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D E C I S I O N
of 10 June 1997

Case Number: T 0229/95 - 3.2.2
Application Number: 86303702.4
Publication Number: 0202125
IPC: A61F 13/15, A61F 5/44, A61L 15/14

Language of the proceedings: EN

Title of invention:

Dual layered cores and absorbent articles containing them

Patentee:

The Procter & Gamble Company

Opponent:

Mölnlycke AB

Headword:

-

Relevant legal provisions:

EPC Art. 56, 107,
EPC R. 55(c)

Keyword:

"Extent of opposition"
"Admissibility of appeal (yes)"
"Inventive step (no)"

Decisions cited:

G 0009/91, T 0737/92

Catchword:

-



Case Number: T 0229/95 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 10 June 1997

Appellant: Mölnlycke AB
(Opponent) S-405 03 Göteborg (SE)

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Respondent: The Procter & Gamble Company
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Representative: Bottema, Johan Jan
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 9 January
1995 concerning maintenance of European patent
No. 0 202 125 in amended form.

Composition of the Board:

Chairman: H. Seidenschwarz
Members: S. Crane
C. Holtz

Summary of Facts and Submissions

- I. European patent No. 0 202 125 was granted on 15 July 1992 on the basis of European patent application No. 86 303 702.4.
- II. The patent was opposed by the present appellants on the grounds that its subject-matter lacked inventive step (Article 100(a) EPC). The appellants requested that the patent be revoked in its entirety.

The state of the art relied upon by the appellants included the following documents:

D1: GB-A-2 087 240

D2: GB-A-2 078 527

D4: US-A-4 102 340

D5: EP-A-0 122 042

D10: Symposium on Paediatric Dermatology (W.B. Saunders Company, Philadelphia & London, August 1961), volume 8, No. 3, pages 835 to 856.

- III. In the decision under appeal the Opposition Division maintained the patent in amended form on the basis of a set of claims according to an auxiliary request.

Claim 1 of this set, which comprises the features of granted claims 1 and 6, reads as follows:

"A disposable absorbent article comprising:

(a) a liquid pervious, elongated backing sheet;

(b) a relatively hydrophobic, liquid pervious topsheet;
and

(c) an absorbent core positioned between said backing sheet and said topsheet, wherein said core comprises a lower layer comprising hydrophilic fiber material and particles of substantially water insoluble hydrogel material and an upper layer consisting essentially of hydrophilic fiber material and substantially free or containing a small amount of particles of water insoluble hydrogel material

(i) said upper layer comprising a fluid acquisition/distribution layer having a density of from 0.05 to 0.25 g/cm³, characterized in that the upper layer contains no more than 8% by weight of said upper layer of particles of said substantially water-insoluble hydrogel material, said upper layer having a basis weight of from 0.015 to 0.1 gm/cm²

(ii) said lower layer comprises a fluid storage layer having a density or from 0.06 to 0.3 g/cm³, a basis weight of from 0.02 to 0.12 gm/cm² and consisting essentially of a substantially uniform combination of hydrophilic fiber material and from 9% to 60% by weight of said lower layer of particles of said substantially water-insoluble hydrogel material; said lower fluid storage layer having a top surface area which is from 0.25 to 1.0 times that of said upper fluid acquisition/distribution layer, and said lower fluid storage layer being positioned relative to said backing sheet and said upper layer in a manner such that at least 75% of the hydrogel material in said lower layer is found within the front two-thirds section of said absorbent article and such that at least 55% of the hydrogel material in said lower layer is found within the front half section of said absorbent article."

Dependent claims 2 to 10 correspond to granted claims 2 to 5 and 7 to 11 respectively.

Independent claim 11, which corresponds to granted claim 12, reads as follows:

"A disposable, dual-layer absorbent core suitable for use in an absorbent article, said absorbent core being comprised of a first layer consisting essentially of hydrophilic fiber material and being substantially free or containing a small amount of particles of water insoluble hydrogel material, and a second layer comprising hydrophilic fiber material and particles of substantially water-insoluble hydrogel material, said first layer having a density of from 0.05 to 0.25 g/cm³, characterized in that the first layer contains no more than 8% by weight of said first layer of particles of substantially water-insoluble hydrogel material, said first layer comprising, in use, an elongated upper fluid acquisition/distribution layer; and said second layer has a density of from 0.06 to 0.3 g/cm³ and consists essentially of a substantially uniform combination of hydrophilic fiber material and from 9% to 60% by weight of said second layer of particles of substantially water-insoluble hydrogel material, said second layer comprising in use, a lower fluid storage layer; said lower fluid storage layer having a top surface area which is from 0.25 to 1.0 times that of said upper fluid acquisition/distribution layer and said lower fluid storage layer further being positioned relative to said upper layer in a manner such that at least 75% of the hydrogel material in said lower layer is found within the front two-thirds section of said absorbent core and such that at least 55% of the hydrogel material in said lower layer is found within the front half of said absorbent core."

