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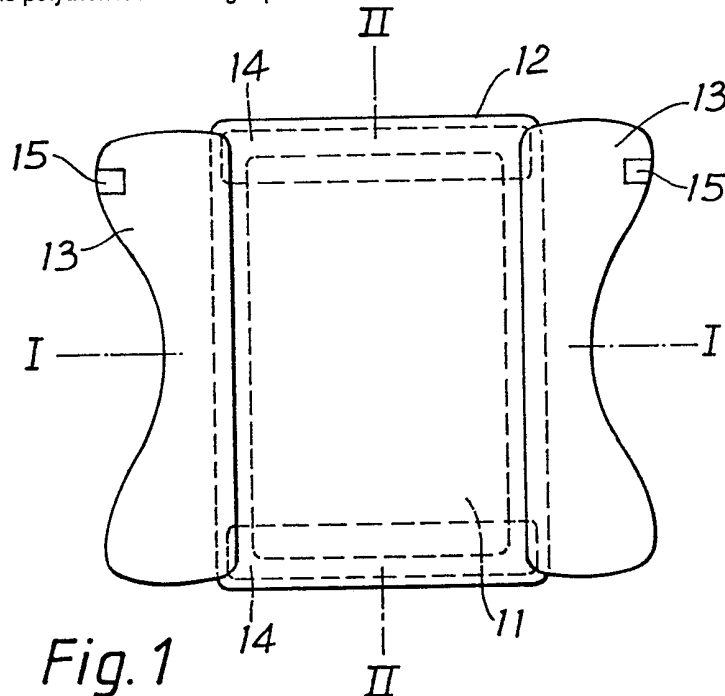
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(56) Documents cited
GB 0849573 A **EP 0274753 A2** **EP 0274752 A2**
EP 0260131 A2 **EP 0215408 A2** **EP 0213642 A2**
EP 0098983 A2

(58) Field of search
UK CL (Edition J) **A3V**
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(54) Absorbent garment

(57) An absorbent garment of the type typified by a baby napkin and which comprises a pad 11 which includes superimposed layers of a liquid-impervious material, a liquid-absorbent material and a liquid-pervious material, is rendered more comfortable and less prone to leakage by securing each of at least one pair of opposite edges of the pad between two layers 13 of an elastomeric material in sheet form. In an illustrated example, a folded length of an elastomeric polyetherester material is adhesively secured over each of the opposite longer edges of a generally rectangular pad, which edges define the leg openings in use. The shorter edges of the pad may be sealed against fluid loss by inserted narrow strips 14 of liquid-impermeable polythene. Fastening tapes are secured to tabs 15.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy

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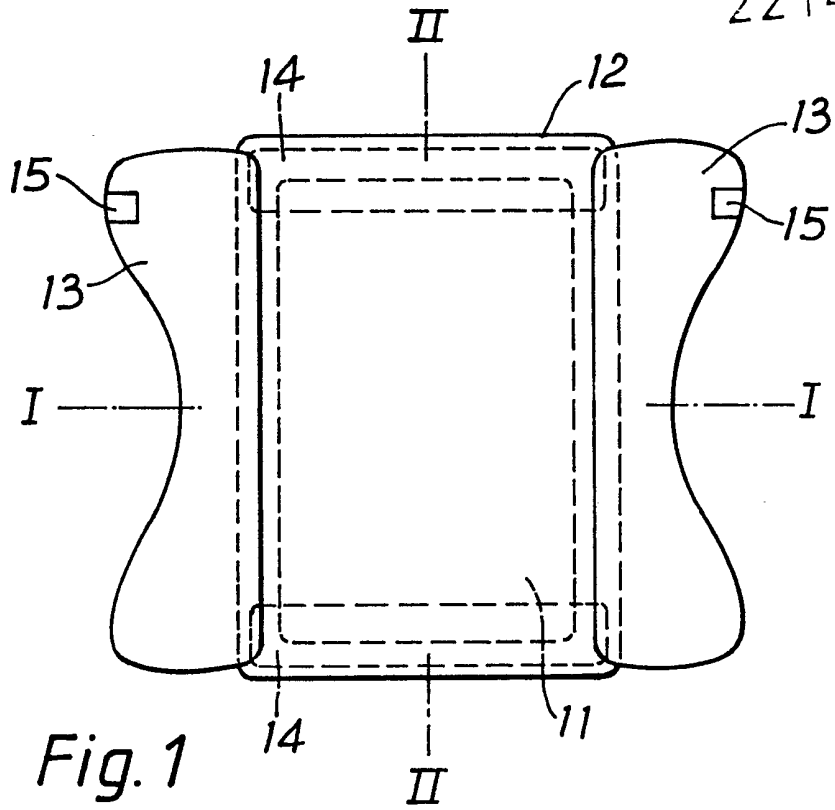


