BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [ ] To Chairmen
(D) [X] No distribution

D E C I S I O N
of 13 November 2001

Case Number: T 0593/99 - 3.2.6

Application Number: 92925156.9

Publication Number: 0612235

IPC: A61F 13/46

Language of the proceedings: EN

Title of invention:
ABSORBENT ARTICLE HAVING RAPID DISTRIBUTION STRIP

Patentee:
THE PROCTER & GAMBLE COMPANY

Opponent:
Kimberly-Clark Corporation
SCA Hygiene Products AB

Headword:
-

Relevant legal provisions:
EPC Art. 83, 84, 54(2), 56

Keyword:
"Disclosure - sufficiency - (yes)"
"Claims - clarity (yes)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
G 0004/92

Catchword:
-

b

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0593/99 - 3.2.6

D E C I S I O N
of the Technical Board of Appeal 3.2.6
of 13 November 2001

Appellant I: (Opponent I)
Kimberly-Clark Worldwide, Inc.
401 North Lake Street
Wisconsin 54956 (US)

Representative:
Davies, Christopher Robert
Frank B. Dehn & Co.
European Patent Attorneys
179 Queen Victoria Street
London EC4V 4EL (GB)

Appellant II: (Opponent II)
SCA Hygiene Products AB
S-405 03 Göteborg (SE)

Representative:
Romare, Laila Anette
Albihns Göteborg AG
Box 142
S-401 22 Göteborg (SE)

Respondent: (Proprietor of the patent)
THE PROCTER & GAMBLE COMPANY
One Procter & Gamble Plaza
Cincinnati
Ohio 45202 (US)

Representative:
Boon, Graham Anthony
Elkington and Fife
Prospect House
8 Pembroke Road
Sevenoaks
Kent TN13 1XR (GB)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 30 March 1999 concerning maintenance of European patent No. 0 612 235 in amended form.**

Composition of the Board:

Chairman: P. Alting van Geusau
Members: G. Pricolo

M. J. Vogel

Summary of Facts and Submissions

I. Appellant I (opponent I) and appellant II (opponent II) each lodged an appeal, received at the EPO on 28 May 1999 and 3 June 1999 respectively, against the interlocutory decision of the Opposition Division dispatched on 30 March 1999 which maintained the European patent No. 0 612 235 in amended form. The appeal fees were paid on 28 May 1999 and 4 June 1999 and the statements setting out the grounds of appeal were received at the EPO on 6 August 1999 and 26 July 1999, respectively.

II. The oppositions had been filed against the patent as a whole and were based on Article 100(a) in conjunction with Articles 54(2) and 56 EPC, and on Article 100(b) EPC, and on Article 100(c) EPC.

In its decision the Opposition Division considered that the subject-matter of claim 1 according to the third auxiliary request filed at the oral proceedings held on 12 February 1999 met the requirements of the EPC.

III. From the documents considered by the Opposition Division, the following documents played a role in the appeal proceedings:

D1: WO-A-91/11161;

D2: EP-A-238 334;

D3: US-A-3 375 827;

D4: EP-A-272 683;

D4': US-A-4 908 026 (member of the same patent family of

D4);

D5: EP-A-291 316;

D6: GB-A-2 100 130;

D7: GB-A-1 564 558;

D8: US-A-4 059 114;

D9: WO-A-91/14415;

D10: US-A-4 259 387;

D11: US-A-3 494 362;

D12: US-A-1 863 333;

D13: US-A-2 788 003;

D14: US-A-1 502 588;

D15: US-A-4 488 928;

D16: US-A-4 103 058;

D17: US-A-4 259 958;

D19: EP-A-0 175 481;

D20: US-A-3 993 820;

D22: WO-A-89/01325;

D24: US-A-4 315 507;

D25: US-A-4 576 596;

D26: US-A-4 526 825.

IV. In an annex to the summons for oral proceedings pursuant to Article 11(2) Rules of Procedure of the Boards of Appeal the Board expressed its preliminary opinion that sufficiency of disclosure (Article 83 EPC) was not at stake, and that a number of the objections of appellant I in this respect in fact related to lack of clarity (Article 84 EPC). Therefore, clarity, novelty and inventive step needed further discussion during the oral proceedings.

