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(51) INT CL⁶
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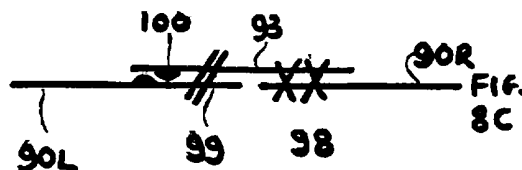
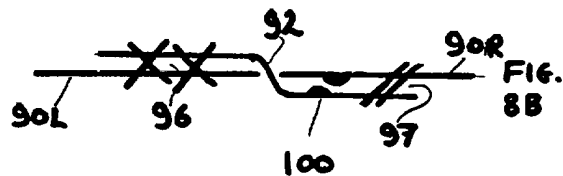
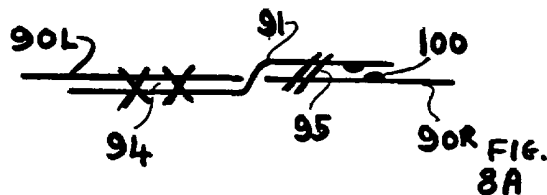
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GB 1012398 A EP 0629561 A2 US 5000321 A

(58) Field of Search
UK CL (Edition Q) **B8C CWS2 CWS6**
INT CL⁶ **B65D 75/00 75/58**
ONLINE : WPI, EPODOC, JAPIO

(54) Abstract Title
Package with peelable seal and optional in register pattern

(57) A package includes first 90L and second 90R upper regions formed by slitting a sheet of optionally patterned material and an additional translucent, transparent or opaque strip 91,92,93 bonded by a seal to the inside or the outside of one of the first or second upper regions and adhered by a peelable seal 95,97,99 to the inside or outside of the other of the first or second upper regions. The pattern, if present, is in register between first and second upper regions. The bonded seal may be non peelable. The package can be in the form of a folded side-sealed pouch (Fig.7A), a four sided sealed pouch (Fig.7B) or a covered thermoformed tray (Fig.7C) or other form of container. The additional strip may overlie or lie below one or other or both of the first and second upper regions of the pack. Adhesive portions 100, which may have a removable protective layer, can be provided in the region of the openable seal to allow the pack to be resealed.



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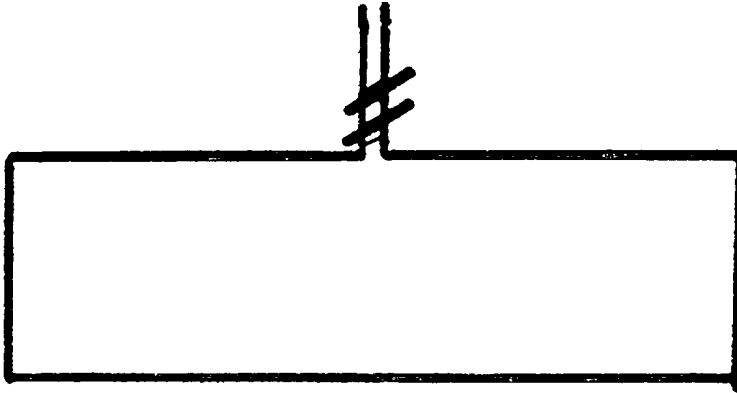


FIG.
1A

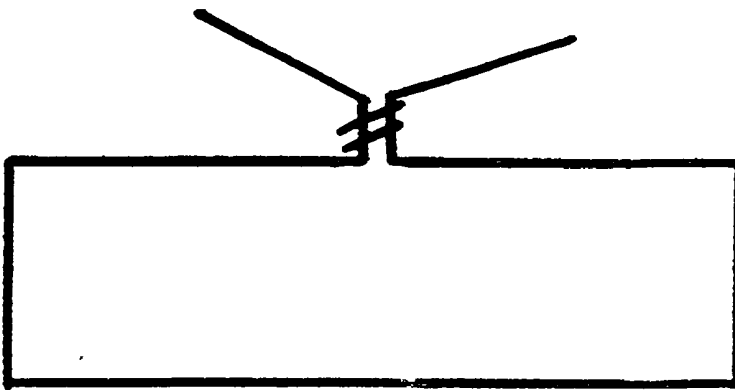


FIG.
1B

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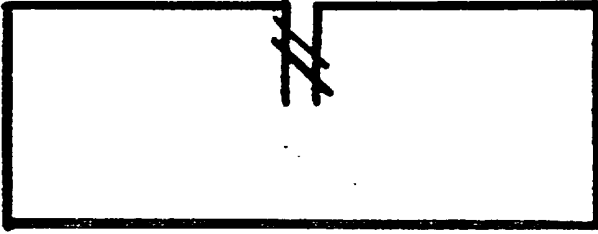