In essence the reasons given for the decision were that the basis weight ranges introduced into claim 1 of the auxiliary request provided advantageous properties and could not be derived from the state of the art. No reasons were given for maintaining independent claims 11, which did not contain these basis weight ranges, unamended.

- IV. An appeal against this decision was filed on 6 March 1995 and paid the appeal fee at the same time.

The statement of grounds of appeal was received on 5 May 1995.

- V. In a communication pursuant to Article 11(2) RPBA the Board pointed to the discrepancy between claims 1 and 11 of the set of claims on the basis of which the Opposition Division had decided to maintain the patent. The Board also indicated that, having regard to the amendments made to claim 1, documents D4 and D5 were of particular relevance.

- VI. With a reply received on 12 May 1997 the respondents (proprietors of the patent) argued that the appellants had no basis for filing an appeal as they had not originally attacked claim 6 and had not contested the inventive step of the combination of the features of the combination of the features of granted claims 1 and 6.

As an auxiliary request the respondents submitted an amended version of independent claim 11 which also contained the basis weight ranges taken from granted claim 6.

- VII. Oral proceedings before the Board were held on 10 June 1997.

The appellants requested that the decision under appeal be set aside and that the patent be revoked.

The respondents requested that the appeal be rejected as inadmissible, alternatively that the appeal be dismissed and the patent be maintained as maintained by the Opposition Division but with claim 11 as amended with their letter received on 12 May 1997.

VIII. The arguments of the appellants in support of their request can be summarised as follows:

The opposition had clearly been directed against the patent as a whole. The fact that no specific comments were made with respect to the features of granted dependent claim 6 did not mean that the subject-matter of a new main claim derived by combining granted claims 1 and 6 could no longer be attacked. Furthermore, there could be no suggestion that the appellants had actively approved the new claim 1 during the oral proceedings before the Opposition Division.

The appellants sought to justify the inventive step of the subject-matter of claim 1 by reference to the respective particular combinations of density and basis weight for the upper and lower layers. The ranges given in the claim were however so broad that the claim did not preclude that the respective densities and basis weights were the same. In any case, both the given densities and the basis weights were known from documents D4 and D5 and the lower layers disclosed in those documents also contained hydrogel material in amounts corresponding to those claimed. Therefore the only feature which distinguished the subject-matter of claim 1 from the state of the art was the relative preponderance of the hydrogel material in the front half section of the absorbent article. That this was the favoured region to put the hydrogel material was

however known for example from documents D1 and D2. The relationship between the separation of urine and faeces to the avoidance of diaper rash was well known, see for example document D10.

IX. In reply the respondents argued substantially as follows:

The appellants had only formally filed their opposition against the patent as a whole but had not made any attack against the subject-matter of dependent claim 6. They therefore had no legal basis to object to present claim 1, which was a combination of the features of granted claims 1 to 6. This approach was in conformity with what had been held in decision T 737/92 (not published in OJ EPO; referred to on pages 296, 323 of Case Law of the Boards of Appeal of the EPO). Furthermore, the appellants had made no objection to the amended claims at the oral proceedings before the Opposition Division.

The technical problem with which the invention was concerned was the provision of absorbent articles which are especially effective and efficient in their use of hydrogel materials. To avoid the known phenomenon of "gel blocking" the hydrogel material was dispersed in a lower fibre layer of particular density and basis weight and to ensure good distribution of the liquid to be absorbed to the lower layer the upper layer was chosen to have a density and basis weight which would provide adequate transverse wicking. By disposing the hydrogel material predominately in the front half section of the absorbent article it was used to its best effect since in this position it served to keep urine and faeces separate and thus reduce the danger of diaper rash occurring.

