or sheet made from polyethylene which may also have a significant pre or post consumer recycled content. The film or sheet back may be printed on either or both sides and is coated on one side with an adhesive which bonds to the blister in the filling/sealing process.

[0015] U.S. Pat. No. 5,307,934—In a blister pack for packaging an article and composed of a perforated lower plastic backing part and an upper, cut plastic cover part which at least partly surrounds and conforms closely to the article and is connected with the backing part so that the backing part and the cover part completely enclose the article, the backing part and the cover part each including at least a layer made of a single type of plastic and being heat sealed together in a defined area, the backing part and the cover part each constitute a transparent hard foil, and the backing part is provided with perforations of such a size that portions of the cover part engage in the perforations in a manner to plug the perforations in the area where the backing part and the cover part are heat sealed together.

[0016] U.S. Pat. No. 6,155,414—The invention discloses a blister package which includes a transparent box with an open side which is attached at a flange at its open side to a front page of a booklet. The booklet is kept closed by a removable connection strip and can be opened or examined, only, then when the package is opened. The package can be hung at a slot present in a bridging strip which is connected with a back strip, the front page, a back page and the connection strip. The front of the package may be covered with a cover page having an opening through which the box protrudes and remains visible.

[0017] U.S. Pat. No. 6,513,655—A blister pack comprises a support card with a transparent plastics blister at the rear of the card. The card closes an open side of the blister to enclose product within the blister. The front face of the card is laminated with a transparent plastic sheet and includes a window through which the contents of the blister can be viewed from the front of the pack.

[0018] U.S. Pat. No. 6,789,676—A blister pack, said pack comprising a support card with a transparent plastics blister at the rear of the card, the card closing an open side of the blister to enclose product within the blister, the front face of the card being laminated with a transparent plastics sheet and includ-

ing a window through which the contents of the blister can be viewed from the front of the pack.

[0019] U.S. Pat. No. 6,705,467—A blister package with a bottom part with at least one depression and a cover film that is fastened to the bottom part, covers the depressions and can be forced through, the depressions containing a product to be withdrawn. A cover layer covers the cover film and contains sections that can be forced through and others that cannot be forced through. The depression in the rest position of the blister package, is located at least partially or completely above a section of the cover layer that cannot be forced through. In order to expose the product to be withdrawn, the depression is displaced across a section in the cover layer that can be forced through by way of a lateral movement with respect to the cover layer. The product to be withdrawn can then be forced through the cover film and the cover layer.

[0020] U.S. Pat. No. 6,802,422—A sealed blister assembly is made up of a plastic sheet and a plastic lid. The plastic sheet and plastic lid are joined together to form an impermeable seal. The seal is formed by engagement of an undercut in the plastic sheet and a shoulder in the plastic lid. A plastic sheet and/or plastic lid are made from a polymer such as low density polyethylene to obtain the impermeable seal.

[0021] U.S. Pat. No. 7,207,440—A blister pack of a translucent plastics material and having a recessed front part for receiving and containing an article to be packaged, and a back part having a relieved portion for insertion into a recessed portion of the front part for closure of the pack. The front part has a plinth with an inwardly projecting ridge, and back part forms a plinth having an outwardly projecting lip which becomes inter-engaged with the ridge to lie wholly within the plinth of the first part thus to be largely inaccessible and thus prevent premature opening of the pack. The front part has a surrounding flange with a formation which gives the appearance of a weld thus to deter attempts to open the pack prematurely.

Summary of Disadvantages of Prior Art

[0022] The Blister pack with opener is without precedent. There are no examples of prior art that incorporate a built in means for opening a blister pack. For this reason, the Blister pack with opener is considered unique, novel and un-obvious.

[0023] 3. Objects and Advantages

Objects of the Blister pack with opener are to:

[0024] Provide a blister pack with a means of opening built into the blister pack

[0025] Provide a blister pack that has a one-time use thereby precluding illicit substitution of unauthorized contents

[0026] Provide a blister pack that may be treated in the same manner by both retailer and consumer, as previous blister packs.

[0027] Provide a blister pack that has been adapted to work with a wire that is fixed and positioned so that tension on the wire cuts the blister pack essentially in half by separating the upper and lower surfaces

Advantages of the Blister pack with opener are as follows:

[0028] 1. No separate tools are required—the means to open the pack are included in the pack.

[0029] 2. No sharp tools are required thereby reducing the chance of personnel injury and precluding the periodically sharpening of said tool.

[0030] 3. Reduced effort—even sharp tools require considerable force to one) hold the pack steady while bring-

ing the tool to bear and two) forcing the blade along an undefined path through the plastic blister. Because the tear wire channel is well defined and pre-conditioned to separate by either perforation, a recessed groove along the intended path of separation or some other means, using the tear wire requires a minimum of effort and separates the pack in a pre-determined manner.

[0031] 4. The redesigned blister pack provides a counter pull aperture to give the user additional leverage when using the tear wire.

[0032] 5. A security strip (optional) may be placed at the beginning of the tear path to give an indication that the pack has been at least partially opened.