FIG.
2A

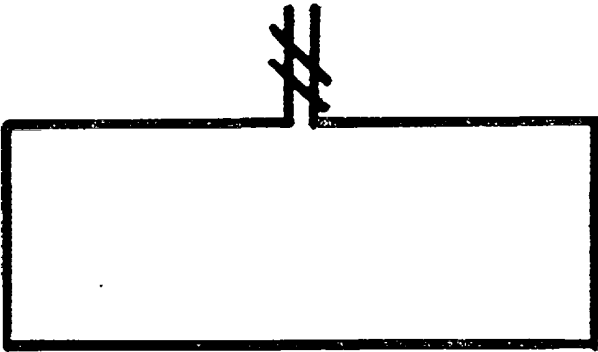


FIG.
2B

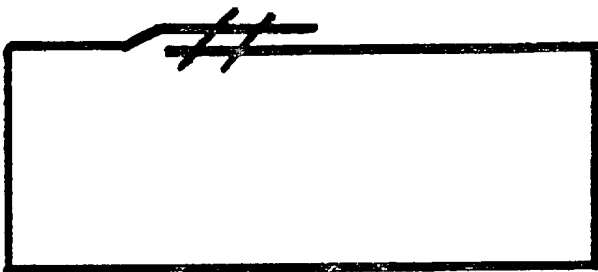


FIG.
2C

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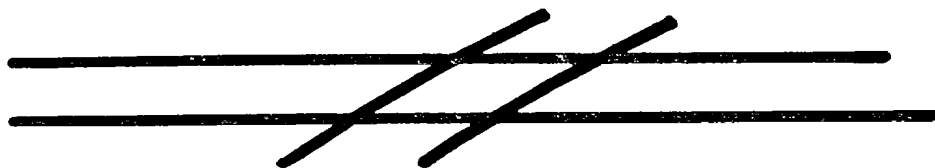


FIG. 3A.



FIG 3B.