Contrary to what had been asserted by the appellants documents D4 and D5 did not disclose the particular combinations of density and basis weight required by claim 1. In particular, the density and basis weight referred to in document D4 were related to a composite structure including an intermediate heavily densified layer so that no reliable information about the upper and lower layers could be derived therefrom. As for document D5 this only included information about the lower layer and was silent about the upper layer. Furthermore, document D1, relied upon in particular by the appellants with respect to the disposition of the hydrogel material, did not disclose a lower layer within the meaning of claim 1 at all since the hydrogel material was not uniformly combined with fibres and was located in a small localised area making up less than 25% of the surface area of the upper layer. Lastly, since the hydrogel material of document D1 would be extremely prone to gel blocking, the person skilled in the art would not refer to this document when looking for a solution to the technical problem with which the invention was concerned.

Reasons for the Decision

1. *Extent of the opposition; admissibility of the appeal*

Although in the notice of opposition specific comments were only made with respect to the patentability of the subject-matter of granted claims 1 to 5 and 10 to 12, the Board can see no reason for taking this as meaning that the subject-matter of claims 6 to 9 was not opposed and that the appellants contrary to what they had expressly indicated on the appropriate official form, were not seeking revocation of the patent as a whole. Since granted claim 1 has fallen the appellants

are therefore entitled to challenge the validity of present claim 1, which is a combination of the features of granted claims 1 and 6, particularly as to do so they are only relying on state of the art documents already in the proceedings (see decision G 9/91, OJ EPO 93, 408, point 11 of the reasons). The present case can be clearly distinguished from the situation dealt with in decision T 737/92, relied upon by the respondents, since there those claims which were not subject of the opposition were confined to identifiably different subject-matter from that contained in claim 1 of the opposed patent.

Since the decision of the Opposition Division to maintain the patent in amended form did not correspond to the request of the appellants that the patent be revoked, they are adversely affected by it (Article 107 EPC). The fact that the appellants did not apparently object with any vigour to the new claim 1 submitted at the oral proceedings before the Opposition Division cannot be prejudicial to their right to challenge its validity by way of appeal. Since the other formal requirements of Articles 106 and 108 and Rules 1(1) and 65 have been met, the appeal is admissible.

2. *State of the art*

- 2.1 Document D1 relates to disposable absorbent articles such as infant diapers, incontinence pads, sanitary napkins and the like. In order to enable the article to absorb and hold an increased volume of liquid it is proposed to incorporate in the generally fibrous article a reservoir zone comprising an upper reservoir of compressed fibres, an intermediate highly densified fibre layer, and a lower reservoir contain super-absorbent particles of a water-swella-ble, water-

insoluble composition (i.e. a "hydrogel"). The reservoir may be located nearer one end of the article to assist in location in the void zone of the wearer (see page 2, lines 47 to 51).

2.2 Document D2 discloses a disposable absorbent article comprising essentially an upper and a lower fibre layer. The upper layer has a basis weight of 15 to 50 g/m² (i.e. 0.0015 to 0.005 g/cm²) and a density when wet (excluding the absorbed liquid) of less than 0.045 g/cm³. The lower fibre layer has uniformly distributed therein particles of a hydrogel material. In Example 6, page 4, the hydrogel material makes up 25% by weight of the lower layer. The amount of the hydrogel material used is dependent on whether the lower layer covers the whole of the area of the article. It is preferred that the hydrogel material is only provided in an area where a high absorbing efficiency is required (see page 3, lines 8 to 15).

2.3 The absorbent article, e.g. a diaper, disclosed in document D4 comprises a liquid pervious topsheet, a liquid impervious backing sheet and an absorbent pad disposed therebetween. The absorbent pad comprises upper and lower layers ("batts") of loosely compacted wood pulp fibres with a densified fibrous layer of relatively higher wettability and liquid retentivity sandwiched between them. The densified layer is integral with at least one of the upper and lower layers. The batts are formed by air laying fibres onto a support at a total weight of about 2 oz/yd² to about 10 oz/yd² with subsequent compression, cf. column 6, lines 29 to 32. This corresponds to a basis weight of about 0.008 to 0.04 g/cm². Particulate hydrogel absorbent material is uniformly distributed throughout

the lower layer in an amount of preferably about 10 to 15% by weight (see column 7, lines 18 to 25). The composite density of the absorbent pad, excluding the hydrogel material, is preferably about 0.1 to 0.15 g/cm³ (see column 7, lines 13 to 17).