Fig. 1

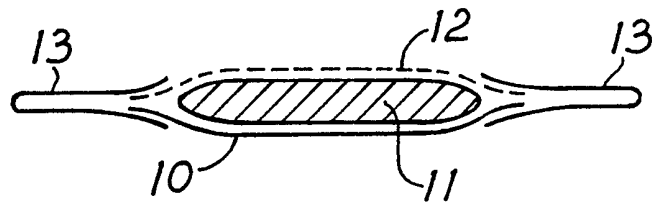


Fig. 2

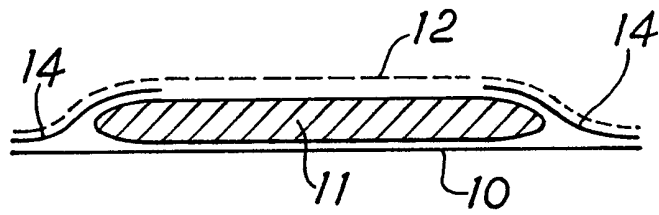


Fig. 3

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Absorbent garment

The present invention is an absorbent garment of the type typified by a napkin for a baby. The invention may be embodied in the form of related garments such as are worn by incontinent adults but for convenience is described hereinafter in its application to baby napkins.

A baby napkin functions both by absorbing fluid and also by preventing it from spreading beyond the edges of the napkin. In order to perform these two functions successfully, the napkin must be a close fit against the body of the wearer at the edges of the napkin. With this in mind, disposable napkins usually incorporate an elastic ribbon, secured to the body of the napkin along the edges corresponding to the leg-bands and waist-band respectively. However, this form of construction suffers from various disadvantages.

For example, UK Patent Specification No. 2107573 describes the difficulties entailed in securing a narrow elastic ribbon to a sheet of impervious polymeric material. Furthermore, it has been found in practice that considerable leakage can occur past the elasticated leg-bands of such prior baby napkins. In addition, the concentration of the elasticsation into the narrow bands at the edges of the garment can give rise to significant discomfort for the wearer.

It is an object of the present invention to provide an absorbent garment wherein the disadvantages which characterise such prior elasticated disposable garments are at least to some extent reduced or overcome.

5 The absorbent garment according to the present invention comprises a pad including superimposed layers of (a) a liquid-impervious material, (b) a liquid-absorbent material and (c) a liquid-pervious material and is characterised by the fact that at least one pair of opposite edges of the pad are each
10 secured between two layers of an elastomeric material in sheet form.

 The pad which incorporates the absorbent part of the garment according to the invention is preferably generally rectangular in outline, in that it preferably has two somewhat longer edges,
15 which will normally be worn around the legs of the wearer, and two somewhat shorter edges, which together form the waist-band of the garment. The longer edges may be parallel and generally straight or alternatively they may be curved so as to conform more closely to the legs of the wearer when in use.