FIG 3C

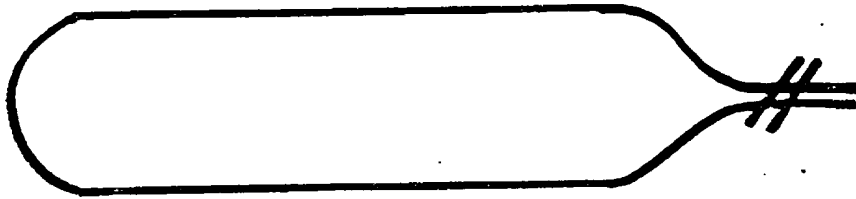


FIG.
4A

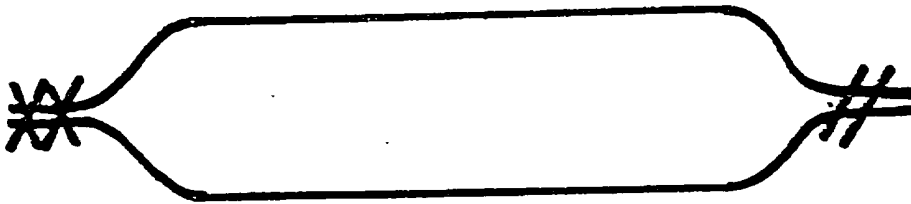


FIG.
4B

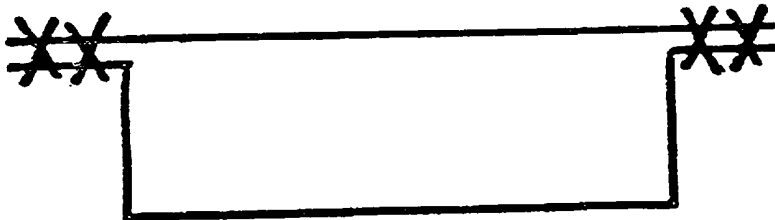


FIG.
4C

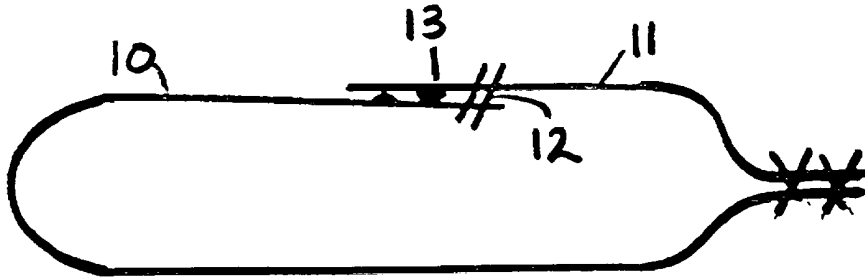


FIG.
5A

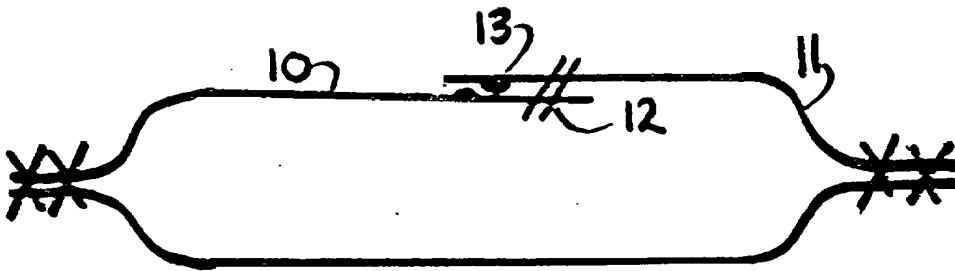


FIG.
5B

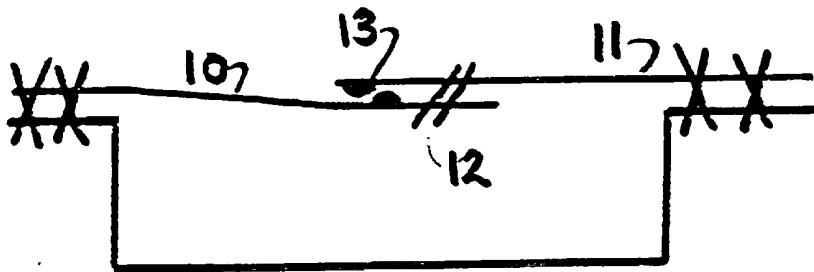


FIG.
5C

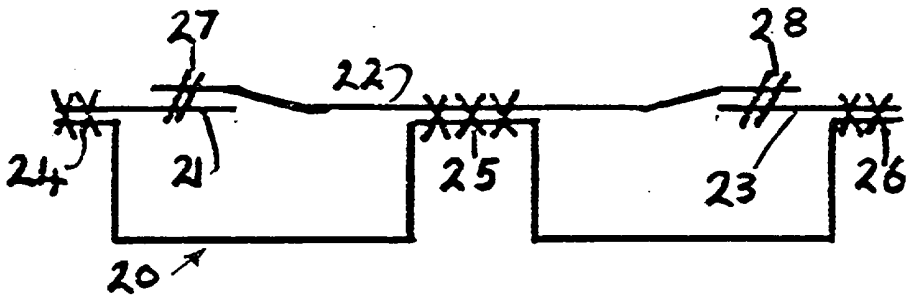


FIG. 6A

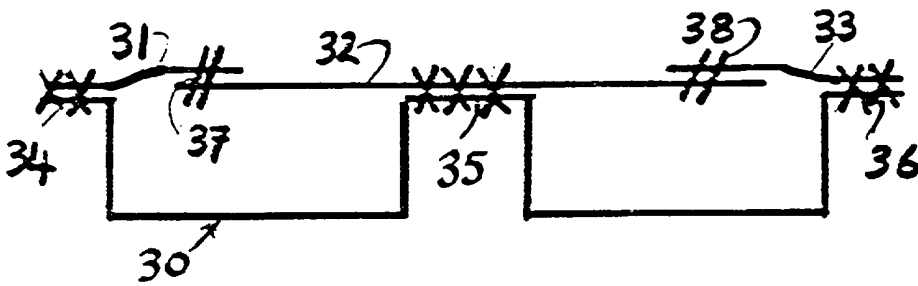