2.4 Document D5 is particularly concerned with solving the problem of "gel blocking" when using hydrogel materials. To this end it proposes air-laying a web of dry hydrophilic fibres and hydrogel particles and then compressing the web to a density of 0.15 to 1 g/cm³ to form an absorbent structure. More preferred densities are between 0.15 and 0.6 g/cm³, and most preferred between 0.25 and 0.4 g/cm³, cf. claim 4. The most preferred amount of hydrogel particles incorporated into the structure is 10 to 25%, cf. claim 3. The absorbent structure can be used by itself between a conventional liquid impervious backing sheet and a relatively hydrophobic liquid pervious topsheet to form a diaper (see page 2, last paragraph), or be placed between the normal pulp fibre core and the backing sheet of a conventional diaper to increase its absorbent capacity (see the paragraph bridging pages 13 and 14). When used in this way the absorbent structure preferably has a thickness of 0.1 to 1 mm. The absorbent structure may be the same size as the conventional wood pulp fibre core or smaller. Example X discloses a diaper with a conventional wood pulp fibre core and an absorbent structure placed between it and the backing sheet with a basis weight of 0.035 g/cm² and a density of 0.3 g/cm³.

2.5 According to document D10 it has long been known that a major factor in the occurrence of diaper rash is the ammonia produced due to the action of faecal bacteria on urine. To prevent or alleviate diaper rash it is proposed there that mixing of urine and faeces should be avoided (see pages 854 and 855).

3. *Inventive step*

According to the patent specification the primary objective of the claimed invention is to provide absorbent articles which are especially effective and efficient in their use of hydrogel absorbent materials (see page 3, lines 5 and 6). A major factor influencing the effectiveness of hydrogel materials is the phenomenon known as gel blocking, which is explained on page 2, lines 17 to 26 of the patent specification. Since document D5 is specifically directed to the solution of the problem of gel blocking, it is therefore convenient to start from this state of the art when considering the inventive step of the subject-matter of claim 1.

As can be seen from the details given in point 2.4 above the absorbent structure proposed in document D5 corresponds closely to the lower fluid storage layer defined in present claim 1. There is broad overlap between the ranges given for density and weight percent of hydrogel particles. From Example X it can be seen that when the absorbent structure of document D5 is to be used in combination with a conventional upper wood pulp fibre layer then the basis weight of the structure also lies within the range given in the claim. Although document D5 does not clearly state what the density and basis weight of that upper layer should be it does however refer on page 15, in the context of a performance test, to a conventional wood pulp fibre web as having a density of 0.1 g/cm^3 and a base weight of 0.04 g/cm^2 . These values, which fall squarely within the respective ranges for the upper layer given in present claim 1, would certainly serve as guides for the person skilled in the art seeking to repeat Example X of

document D5. Thus the Board can recognise nothing in inventive significance in the combination of the respective densities and basis weights of the upper and lower layers defined in the claim.

The relative surface area of the lower layer with respect to the upper layer disclosed in document D5 also falls within the broad range of 0.25 to 1.0 specified in present claim 1.

It therefore remains to be considered whether the requirements concerning the location of hydrogel material in the longitudinal direction of the absorbent article can provide an inventive distinction from the state of the art. It is to be noted in the first place that the requirements of the claim 1 are quite broad in their ambit. For 75% of the hydrogel material in the lower layer to be located in the front two-thirds and 55% to be located in the front half of the absorbent articles only requires a relatively small displacement in the location of the midpoint of the lower layer with respect to midpoint of the upper layer.

Since hydrogel is a relatively expensive material there are clear economic reasons for locating it where it will be most needed, cf. documents D1 and D2. According to document D1 the hydrogel material is preferably located between the centre and the end of the absorbent structure to assist in locating it in the void zone of the wearer. Of course, the position of the void zone which equates to the "target area" of the absorbent structure, will vary in dependence on the intended use of the absorbent structure. Taking the example of a diaper particularly suitable for a boy it is well known that this target area lies in the front half section of

the diaper. For such an absorbent structure it is therefore obvious preferentially to locate the hydrogel material towards its front end, certainly at least to the extent required by present claim 1, in comparison with D1.

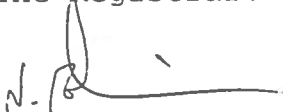
Having regard to the above the Board therefore comes to the conclusion that the subject-matter of claim 1 lacks inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

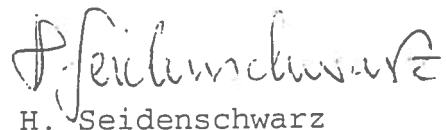
1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:



N. Maslin

The Chairman:



H. Seidenschwarz