V. Oral proceedings took place on 13 November 2001.

As previously announced by letter dated 31 August 2001, appellant I did not attend the oral proceedings. The proceedings continued without him (Rule 71(2) EPC). During the written proceedings, appellant I requested that the decision under appeal be set aside and the patent be revoked.

Appellant II requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed and the patent be maintained in amended form on the basis of

Claims: 1 to 5, as filed during the oral proceedings;

Description: columns 1 to 11, as filed during the oral proceedings;

Drawings: Figures 1 to 3 as granted.

VI. Claim 1 reads as follows:

"An absorbent article (1) having longitudinal edges and lateral edges, said absorbent article comprising a liquid permeable topsheet (2), a liquid impermeable backsheet (3), a liquid absorbent pad (4) for absorbing a liquid exuded from the human body positioned therebetween and having longitudinal ends (6), and a liquid distribution strip (10,30) positioned between said topsheet and said absorbent pad, said liquid distribution strip comprising a nonwoven web, characterized in that said nonwoven web has an embossed pattern (15) which comprises discontinuous embossed lines oriented primarily in the longitudinal direction wherein fibers are highly compressed into thin film segments so as to inhibit the distribution of said body liquid through the embossed pattern toward said lateral edges, the fibers being so compressed that substantially all of the liquid must distribute around the embossed lines, and wherein said nonwoven web additionally comprises a screen pattern (13) which comprises high fiber density portions (17) oriented primarily to said longitudinal ends of said absorbent pad, the combination of the screen pattern (13) and embossed pattern (15) providing superior liquid distribution in the longitudinal direction because of good liquid diffusion rate in the longitudinal direction at the screen pattern, and inhibiting liquid distribution in the lateral direction at the embossed pattern (15)".

VII. In so far as the arguments of appellant I are relevant in respect of the patent in the present amended form the following submissions were made.

Since the patent did not describe how the claimed article differed from what was shown in the prior art to achieve

the claimed function, and since no particular technical meaning of the "screen pattern" feature could be determined from the patent by a skilled person, the claimed invention was insufficiently disclosed.

Claim 1 contained terms such as "thin film segments", "highly compressed", "high fibre density portions" and "good liquid diffusion rate", which were all relative terms and as such inherently unclear, contrary to the requirements of Article 84 EPC.

Moreover, to the extent that the terms "screen pattern" and "embossed pattern" could be understood from the patent in suit, they were intended only to define patterns having particular orientations, arrangement of fibres, and functional effects on liquid distribution. That being the case, since each of D1, D2 and D3 disclosed a patterned liquid distribution strip having the particular pattern orientation and fibre arrangements required by claim 1, and which affected liquid distribution in the manner required by claim 1, each of the prior art absorbent articles were provided with a liquid distribution strip having a "screen pattern" and an "embossed pattern" as required by claim 1. Thus, the subject-matter of claim 1 lacked novelty over each of D1, D2 and D3.

In any event, the subject-matter of claim 1 lacked an inventive step starting from document D4, which taught that the liquid distribution strip should preferentially transfer fluid along its length. When implementing the D4 arrangement, the skilled person was free to use whatever technique was known to him or taught by the prior art to achieve the purpose taught by D4. In this regard, reference could be made to D1-D3 and D5-D13, all of which described the use of patterns of densified and less dense regions

in nonwoven webs to provide enhanced longitudinal flow in the webs, and to D24 to D26, which disclosed the use of embossed portions through which the distribution of liquid was inhibited in nonwoven webs for fluid control purposes. Furthermore, it would be routine for a skilled person to include more than one of the known patterns in order to maximise the longitudinal flow of fluid in the liquid distribution strip of D4.

