

Internal distribution code:

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

**Datasheet for the decision
of 21 January 2015**

Case Number: T 1323/11 - 3.2.06

Application Number: 01309988.2

Publication Number: 1210925

IPC: A61F13/533, A61F13/15

Language of the proceedings: EN

Title of invention:

Disposable diaper

Patent Proprietor:

UNI-CHARM CORPORATION

Opponents:

Paul Hartmann AG
The Procter & Gamble Company

Headword:

Relevant legal provisions:

EPC 1973 Art. 83

Keyword:

Sufficiency of disclosure - (no)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1323/11 - 3.2.06

**D E C I S I O N
of Technical Board of Appeal 3.2.06
of 21 January 2015**

Appellant:
(Opponent 1)

Paul Hartmann AG
Paul-Hartmann-Strasse 12
89522 Heidenheim (DE)

Representative:

DREISS Patentanwälte PartG mbB
Patentanwälte
Postfach 10 37 62
70032 Stuttgart (DE)

Appellant:
(Opponent 2)

The Procter & Gamble Company
One Procter & Gamble Plaza
Cincinnati, Ohio 45202 (US)

Representative:

Heide, Ute
Procter & Gamble Service GmbH
IP Department
Frankfurter Strasse 145
61476 Kronberg im Taunus (DE)

Respondent:
(Patent Proprietor)

UNI-CHARM CORPORATION
182 Shimobun,
Kinsei-cho
Shikokuchuo-shi,
Ehime-ken (JP)

Representative:

Eke, Philippa Dianne
Saunders & Dolleymore LLP
9 Rickmansworth Road
Watford Hertfordshire WD18 0JU (GB)

Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
18 April 2011 concerning maintenance of the
European Patent No. 1210925 in amended form.**

Composition of the Board:

Chairman	M. Harrison
Members:	M. Hannam
	W. Sekretaruk

Summary of Facts and Submissions

- I. An appeal was filed by appellant/opponent I against the interlocutory decision of the opposition division in which it found that European patent No. 1 210 925 in an amended form met the requirements of the EPC. A further appeal was filed by appellant/opponent II.
- II. The respondent (proprietor) requested that the appeals be dismissed or that the patent be maintained in an amended form according to one of auxiliary requests 1-7.
- III. The Board issued a summons to oral proceedings and subsequently a communication containing its provisional opinion, in which it indicated *inter alia* that Article 83 EPC may be a matter for discussion, particularly concerning the matter of how the comparative fibre densities were to be measured in the thin layer and around a depth of the core.
- IV. With letter of 18 December 2014 the proprietor filed new auxiliary requests 3, 4 and 7 to replace the similarly numbered auxiliary requests on file.
- V. Oral proceedings were held before the Board on 21 January 2015, during which the proprietor filed a new main request replacing all requests previously on file.

The appellants (opponents I and II) requested that the decision under appeal be set aside and that the European patent No. 1 210 925 be revoked. The respondent (proprietor) requested that the European patent be maintained on the basis of the main request, dated 21 January 2015.

VI. Claim 1 of the main (sole) request reads as follows:
"A disposable diaper (1) comprising:
a liquid-pervious topsheet (2);
a liquid-impervious backsheet (3);
a liquid-absorbent core (4) covered with an absorbent and diffusive sheet (33) and disposed between said topsheet and said backsheet;
said core being formed on a side of said topsheet with at least one groove (15) depressed in a direction from a side of said topsheet toward a side of said backsheet and said groove has a bottom (34) and side walls (36) both covered with said topsheet;
said core containing water-absorbent fibers and superabsorbent polymer particles (32);
said water-absorbent fibers and superabsorbent polymer particles being partially disposed between said topsheet and said backsheet along said bottom of said groove;
said water-absorbent fibers forming a thin layer (41) in close contact with said absorbent and diffusive sheet (33) along the bottom (34) and side walls (36) of the groove (15), the water-absorbent fibers in the thin layer being distributed at a density higher than their density around a depth of said core,
said superabsorbent polymer particles being present inside the thin layer; and
said water-absorbent fibers being fluff pulp fibers;
wherein the thin layer is joined to an inner surface of the absorbent and diffusive sheet along the bottom (34) and side walls (36) of the groove (15);
wherein a distribution density of said superabsorbent polymer particles gradually increases in a thickness direction of said core from said topsheet toward said backsheet;
wherein the core (4) is entirely wrapped with the absorbent and diffusive sheet (33);

wherein the absorbent and diffusive sheet is joined to the topsheet over the bottom and side walls of the groove by means of adhesive; and wherein the thin layer is formed only along the bottom and the side walls of the groove."

VII. The following cited documents are pertinent to the present decision:

- Affidavit of Mr Igaue, dated 3 February 2011; and
- US-A-3 017 304.