FIG. 6B

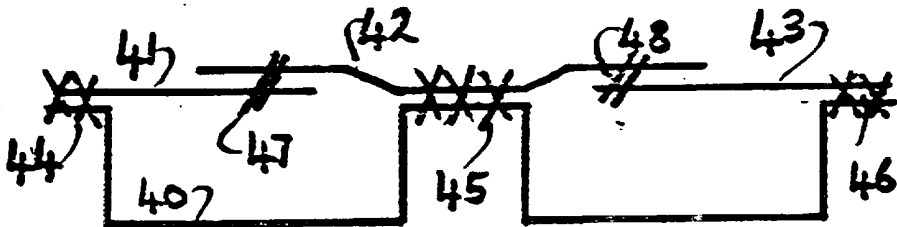


FIG. 6C

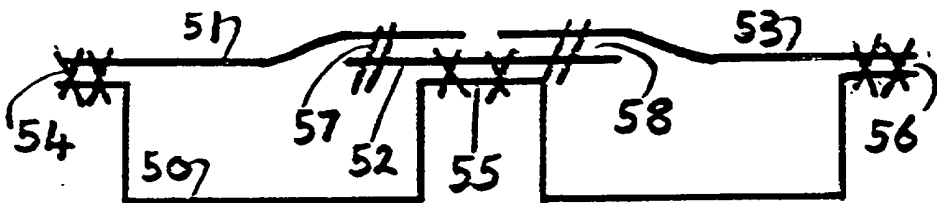


FIG. 6D

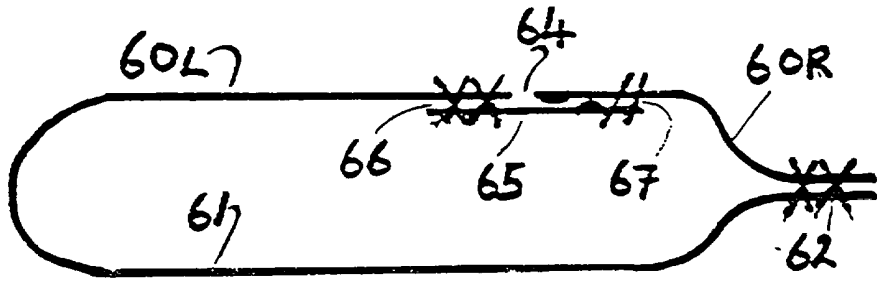


FIG. 7A

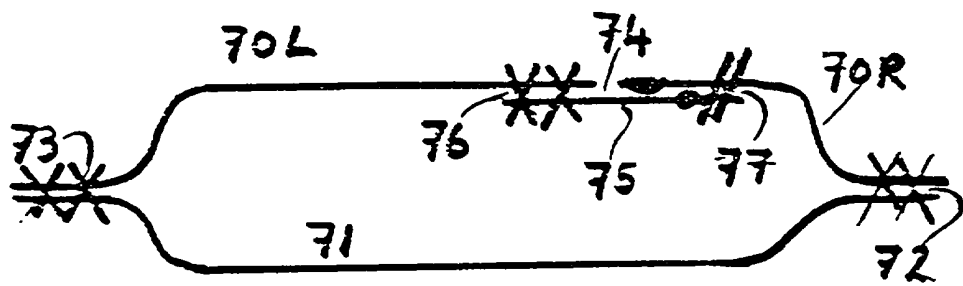


FIG. 7B

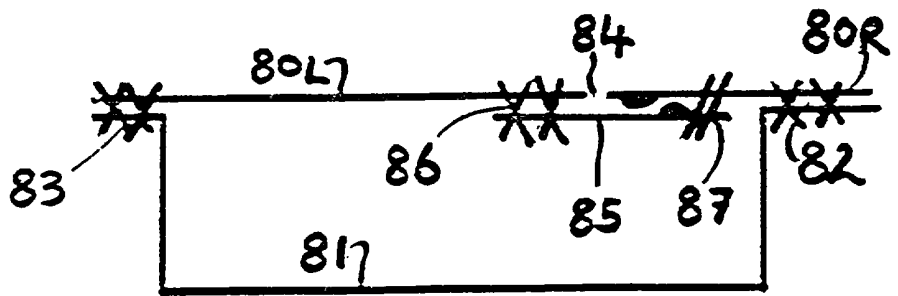
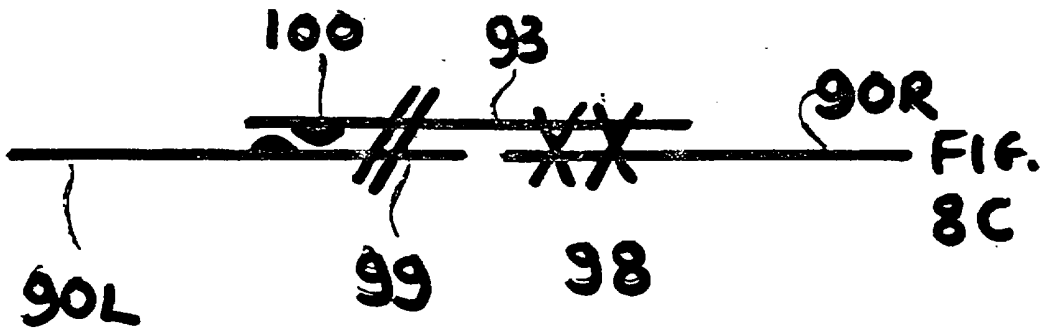
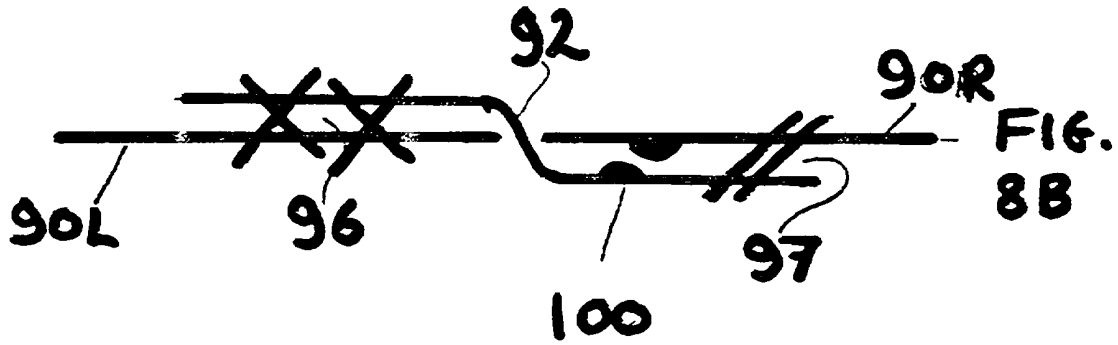
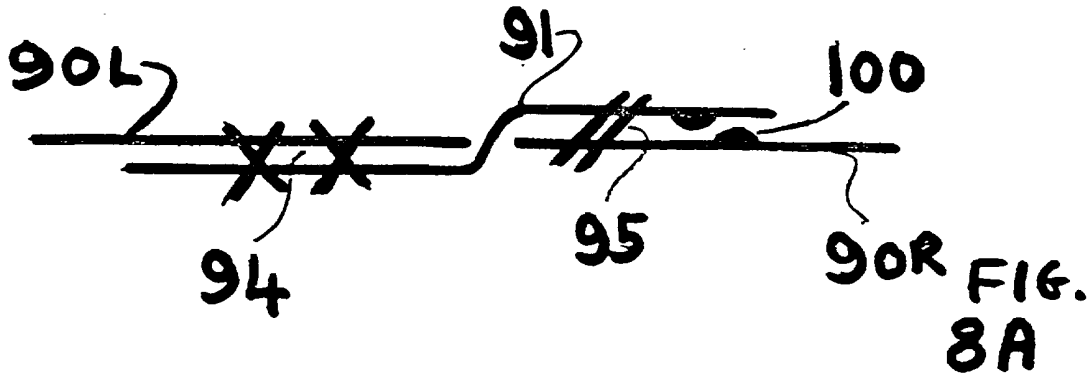


FIG. 7C.