[0033] 6. Once the pack is opened it is unusable. It can not be used to substitute an unintended item in the pack at the bar coded price.

SUMMARY

[0034] In accordance with the present invention, a blister pack having a tear wire channel, a counter pull finger hole, a tear wire, a means for anchoring the tear wire and a means for pulling the tear wire from the blister pack in which it is embedded.

DETAILED DESCRIPTION

Figures

[0035] FIG. 1—Blister pack with opener showing all features viewable on the face of the blister pack

[0036] FIG. 2—View of Cross section A-A shows length-wise layers from top to bottom including location and orientation of the counter pull ring, service disk, pull ring, blister, tear wire, tear wire channel, blister layer and backplane

[0037] FIG. 3—View of Cross section B-B shows cross section layers from top to bottom including a blister layer, anchor, display aperture, pull ring, security strip, adhesive layer, service disk and backplane

[0038] FIG. 4—Blister pack after deployment of tear wire.

DRAWINGS

Reference Numerals

- [0039] 5. Counter pull ring
- [0040] 6. Tear wire pull ring joint
- [0041] 7. Tear wire
- [0042] 8. Tear Wire Pull Ring
- [0043] 9. Service disk
- [0044] 10. Tear wire channel
- [0045] 11. Blister
- [0046] 12. Tear wire perforation (or other weakening means)
- [0047] 13. Backplane
- [0048] 14. Blister layer
- [0049] 15. Display aperture
- [0050] 16. Tear wire anchor joint
- [0051] 17. Tear Wire Anchor
- [0052] 18. Service Disk Perforation (or other weakening means)
- [0053] 19. Pull Ring Perforation (or other weakening means)

- [0054] 20. Adhesive Layer (or thermal weldment)
- [0055] 21. Product Information Sheet (Optional)
- [0056] 22. Security Strip (Optional)

#### DETAILED DESCRIPTION

##### Preferred Embodiment

[0057] A blister pack is essentially a two layer sandwich of plastic with the upper layer deformed into a bubble in approximately the middle of the assembly to allow an object to be enclosed therein. A blister pack with opener includes a means, in this case a tear wire, for separating the top and bottom layers to allow access to the contents.

[0058] A counter pull ring 5 is necessary to allow the user to firmly grasp the blister pack while extending the tear wire 7 to open it. It is a re-enforced aperture (as shown by the bold line) sized to accommodate the largest of fingers. It is intended to be used with the index finger but the user is free to use it in any manner he or she so chooses for instance putting it on a hook for greater leverage.

[0059] A tear wire pull ring joint 6 is a generic attachment requiring only sufficient strength to withstand a one-time application of the tension required to open the pack. Any suitable manufacturing means may be used.

[0060] A tear wire 7 is a thin metal wire attached on the first end to the pull ring 8 and on second end to the tear wire anchor 17. When deployed it cuts through the blister layer 14 along a pre-defined path, the tear wire channel 10 to cause the blister layer 14 to separate from the backplane 13. It is the essence of the present invention.

[0061] A tear wire pull ring 8 is attached to the first end of the tear wire 7 and is used to facilitate deployment of the tear wire. It is initially stowed in the same plane as the blister layer 14 being held in place along its outside perimeter by a perforation 19 or some other means such as a friction fit, to the blister 14 and backplane 13 layers. In operation, the service disk 9 is pressed out then the pull ring 8 is pressed out and extended away from the blister pack until the tear wire 7 has been fully extended and the blister layer 14 and backplane 13 have been separated along the tear wire channel 10 thereby exposing the contents. All three operations, removal of the service disk 9, separation of the pull ring 8 and separation of the blister layer 14 and backplane 13 are one-time, non-reversible actions.

[0062] A removable service disk 9 is attached to the pull ring 8 along the pull ring inner perimeter. It is there to provide material for the display aperture and is held in place by either perforation 18 or friction.

[0063] A blister 11 in conjunction with the backplane 13 forms an enclosed space within which an object may be placed. The blister 11 is normally a transparent hard impervious shell designed to showcase a product for sale or use while keeping it free from moisture, dust, dirt or handling.

[0064] A tear wire channel 10 is a conduit formed by the backplane 13 and a molded trough in the blister layer 14 to house the tear wire 7 until the tear wire is deployed. Is a formed part of the blister layer 14 and defines the path that the tear wire 7 will follow when used. As the blister layer 14 may be made of tough, cut resistant plastic or similar material, a perforation 12 or other weakening means such a thinning of the material or substitution to a softer material may be built into the channel 10.

[0065] A tear wire channel perforation 12 is one of several methods that may be used to weaken the tear wire channel 10 and promote proper deployment of the tear wire 7 with a minimum of effort.

[0066] A backplane 13 is the foundation for the blister pack assembly. It is made of a stiff, semi-rigid material such as plastic and forms the second half of the blister pack. It may be joined to the first half of the blister pack, the blister layer 14 by an adhesive layer or by thermal welding around its perimeter.