20 The liquid-impervious material, which forms the layer which is outermost in use, may comprise a polymeric material such as polythene, polypropylene or blends of these two polymers. It will usually be in the form of a thin sheet, for example a sheet weighing in the range of 15 to 50 gm/sq.m., and is conventionally
25 referred to as the backing sheet.

 The liquid-absorbent material comprises a relatively thick layer of one or more absorbent products. For example, the layer may comprise a non-woven wadding of cellulosic fibres

and/or of polymeric material of enhanced absorbency and/or a
cellulosic tissue sheet. The wadding may have been treated to
increase its bulk and thereby to give greater liquid absorbency.
Typical such materials are a fluff pulp of a cellulosic material
5 and/or of a super-absorbent acrylic polymer, which materials
may suitably have a weight in the range of 200 to 1000 gm./sq.m.,
and a cellulosic tissue sheet weighing 15 to 25 gm./sq.m.

The third layer of the pad is of a liquid-pervious material,
usually identified as the coverstock, which in use is worn against
10 the body of the wearer. The coverstock conventionally takes the
form of a thin non-woven sheet, for example of rayon, polypropylene
or polyester fibres or of natural fibres such as cotton.

To at least one pair of opposite edges of the pad, the
elastomeric material is secured. Very preferably, the elastomeric
15 layers are secured to the two longer edges of a generally
rectangular or otherwise elongated pad. In a preferred form
of the invention, the two layers are formed by folding over a
single sheet of the elastomeric material. Alternatively, the
two layers may be two separate pieces attached to each other
20 along at least their outermost edges. Preferably the elastomeric
layers are secured together, for example by adhesive, over a
major part of the mutually overlapping area. The elastomeric
layers may comprise a thin film, for example of the order of
0.5mm in thickness. Typical suitable elastomeric materials
25 are impervious films of synthetic rubber, of polyurethane or
of a polyetherester, weighing in the range of 30 to 100 gm./sq.m.

The width of the elastomeric layers should be sufficient to afford a secure bond to the edges of the pad. However it is highly desirable that the width should significantly exceed that value. In particular, it is strongly preferred that the elastomeric layers should extend significantly away from the pad beyond the outermost point of attachment of the elastomeric layers to the pad. For example, the width of each elastomeric layer is preferably between 5 and 10 times the width of the mutually secured overlap of the layers and the pad.

The elastomeric layers are preferably stretched in the direction of the adjacent edge of the pad, at least in that part of the edge which lies adjacent the middle of its length, during attachment of the layers to the pad. Thus, when the tension on the elastomeric material is subsequently withdrawn, the pad becomes somewhat rucked along its edges and affords a better fit to the legs of the wearer in use.

The attachment of the elastomeric layers to the pad is preferably carried out using a suitable adhesive, especially a quick-setting adhesive not requiring significant heat to assist its setting, or by ultrasonic bonding. The preferred adhesives are hot-melt adhesives, including polymeric synthetic rubbers.

Disposable absorbent garments of this general type are usually held in place by means of tapes secured to the opposite ends of the longer sides of the garment, which tapes in turn are usually secured together by a light adhesive or by hook-and-loop fabric fastenings. In securing such tapes to the garment

of the present invention, it is important that they be secured to the elastomeric layers at points where the layers are not attached to the pad, in order to transmit some of the elasticity of those layers to the tape attachment.

5 When the elastomeric layers are secured along the opposite, longer edges of the pad, it is preferred that some form of liquid seal be provided at the shorter edges of the pad which together form the waist-band of the garment. Such a seal may conveniently comprise a strip of impermeable material, for
10 example the same product as forms the backing sheet of the garment.

The invention will now be further described and illustrated with reference to the accompanying drawings, which show, by way of example only, one preferred embodiment of a baby napkin
15 according to the present invention and wherein:-

Fig. 1. is a plan view of the napkin;

Fig. 2 is a vertical sectional view along the line I-I of Fig. 1; and

Fig. 3 is a vertical sectional view along
20 the line II-II of Fig. 1.