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FIG.
9A



FIG.
9B



FIG.
10A



FIG.
10B

PACKS WITH A PEELABLE SEAL AND OPTIONALLY WITH A DESIGN
IN REGISTER

This invention relates to packs which are intended to be easy to open and to be provided with a peelable sealing lap, and which may have a design in register.

Many foods (such as cheeses) and other products are packaged for sale and distribution in flow wrap (or pillow pack) form, or in packs which include a thermoformed tray. These packs often include films designed to give extremely strong and even hermetic seals. Such films are often themselves very strong and tear resistant, in order to give a high level of seal strength and thus product protection. However, such strong packs may be very difficult to open, and devices such as tear strips and end seal nicks are often included to allow the user easier access. These methods of gaining entry to the product inevitably tear the material from which the pack is produced, and consequently re-wrapping of any unused part of the contents is made difficult or ineffective. The preferred method of entry into the pack is therefore to open a seal, rather than to tear the film. On most systems the seals are heat-fused to a high degree and are therefore not easily openable, but peelable materials and adhesive systems do exist.

An ideal method of producing easily openable packs is to have some degree of peelability, if only in the seal areas. Such seal areas can be provided from a so-called T junction as depicted in Figures 1A and 1B of the accompanying drawings.

Where a single layer of material is folded round on itself to form a seal, three types of seal can be formed. The outer surface of the material is referred to the A surface and the inner surface of the material is referred to as the B surface. The three types of seals which can be formed are as shown in Figures 2A,

2B and 2C of the accompanying drawings, which show, respectively, an A-A seal (outer surface to outer surface), a B-B seal (inner surface to inner surface), and an A-B seal (outer surface to inner surface). It will be appreciated that it is the B-B seal as shown in Figure 2B which can produce, on opening, a T-junction as shown in Figure 1B.

The A-B seal as shown in Figure 2C is a standard lap (overlap) and, depending on the nature of the A-B seal, can be peelable.

Where a surface of a sheet of material is to form a seal, which can be either a peelable seal or a non-peelable seal, the surface needs to have the ability to be tacky or sticky when suitably activated, typically upon heating. Where a sheet of material is to have the ability to be tacky on both the inner and outer surfaces, the layer of material could be formed from a laminate which could have, for example a polypropylene layer on the A side (outer surface), a polyethylene layer on the B side (inner surface), and a core of a nylon between the polypropylene and polyethylene. If desired additional layers could be present in the laminate. If desired, the laminate can be formed by coextrusion.

In terms of forming the bond, much will depend upon the combination of temperature, pressure and duration, and these three factors can have a considerable effect on the resulting nature of the bond, in other words as to whether it will be peelable or non-peelable.

Typically, however, a polypropylene to polypropylene bond is not a strong bond; a polypropylene to polyethylene bond can be made to fuse together but, generally, is not a strong bond; and generally a polyethylene to polyethylene bond is very strong but, when using weaker bonding conditions, can

be made peelable.

In the accompanying drawings Figure 3A denotes a seal intended to be peelable; Figure 3B denotes a seal intended to be non-peelable; and Figure 3C denotes the optional presence on a layer of an adhesive intended to be peelable which may be with or without a covering which serves as a protective layer to counter the effect of the adhesive until such time as any such covering is removed.

Examples of three well-known packs, with seals, are shown in Figures 4A, 4B and 4C of the accompanying drawings. Figure 4A shows a folded side-seal pouch which is formed from a single sheet of material, suitably folded, and joined in a B-B seal along its opposing edges, the seal being peelable and being formed after filling of the pouch.

Figure 4B shows a pouch formed by two opposing sheets of material, the pouch being sealed along one edge region (the left hand edge in Figure 4B) with a non-peelable seal prior to filling of the pouch, and then being sealed subsequent to the filling, along the opposite edge region (the right hand edge region in Figure 4B) with a peelable seal.

Figure 4C shows a pack which includes a thermoformed tray open on its upper side but closed off by a sheet of material joined to the tray on its opposing edge regions, the seals on both sides being non-peelable.

All of the seals shown in Figures 4A, 4B and 4C are of the B-B type, and material which is potentially adhesive/tacky on one side only, such as is required for the formation of a B-B type seal, is generally cheaper than materials capable of forming a seal on both sides, i.e. A-B type seals.

With regard to the pouches shown in Figures 4A and 4B, although the pouches can be opened by pulling apart

the peelable seals, at the right hand edge regions, it is to be appreciated that access to the edges of the materials to be peeled apart may not always be simple, as such edge regions need to be large in order for a good grip to be achieved. Moreover, large flaps may be difficult to produce on some packaging machines and, additionally, by their nature produce an oversized pack which may become distorted and unattractive.

Possible solutions to this problem for packs of the type shown in Figures 4A, 4B and 4C, are shown in Figures 5A, 5B and 5C, respectively, of the accompanying drawings. In the proposed arrangements illustrated in Figures 5a, 5B and 5C the upper run of sheet material, which is to cover the upper surface of the product contained within the pack, stops short, and the gap between the right hand end of the upper run of material and the right hand edge of the pack is bridged by a further sheet of material which is secured at the right hand end of the pack to that region of the pack which lies below the product contained in the pack, the additional sheet of material overlying the curtailed upper run and being joined thereto by a peelable seal of the A-B type, with a free end region of the flap beyond the seal being secured or securable to the curtailed run of material by line(s) of adhesive which may optionally be provided with a removable protective layer, for example in a known manner. Where the upper run of sheet material and the additional sheet of material are both patterned and it is desired for the two patterns to be in register, considerable difficulties can be experienced in practice in attempting to ensure registration.