[0067] A blister layer 14 is a sheet of transparent material usually plastic from which the blister 11 is formed during manufacture. It forms the first or top halve of the blister pack assembly. A portion of the blister layer 14 is separated by the tear wire 7 to provide access to the product contained therein.

[0068] A display aperture 15 is a through hole in the service disk 9 generally located at the top of the blister pack assembly to allow the assembly to be hung on a display rack at a retail store. The diameter is determined by the industry standard for such displays.

[0069] A tear wire anchor joint 16 is the point at which the tear wire 7 is affixed to the anchor 17. Any standard manufacturing means may be used as long as the joint can withstand the tensile force required to pull the tear wire 7 through the blister layer 14.

[0070] A tear wire anchor 17 is a piece of material large enough to be permanently affixed to the backplane 13 of the blister pack assembly. It receives the second end of the tear wire 7 and holds the wire 7 in place so that the first end of the tear wire 7 may be pulled through the blister layer 14 along the tear wire channel 10. Any type of material may be used. It need only be large enough to allow sufficient adhesive or other bonding means to withstand the tensile force necessary to hold the tear wire 7 during deployment.

[0071] An adhesive layer 20 is located between the blister layer 14 and the backplane 13 and joins the two together. It is strong enough to make entry into the blister difficult and is the reason for the present invention. An alternative joining method is with thermal welding along the periphery of the blister pack assembly.

#### OPERATION

[0072] The user may open the blister pack in the following manner:

[0073] 1. Holding the blister pack FIG. 1 in the first hand, push out the service disk 9 containing the display aperture 15.

[0074] 2. Push out the pull ring 8

[0075] 3. Using the first hand, insert a finger into the counter pull hole 5

[0076] 4. Using the second hand, insert a finger into the tear wire pull ring 8

[0077] 5. Pull the blister pack and pull ring 8 away from each other using sufficient force to cause the tear wire 7 to cut through the tear wire channel 10.

[0078] 6. Continue pulling until the tear wire 7 has been fully extended. At this stage, the blister layer 14 will have been cut entirely along the tear wire channel 10 allowing it to be folded back as in FIG. 4

[0079] 7. Spread the two halves of the blister pack and remove the contents therein.

Additional Embodiments

[0080] None

Alternative Embodiments

[0081] A product information sheet 21 is an optional addition to the blister pack with opener. It is not necessary for the blister pack with opener to perform properly but is included in the discussion as it almost always appears in the blister pack assembly at the wholesale and retail levels of marketing. It is considered necessary by marketing departments to identify and promote the product and to provide instructions on how to use and/or maintain the product. It may be a sheet of paper or cardboard and is usually printed on both sides. One advantage of the Blister pack with opener is that the information remains intact when the blister pack is opened. Depending on the location of the tear wire channel, it is possible that the information sheet can be removed in one piece for later reference.

[0082] An optional security strip may be placed at the beginning of the tear path to give an indication that the pack has been at least partially opened.

Discuss Alternatives to Perforation

Advantages

- [0083] 1. There is no assembly and no attachments.
- 2. No parts are required.
- 3. No tools are required
- 4. No plans or assembly instructions are required
- 5. is both comfortable and effective for the user.

CONCLUSIONS, RAMIFICATIONS AND SCOPE

[0084] The Blister pack with opener has universal application to all bonded or welded blister packs in that the concept of an imbedded wire to cut through a plastic shell applies to

blister packs of any size, shape or material. Depending on the type of material, adjustments may be made to the depth and interval of the perforation and/or the tear wire to assure proper separation in all cases. There is no learning curve associated with the new design. Although instructions may be provided, it is intuitively obvious that extraction and extension of the pull ring will cause the tear wire to open the blister pack. Some blister packs are hinged with protrusions and recesses to hold the pack closed until the contents are retrieved. Unfortunately, unauthorized items may be exchanged. The Blister pack with opener is strictly one-time use. Once the tear wire has been drawn, the pack is irreversibly damaged and is no longer functional. Deception is not possible. The manufacturer may wish to include a security strip located at the beginning of the tear wire path. Any attempt to open the blister pack before purchase would quickly be detected by the retailer's security system. Theft of contents is not possible.

[0085] The greatest advantage of the Blister pack with opener is the elimination of the need for a sharp object to be forcefully drawn through the blister pack while holding said pack in hand. Such an operation is difficult, unwieldy and potentially dangerous. It may be impossible for the young or elderly. The blister pack with opener therefore gives greater access to the public and enhances consumer safety.

I claim:

1. A blister pack assembly of transparent sheet-sheet construction, said assembly comprising a bottom sheet that forms one half of the envelope and a top sheet deformed to create a cavity in which an object may be contained.

2. The assembly recited in claim 1 further including a means for suspension on a display

3. The assembly recited in claim 1 further including a means for opening said assembly, said opening means to include a channel to house a wire wherein said wire is attached at the first end to a removable ring and at the second end is permanently affixed and anchored to the bottom sheet of said assembly

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