VIII. The arguments of appellant II can be summarized as follows.

It was not clear what was the distinction between a screen pattern and an embossed pattern, and therefore, claim 1 did not meet the requirements of Article 84 EPC. Indeed, both the screen pattern and the embossed pattern comprised high fiber density portions oriented primarily in the longitudinal direction of the absorbent article. As in the embossed pattern, also in the screen pattern the fibers could be compressed to an extent so as to inhibit distribution of liquid therethrough. Although the claim referred to good liquid diffusion rate in connection with the screen pattern, still both the screen pattern and the embossed pattern fulfilled the same function of promoting liquid flow in the longitudinal direction and inhibiting it in the lateral direction, and could not be distinguished in practice.

The closest prior art was represented by document D4', to which reference should be made instead of D4. D4' disclosed an absorbent article having a distribution strip which transferred liquid preferably along its length, as clearly shown eg in figures 4A to 4D, although it failed to specify how this result was achieved. The skilled person would however find suitable instructions in document D5, teaching the provision, in an absorbent structure, of a first highly

compressed pattern, where fibers were compressed to a density up to 1000 g/cc, thus inhibiting liquid distribution therethrough (ie an embossed pattern), and of a second pattern where fibers were less compressed (ie a screen pattern). Thus, by applying the teaching of D5 to the liquid distribution strip of document D4', the skilled person would directly arrive at the subject-matter of claim 1.

IX. In support of its request the respondent relied essentially on the following submissions.

The difference between the screen pattern and the embossed pattern was to be seen in the extent of compression of the fibers, defined in functional terms in claim 1. The compression in the screen pattern was such as to improve the diffusion rate in the longitudinal direction. In the embossed pattern the fibers were further compressed to such an extent that the capillaries became so small so as to inhibit liquid transmission therethrough. Hence, the definition of claim 1 was clear, and there were no difficulties for a skilled person to identify the two different patterns in practice.

Document D4', which represented the closest prior art, disclosed that the liquid distribution strip should "preferentially transfer liquid along its length prior to transferring into layer 30". The comparison implied by the word "preferentially" was between lengthwise transport and vertical transport, not between lengthwise transport and lateral transport. There was no indication in D4' or D4 that liquid would travel faster in the lengthwise direction than in the lateral direction. Therefore, there was no reason to apply the teaching of document D5 to the absorbent article of D4' or D4. In any case, since D5 taught to form

patterns having different degrees of absorption in the absorbent pad itself, the skilled person would modify the absorbent pad, rather than the liquid distribution strip, when applying the teaching of D5 to the absorbent article of D4'. Furthermore, D5 did not disclose a pattern where fibers were so compressed so as to inhibit liquid distribution therethrough, but only patterns suitable to transport liquid. In this connection the reference in D5 to a density of 1000 g/cc had to be ignored as being an evident error. Indeed such density, corresponding to many times the density of lead, was impossible to achieve in practice.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments (Article 123 EPC)*

2.1 Claim 1 results from the combination of the features of original independent claim 7 and original dependent claim 9. It additionally comprises the features that the fibers in the embossed pattern are so compressed into "thin film segments" that "substantially all of the liquid must distribute around the embossed lines", and that "the combination of the screen pattern and embossed pattern provides superior liquid distribution in the longitudinal direction because of good liquid diffusion rate in the longitudinal direction at the screen pattern, and inhibiting liquid distribution in the lateral direction at the embossed pattern". These features are disclosed in the originally filed application on page 8, lines 19 to 22 and 24 to 28.

Dependent claims 2 to 5 recite the features of original claims 2 to 4 and 10.

The description of the patent in suit is adapted to be consistent with the claims as amended.

Hence, the amendments do not introduce subject-matter which extends beyond the content of the application as filed.

2.2 Since independent claim 1 defines further limiting features with respect to granted claim 1, the amendments do not result in an extension of the protection conferred.

2.3 It follows that none of the amendments give rise to objections under Article 123(2) and (3) EPC.

3. *Sufficiency of disclosure (Article 83 EPC)*

The Board has already treated this question in its annex to the summons to oral proceedings. The appellant I has not supplied further arguments concerning this point.

The Board considers that the patent sufficiently discloses the invention for it to be carried out by a skilled person. Indeed, the description provides specific examples of how to make the embossed pattern and screen pattern in the liquid distribution strip and of the materials to be used in the various component parts of the absorbent article of claim 1 (see the patent specification, in particular: column 4, lines 6 to 11 and lines 45 to 48; column 6, line 23 to column 7, line 15; column 8, lines 9 to 20; column 9, lines 10 to 14 and 28 to 43; Figures 1 to 3).