Such difficulties can be exacerbated when a production line is producing two parallel rows of trays which are initially joined but which, upon formation,

can be slit and thus separated from each other. Clearly this is not a problem where packaging materials employing plain or scatter print are employed, but where designs intended to be kept in register are required, great difficulties occur.

Thus, where two parallel rows of tray-formed packs are to be produced, there are four known ways of laying down the various layers, and these are shown in Figures 6A, 6B, 6C and 6D, respectively, of the accompanying drawings.

In Figure 6A there is shown, in cross-section, two parallel rows of trays 20, the open tops of the adjacent trays in any pair being covered by three sheets of material, namely the left hand sheet 21, the central sheet 22 and the right hand sheet 23. The left hand sheet is sealed by a non-peelable seal 24 to the left hand edge of the left hand tray 20, the central sheet 22 is sealed by a non-peelable seal 25 to a bridge region between the two trays 20, and the right hand sheet 23 is sealed by a non-peelable seal 26 to the right hand edge of the right hand tray 20.

A peelable seal 27 is provided between the left hand sheet 21 and the central sheet 22, and a peelable seal 28 is provided between the central sheet 22 and the right hand sheet 23.

In Figures 6B, 6C and 6D the components with the reference numerals 30 to 38, 40 to 48, and 50 to 58 correspond respectively to the components indicated by the reference numerals 20 to 28 in Figure 6A.

In Figures 6A and 6C the central sheet 22 or 42 overlies the left hand and right hand sheets 21 and 23, or 41 and 43; whereas in Figures 6B and 6D the central sheet 32 or 52 lies below the left hand and right hand sheets 31 and 33, or 51 and 53.

In Figures 6A and 6B the central sheet 22 or 32 is relatively wide, whereas in Figures 6C and 6D the

central sheet 42 or 52 is relatively narrow with the left hand and right hands sheets 41 and 43, or 51 and 53, being correspondingly wider.

5 In the production of two parallel rows of packs of the type shown in Figures 6A to 6D there are three layers of sheet material visible on the top surface of the resulting pack, and if those sheets (21, 22 and 23; or 31, 32 and 33; or 41, 42 and 43; or 51, 52 and 53) are patterned then it is desirable, from the point of
10 view of making the product attractive to the ultimate customer, for those three patterned sheets to be in register. In practice this can be particularly difficult to achieve.

15 It can be appreciated that the degree of difficulty increases correspondingly where the number of rows of parallel packs being produced increases beyond two rows. Where machinery is available for the production of more than two rows of packs, it is not always possible to use more than two rows when
20 patterned sheet material is being employed and it is necessary to keep it in register. An undesirable consequence of this is that production facilities are not fully employed.

25 According to the present invention, there is provided a pack having a first upper region optionally having a pattern and an adjacent second upper region optionally bearing a pattern which is in register with any pattern of the first upper region, and the pack also having an openable peelable seal;

30 wherein the first and second upper regions are formed from the same sheet of optionally patterned material with the sheet being slit to provide the first and second upper regions; and

35 wherein the pack includes an additional strip bonded by a seal to the inside or outside of one of the first and second upper regions of the pack and bonded

by a peelable seal to the inside or outside of the other of the first and second upper regions of the pack, with any significant part of the additional strip present on the outside of the first or second upper region of the pack preferably being translucent or transparent, to allow any underlying pattern to be visible.

Preferably the seal between the additional strip and said one of the first and second upper regions of the pack is non-peelable.

The pack which is the subject of the present invention may be in the form of a folded side-sealed pouch, or in the form of a four-sided sealed pouch, or in the form of a covered thermoformed tray, but is not limited to these styles of pack.

Where the additional strip lies below both the first and second upper regions of the pack, i.e. is on the inside of those regions, the additional strip can be translucent, transparent or opaque, because it will not be visible until such time as the peelable seal is opened.

It is possible, however, for the additional strip to overlie both the first and second upper regions of the pack, in which case it is desirable that it is translucent or transparent so that the or any patterned regions lying below the additional strip may be visible.

Similarly, where part of the additional strip overlies one of the first and second upper regions of the pack and lies below the other of the first and second upper regions of the pack, it is desirable for the overlying part of the additional strip to be translucent or transparent.

Where the additional strip is to lie below both the first and second upper regions of the pack, then only the inner surface of those regions need be

potentially adhesive/tacky, which means that a generally cheaper sheet material can be employed, compared with the case where the additional strip is to overlie one or both of the first and second upper regions of the pack, which necessitates both the inner and outer surfaces of the first and second upper regions being formed of a potentially adhesive/tacky material, which requires the use of a more expensive starting material.

5
10 As both the first and second upper regions are derived from the same master reel by slitting, any tendency to depart from registration is small and can be controlled by normal photoelectric cell equipment.