The illustrated napkin comprises a pad consisting of three superimposed layers. The first layer 10, which is the backing sheet and in use is worn away from the baby's body, is a generally rectangular embossed impermeable sheet of polythene weighing
25 20 - 30 gm./sq.m. Between this and the third layer 12, which is a liquid-permeable non-woven coverstock of polypropylene weighing 10 - 25 gm./sq.m., is sandwiched an absorbent core 11. The core 11 is in the form of a wadding of fluffed cellulosic pulp blended

with a superabsorbent polymeric material and weighing 500 gm./sq.m., which is contained in a wrapping of a cellulosic tissue sheet weighing 15 - 25 gm./sq.m.

5 Along the side edges of the pad are secured two lengths 13 of folded elastomeric polyetherester material, each side edge of the pad being adhesively retained between the two layers formed by the folding.

The adhering of the pad to the elastomeric layers is carried out while the latter are in a stretched condition in the region around the middle of their length.

10 The shorter edges of the pad are each sealed against potential fluid loss by including a narrow strip 14 of liquid-impermeable polythene between the absorbent core 11 and the coverstock 12 and bonding that strip 14 at its outer edge to the backing 10.

The elastomeric layers 13 extend to a substantial extent outwardly beyond their line of attachment to the pad and in these outer zones are attached the tabs 15 by which the fastening tapes for the garment are secured.

20 The illustrated disposable baby napkin is more comfortable in wear, both at the waist-band and around the legs, than prior such napkins. In both locations, the improved fit obtained reduces fluid leakage. In addition, the elastomeric side pieces form a liquid dam along the leg lines and also contribute to a significant reduction in leakage.

25

CLAIMS

1. An absorbent garment which comprises a pad including superimposed layers of a liquid-impervious material, a liquid-absorbent material and a liquid-pervious material,
5 characterised in that at least one pair of opposite edges of the pad are each secured between two layers of an elastomeric material in sheet form.
2. An absorbent garment as claimed in claim 1, wherein the liquid-impervious material comprises polythene, polypropylene
10 or a blend of these polymers.
3. An absorbent garment as claimed in claim 1 or claim 2, wherein the liquid-absorbent material comprises a layer of non-woven wadding and/or a cellulosic tissue sheet.
4. An absorbent garment as claimed in claim 3, wherein the
15 non-woven wadding is of a cellulosic material and/or an acrylic polymer.
5. An absorbent garment as claimed in any of the preceding claims, wherein the liquid-pervious material comprises a non-woven sheet of rayon, polypropylene or polyester fibres or
20 of cotton.
6. An absorbent garment as claimed in any of the preceding claims, wherein the pad is generally rectangular or otherwise elongated and the elastomeric layers are secured to the two longer edges of the pad.

7. An absorbent garment as claimed in any of the preceding claims, wherein the two layers of elastomeric material at each edge of the pad are formed by folding a single sheet of the material.
- 5 8. An absorbent garment as claimed in any of the preceding claims, wherein the two layers of elastomeric material at each edge of the pad are secured together over a major part of their mutually overlapping area.
- 10 9. An absorbent garment as claimed in any of the preceding claims, wherein the elastomeric layers are secured to the pad by means of a hot-melt adhesive or by ultrasonic bonding.
- 15 10. An absorbent garment as claimed in any of the preceding claims, wherein the width of each elastomeric layer is between 5 and 10 times the width of the mutually secured overlap of the layers and the pad.
11. An absorbent garment as claimed in any of the preceding claims, wherein the elastomeric material is an impervious film of synthetic rubber, of polyurethane or of a polyetherester.
- 20 12. An absorbent garment as claimed in any of the preceding claims, wherein the elastomeric layers are secured along a pair of opposite longer edges of the pad and the other pair of opposite edges of the pad are liquid-sealed with a strip of an impermeable material.
- 25 13. An absorbent garment substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.