4. *Clarity (Article 84 EPC)*

4.1 The Board is satisfied that claim 1 clearly defines the matter for which protection is sought. In particular, claim 1 clearly defines the structure of the absorbent article and the essential technical features of the liquid distribution strip.

From the definition of claim 1 it unambiguously follows that in the embossed lines the fibers are highly compressed to such an extent that distribution of liquid through the embossed lines is inhibited and substantially all of the liquid must distribute around the embossed lines. Hence, in the embossed pattern substantially no absorption of liquid takes place. In contrast thereto, in the high fiber density portions of the screen pattern liquid diffusion takes place, since claim 1 states that good liquid diffusion rate is provided at the screen pattern.

Therefore, the different technical effects of the embossed pattern and of the screen pattern can be clearly derived from the definition of claim 1. It is also clear that these different technical effects result from the different extent of compression of the fibers in the two patterns: whilst the fibers in the screen pattern are compressed to such an extent so as to guarantee liquid diffusion, the fibers in the embossed pattern are compressed to a - greater - extent so as to close the capillaries and inhibit liquid diffusion.

It follows that it is clear from the text of claim 1 what is the distinction between the embossed pattern and the screen pattern.

4.2 There would be moreover no difficulties to distinguish the patterns from each other in an absorbent article constructed in accordance with the definition of claim 1. Indeed, the screen pattern could be identified as that pattern of compressed fibers in which liquid diffusion takes place, and the embossed pattern as that pattern of compressed fibers in which liquid diffusion is substantially inhibited.

4.3 Appellant I argued that the terms such as "thin film segments", "highly compressed", "high fibre density portions", "good liquid diffusion rate", are relative terms and as such inherently unclear, as noted in the Guidelines C-III, 4.5.

In the present case the terms "thin film segments", "fibers highly compressed", "high fibre density portions" do not introduce lack of clarity, since it can be deduced directly from the text of claim 1 that they are used in a relative sense, i.e. relatively to other portions of the liquid distribution strip, which are thicker, less compressed and have lower fibre density, respectively, and that they do not relate to specific levels of film thickness, or specific levels of fibers compression/density. Analogous considerations apply to the term "superior liquid distribution in the longitudinal direction", which implies that liquid distribution in the longitudinal direction is better than in the lateral direction.

5. *State of the art - novelty*

5.1 Document D1 discloses (see Figures 1 and 2) an absorbent article having a backsheet (10), an absorbent layer (2) and a cover layer (3) comprising a longitudinal corrugated layer (6) of nonwoven fabric, wherein the corrugations at

the longitudinal depressed portions of the cover layer comprise compressed areas which are thinner and have higher density than the corrugations at the longitudinal raised portions of the cover layer (see page 8, fourth paragraph; see the paragraph bridging pages 23 and 24). These compressed areas provide a high rate of fluid penetration (page 8, second line from the bottom) and therefore absorb liquid.

Document D2 discloses (Figure 1) an absorbent article comprising a liquid permeable topsheet (6), a crushed pulp layer (9) forming the absorbent pad, and positioned therebetween a crimped fiber layer (7) and an absorbent paper sheet (8). The crushed pulp layer (9) and the absorbent paper sheet (8) are provided with a series of embossed patterns (page 7, lines 22 to 27). These embossed patterns are intended to rapidly absorb liquid (page 8, lines 29 to 34).

Document D3 discloses (see Figure 3) an absorbent article comprising a liquid permeable wrapper (14) enclosing a liquid absorbent pad (18). A fluid control element (25), which is positioned between said wrapper and said absorbent pad, is provided with an embossed pattern defining various degrees of compression (column 3, lines 26 to 30). The compressed areas of the embossed pattern have high capillarity (column 4, lines 13 to 19) and therefore they absorb liquid.