15 It will readily be appreciated that a plurality of parallel rows of packs can be formed with each of the packs being in accordance with the present invention, and with the upper region of all of the packs being formed from the same master reel having a width corresponding to the combined widths of the packs, and with n slits being provided in the material being drawn from the master reel where n rows of packs are being formed.

20 Where desired an adhesive material can be provided in the region of the openable peelable seal so that, after the seal has been opened and some of the product removed from the pack, the pack can be re-sealed, and to this end the adhesive material might originally have been provided with a removable protective layer which, possibly, can automatically be removed when the seal is first opened.

30 For a better understanding of the present invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:

35 Figure 7A is a cross-section through one embodiment of a pack in accordance with the present

invention;

Figure 7B is a cross-section through a second embodiment of a pack in accordance with the present invention;

5 Figure 7C is a cross-section through a third embodiment of a pack in accordance with the present invention;

10 Figure 8A shows a first variation for the location of the additional strip in the pack of the present invention;

Figure 8B shows a second variation for the location of the additional strip in the pack of the present invention;

15 Figure 8C shows a third variation for the location of the additional strip in the pack of the present invention;

Figure 9A shows an alternative line for a seal to be employed in a pack of the present invention;

20 Figure 9B shows a second alternative line for a seal for a pack to be employed in the present invention;

Figure 10A shows a seal of the type shown in Figure 9A, partially opened; and

25 Figure 10B shows a seal of the type shown in Figure 9B, partially opened.

30 Referring first to Figure 7A there is shown a left hand upper region 60L and a right hand upper region 60R both formed from the same master reel and, at the bottom of the pack, another portion 61 of the master reel. The right hand upper portion 60R and the lower run 61 are joined at the right hand end by a non-peelable seal 62.

35 Between the right hand end of the left hand upper region 60L and the left hand end of the right hand upper region 60R is a slit 64, below which lies an additional strip 65 bonded at its left hand end by a

non-peelable seal 66 to the left hand upper region 60L and bonded at its right hand end region by a peelable seal 67 to the right hand upper region 60R. Generally speaking, the arrangements illustrated in Figures 7B and 7C correspond to the arrangement shown in Figure 7A, with the components indicated by the reference numerals 70L, 70R, 71, 72 and 74 to 77 in Figure 7B, as well as the components indicated in Figure 7C by the reference numerals 80L, 80R, 81, 82 and 84 to 87 corresponding to the components indicated in Figure 7A by the reference numerals 60L, 60R, 61, 62 and 64 to 67. The arrangements shown in Figures 7B and 7C additionally include non-peelable seals 73 and 83, respectively, at the left hand end of the arrangements.

In the arrangements illustrated in 7A, 7B and 7C the additional strip 65, 75 and 85 lies below both the left hand and right hand upper regions of the pack.

Contrasting arrangements are shown in Figures 8A, 8B and 8C. In each of these three Figures the left hand upper region is denoted by the reference numeral 90L, and the right hand upper region is denoted by the reference numeral 90R. In Figure 8A the additional strip is denoted by the reference numeral 91 which lies below the left hand upper region 90L and lies above the right hand upper region 90R, it being secured in place by a non-peelable seal 94 to region 90L and by a peelable seal 95 to the region 90R. Also present adjacent the peelable seal 95 is an adhesive region 100 which optionally contains a removable protective layer.

In the arrangement illustrated in Figure 8B the additional sheet 92 overlies the left hand upper region 90L and lies below the right hand upper region 90R, and is secured at its left hand end region by a peelable seal 96 to the left hand upper region 90L and by a peelable seal 97 to the right hand upper region 90R, there again being an adhesive region 100 optionally

present.

Figure 8C shows an arrangement in which the additional sheet 93 overlies both the left hand upper region 90L and the right hand upper region 90R, the sheet 93 being secured by a non-peelable seal 98 to the region 90R and by a peelable seal 99 to the region 90L.

As will be appreciated, where a seal is wide it can be hard to peel open and consequently, where not too much force is required to open a seal it is preferred that it should be relatively narrow. If the seal is in a straight line it can again be difficult to open but if it follows a zig zag pattern or sinusoidal form, as shown in Figure 9A or 9B, the seal can be easily opened because, as indicated in Figures 10A and 10B, when the sealing lap is partially pulled back there is a series of points of seal which are being broken, rather than a single line, thereby greatly facilitating the opening of the pack.

CLAIMS:

1. A pack having a first upper region optionally having a pattern and an adjacent second upper region optionally bearing a pattern which is in register with any pattern of the first upper region, and the pack also having an openable peelable seal;

wherein the first and second upper regions are formed from the same sheet of optionally patterned material with the sheet being slit to provide the first and second upper regions; and

wherein the pack includes an additional strip bonded by a seal to the inside or outside of one of the first and second upper regions of the pack and bonded by a peelable seal to the inside or outside of the other of the first and second upper regions of the pack, with any significant part of the additional strip present on the outside of the first or second upper region of the pack preferably being translucent or transparent, to allow any underlying pattern to be visible.

2. A pack according to claim 1, wherein the seal between the additional strip and said one of the first and second upper regions of the pack is non-peelable.

3. A pack according to claim 1 or 2, which is in the form of a folded side-sealed pouch, or in the form of a four-sided sealed pouch, or in the form of a covered thermoformed tray.