Since the compressed areas shown in D1 and the embossed patterns shown in D2 and D3 are constructed to absorb liquid, they are not comparable with the embossed lines in accordance with claim 1 of the patent in suit, where absorption substantially does not take place as distribution of liquid through the embossed lines is

inhibited and substantially all of the liquid distributes around them.

5.2 Using the wording of claim 1 of the patent in suit, document D4' discloses (see Figures 2 and 3) an absorbent article (12) having longitudinal edges and lateral edges, said absorbent article comprising a liquid permeable topsheet (14), a liquid impermeable backsheet (22), a liquid absorbent pad (30) for absorbing a liquid exuded from the human body positioned therebetween and having longitudinal ends, and a liquid distribution strip (28) positioned between said topsheet and said absorbent pad, said liquid distribution strip comprising a nonwoven web.

D4' generally discloses that the liquid distribution strip may be embossed (column 5, line 11), yet no further detail is given about the embossed pattern. Therefore, D4' does not disclose the features defined in the characterizing portion of claim 1.

Also D4, which content does not go beyond that of D4', does not disclose the features defined in the characterizing portion of claim 1.

5.3 Document D5 discloses (see Figures 1,2,4,8 ; see column 5, lines 20 to 29) an absorbent article having a topsheet (16), a liquid absorbent core (20) and a backsheet (18). This document does not disclose the use of a liquid distribution strip.

5.4 Documents D24 to D26 also fail to disclose the provision of a liquid distribution strip in an absorbent article.

5.5 The other cited documents neither disclose the provision of a liquid distribution strip in an absorbent article nor

an embossed pattern where absorption substantially does not take place.

5.6 From the above it follows that the subject-matter of claim 1 is novel.

6. *Inventive step*

6.1 The technical problem underlying the patent in suit consists in providing a liquid distribution strip having improved wicking, superior liquid distribution to the longitudinal ends and inhibited liquid distribution to the sides of the absorbent article (see column 2, lines 1 to 7).

6.2 The Board shares the view of the parties present at oral proceedings that document D4' represents the closest prior art. Indeed, the purpose of the liquid distribution strip in this document is the most similar to that of the patent in suit, since D4' specifically discloses that it is intended to avoid side leakage in an absorbent article (see column 1, lines 55 to 58).

Starting from this prior art, the mentioned technical problem is solved by the provision of the distinguishing features defined in the characterizing portion of claim 1, namely by the provision of a nonwoven web having an embossed pattern which comprises discontinuous embossed lines oriented primarily in the longitudinal direction wherein fibers are highly compressed into thin film segments so as to inhibit the distribution of said body liquid through the embossed pattern toward said lateral edges, the fibers being so compressed that substantially all of the liquid must distribute around the embossed lines, and wherein said nonwoven web additionally comprises a screen pattern which

comprises high fiber density portions oriented primarily to said longitudinal ends of said absorbent pad, the combination of the screen pattern and embossed pattern providing superior liquid distribution in the longitudinal direction because of good liquid diffusion rate in the longitudinal direction at the screen pattern, and inhibiting liquid distribution in the lateral direction at the embossed pattern.

6.3.1 In the absorbent article according to document D5 the absorbent core (20) is provided with a wicking pattern comprising an array of tuft regions (28) and channels (30) comprising storage regions (37) and transport regions (39). The fibers in the transport regions are more compressed than in the storage regions (column 10, lines 7 to 21), and are so compressed that they provide very fast wicking (column 12, lines 23 to 27), ie they absorb liquid.

It is true that D5, on column 11, line 50, refers to a density of 1000 grams per cubic centimeter in the transport regions. However, since the skilled man would immediately recognize that such a value for the density is an evident and isolated error (it corresponds to about 100 times the density of lead and the other passages on column 11 of D5, lines 48 to 54, refer to a density in the order of 1 gram per cubic centimeter), he would not derive any technical teachings therefrom.

Hence, the wicking pattern in the absorbent core of D5 is comparable to the screen pattern referred to in claim 1 of the patent in suit. However, D5 does not disclose the provision of embossed lines in accordance with claim 1 of the patent in suit, where absorption substantially does not take place as distribution of liquid through the embossed lines is inhibited and substantially all of the

liquid distributes around them.

6.3.2 Document D24 discloses (Figure 1) an absorbent article wherein a fluid impervious backsheet (11a,11b) is fused to the absorbent body (10) by means of embossed patterns (column 3, lines 14 to 23). However, the skilled person would have no reasons to include such embossed patterns in the liquid distribution strip of D4', since the latter does not contact, and thus does not need to be fused to, the backsheet.

6.3.3 Document D25 discloses an absorbent article (Figure 5) comprising a first and second layer fixed together by means of fused lines (13). D25 further discloses that the fused lines may be used for fluid barrier purposes, but in such case they are continuous in nature (see column 2, lines 60 to 66; column 3, line 57 - column 4, line 2).

Similarly, document D26 discloses to provide continuous fused lines (11) along the periphery of the fluid permeable wrap (topsheet) for fluid barrier purposes (column 2, lines 26 to 30; claim 1).

Hence, neither D25 nor D26 disclose the provision of *discontinuous* embossed lines for inhibiting liquid distribution in the lateral direction of the absorbent article.

6.3.4 Neither are such embossed lines disclosed by any of the other cited documents.

6.4 From the above it is clear that the prior art suggests the provision, in a nonwoven web, of either a screen pattern providing good liquid diffusion rate, such as in D5, or of a continuous embossed pattern inhibiting liquid distribution at the lateral direction, as in D25 to D26. The prior art, however, neither suggests the provision of an embossed pattern comprising discontinuous embossed lines, nor to combine such embossed pattern with a screen pattern in a liquid distribution strip in order to solve the problem underlying the patent in suit. As a consequence, the subject-matter of claim 1 is found to involve an inventive step.

6.5 From the above it also follows that the subject-matter of claim 1 is not rendered obvious by the combination of documents D4' and D5, as argued by appellant II at the oral proceedings. Indeed document D5 does not disclose an embossed pattern in accordance with claim 1 of the patent in suit, and therefore, even if the skilled person would apply the wicking pattern (see point 6.3.1 above) according to the teaching of D5 to the liquid distribution strip (28) of D4', he would not arrive at the subject-matter of claim 1.

Moreover, although D4' discloses that the liquid distribution strip (28) "is selected such that it will preferentially transfer fluid along its length prior to transferring the fluid to the absorbent 30" (see column 3, lines 33 to 36), in the Board's view it does not disclose that the liquid distribution in the longitudinal direction of the liquid distribution strip is superior to that in the lateral direction. Indeed, the mentioned passage of D4' only gives information about the relationship existing between lengthwise transport and vertical transport, but fails to give any direct and unambiguous information about

the relationship existing between lengthwise transport and lateral transport. It is true that figures 4A to 4D of D4' show that the wet area (60, 62, 64, 66) extends to a greater extent along the longitudinal direction of the liquid distribution strip (28); this, however, does not necessarily imply that the liquid distribution in the longitudinal direction of said strip is superior to that in the lateral direction. Indeed, since the width of the strip is smaller than its length, when the liquid has reached the lateral ends of the strip further flow of liquid in the strip can only take place in the longitudinal direction of the strip, i.e. the wet area can only extend further in the longitudinal direction. Therefore, when putting into practice the teaching of document D4', there would be no reason for the skilled person to look in the prior art for instructions on how to provide a liquid distribution strip which transfers liquid preferably along its length.

7. Dependent claims 2 to 5 define preferred embodiments of the absorbent article of claim 1. Thus their subject-matter also is novel and involves an inventive step.

8. Finally, the Board finds that considering and deciding on the maintenance of the patent on the basis of the claims as amended during oral proceedings in the absence of appellant I does not conflict with decision G 4/92 (OJ 1994, 149). The restrictions to the claims as applied by the respondent remove objections made by the appellants and thus could have been expected. This is particularly so as the Board, in the annex to the summons to oral proceedings, had addressed these questions as well.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

Claims: 1 to 5, as filed during the oral proceedings;

Description: columns 1 to 11, as filed during the oral proceedings;

Drawings: Figures 1 to 3 as granted.

The Registrar: The Chairman:

M. Patin P. Alting van Geusau