4. A pack according to claim 1, 2 or 3, wherein, when the additional strip lies below both the first and second upper regions of the pack, the additional strip is translucent, transparent or opaque.

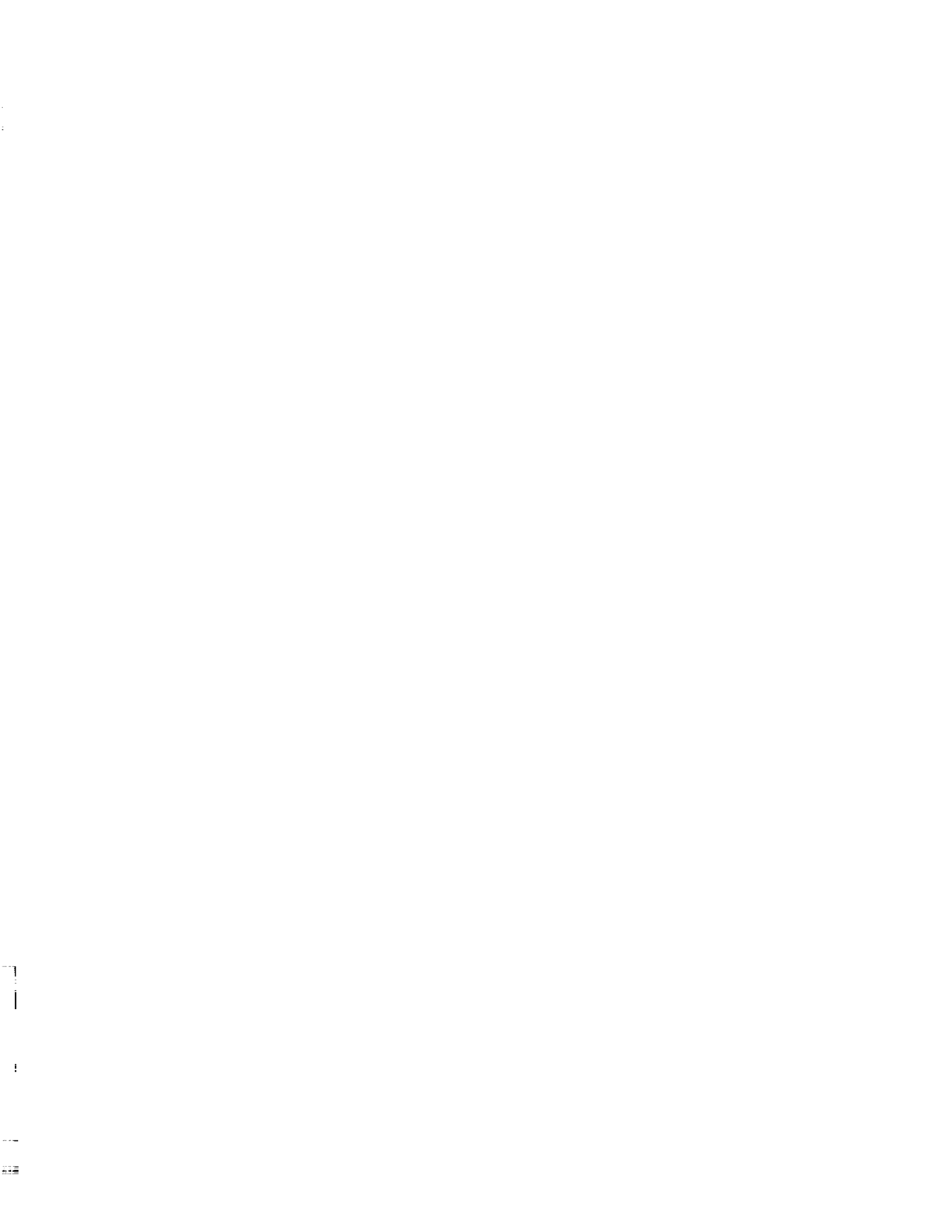
5. A pack according to claim 1, 2 or 3, wherein, when the additional strip overlies both the first and second upper regions of the pack, the additional strip is translucent or transparent so that the or any patterned regions lying below the additional strip may

be visible.

5 6. A pack according to claim 1, 2 or 3, wherein,
when part of the additional strip overlies one of the
first and second upper regions of the pack and lies
below the other of the first and second upper regions
of the pack, the additional strip is translucent or
transparent.

10 7. A pack according to any preceding claim,
wherein an adhesive material is provided in the region
of the openable peelable seal so that, after the seal
has been opened and some of the product removed from
the pack, the pack can be re-sealed.

15 8. A pack according to any preceding claim,
substantially as hereinbefore described, with reference
to the accompanying drawings.





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Application No: GB 9810539.8
Claims searched: All

Examiner: Mark.A.Pullen
Date of search: 6 August 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.Q): B8C (CWS2, CWS6)
Int Cl (Ed.6): B65D 75/00, 75/58
Other: ONLINE : WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 1012398 (IMPERIAL CHEMICAL INDUSTRIES LIMITED) whole document relevant	1
X	EP 0629561 A2 (KRAFT GENERAL FOOD PRODUCTS, INC.) whole document relevant	1-3,7
X	US 5000321 (JACOBS SUCHARD AG) see particularly Figs.1&2	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.