VIII. The arguments of appellant/opponent I may be summarised as follows:

The claimed invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by the skilled person (Article 83 EPC). No indication was given as to how the thin layer could be achieved only in the specific region now claimed; this was all the more so when considering that the products of the invention were themselves described as having thicknesses down to 2 mm. Merely pressing a groove in the diaper core would not provide a homogeneous distribution throughout the thin layer, even if the respondent's method of producing the core by adding extra fibres to the surface before pressing, were followed. This was anyway not disclosed. It was also neither apparent how a specific fibre density distribution in the thin layer could be controlled, nor how, for example, a homogeneous fibre distribution in the thin layer could be achieved, in particular considering the claimed SAP-particle distribution of increasing density, in order to allow the fibre distribution density to be compared in the manner defined in the claim. Patent US-A-3 017 304 was not a

suitable disclosure for the formation of a thin layer, since it did not include superabsorbent polymer in the disclosed core.

- IX. The arguments of appellant/opponent II may be summarised as follows:

Regarding Article 83 EPC, the expression 'thin layer' suggested a recognisable physical feature of the claimed diaper yet a clearly defined, distinct layer would not be formed by a simple compression of a core, whether homogeneous or not.

- X. The respondent's arguments may be summarised as follows:

Regarding Article 83 EPC, the thin layer could be formed through provision of additional fluff pulp fibres in the regions where compression of the groove(s) was to take place; this would result in the fibre distribution density in this region automatically being greater than elsewhere in the core.

Confirmation of fibre distribution density could occur through microscopic analysis of a 'slice' through the thin layer or uncompressed core, whereby individual fibres could be counted. Paragraph [0016] also disclosed how a structure of fluff pulp fibres was formed, in which superabsorbent polymer particles were also present. It was thus clear that the thin layer comprised primarily fluff pulp fibres. Furthermore, the affidavit of Mr Igaue indicated that the forming of a thin layer on the surface of an absorbent core was well understood by the skilled person at least through the application of moisture and pressure.

When making the comparison of fibre distribution density, the value could be taken at any point in the thin layer and compared to any point in the depth of the absorbent core. The relative value (i.e. higher or lower) would also hold true even if an average fibre distribution density were measured over the thin layer and compared to that in the core.

Reasons for the Decision

1. Main request

1.1 Article 83 EPC 1973

Even though objections to claim 1 were raised under Articles 84 and 123(2) EPC, the reasoning for the Board's findings on these objections are not necessary for the purposes of this decision, since the main request contravenes Article 83 EPC 1973.

1.2 The objections found to prejudice maintenance of the patent under Article 83 EPC 1973 include at least that no method is provided allowing the skilled person to reliably determine the fibre distribution density in the thin layer of the claimed disposable diaper.

1.3 Fibre distribution density in the thin layer

1.3.1 No indication is provided in the patent as to where in the thin layer the fibre distribution density is to be measured or how it is to be measured, which, due to expected differences in fibre distribution density throughout the thin layer as identified in the following, would be necessary for the invention to be

carried out.

The thin layer is defined in claim 1 as extending along the bottom and side walls of the groove while being in contact with the absorbent and diffusive sheet. The sole indication in the patent as to how the groove might be formed is in col. 4, lines 7 to 10, i.e. through the application of heat and pressure on the core (albeit with thermoplastic synthetic fibres). At the oral proceedings before the Board, the respondent further stated that the claimed higher fibre distribution density in the thin layer could be achieved through providing additional fluff pulp fibres in the regions where compression of the groove(s) was to take place, albeit this was not described.

1.3.2 When following such a method of preparing the thin layer, the additional fluff pulp fibres would be compressed along with the core to form the groove, yet clearly the compression acting from the topsheet towards the backsheet will tend to move and compress fibres to the bottom of the groove rather than on to the side walls. A skilled person would recognise that a significant difference between fibre distribution density would inevitably result between the volume of fibres at the bottom of the groove and that at the side walls of the groove, which the respondent regarded as the 'thin layer' of claim 1. Thus, in order for the skilled person to determine a representative fibre distribution density in the thin layer, detail must be provided as to where in the thin layer this is to be measured.

1.3.3 It is also noted at this juncture that the only disclosed way in which the grooves are formed, together with the claimed joining of layers, in the patent would

prevent the skilled person from measuring the fluff pulp fibre distribution density in the thin layer.

According to col. 2, line 57 onwards, superabsorbent polymer (SAP) particles are present in the vicinity of the bottom and side walls of the groove. These SAP particles are partially joined with the absorbent and diffusive sheet with adhesive. The core, according to col. 4, lines 3 to 10, may also comprise thermoplastic synthetic fibres which melt and deform when the grooves are compressed into the core. Even though these passages refer to the embodiment of Fig. 2, there is no reason to conclude that the same method of groove formation does not occur for the embodiment of Fig. 4 in which a thin layer is present along the bottom and side walls of the groove. Indeed, no other method is given.

From the above, it follows that the fluff pulp fibres present in the thin layer along the bottom and side walls of the groove are surrounded by a combination of SAP particles adhered to the absorbent and diffusive sheet and possibly thermoplastic synthetic fibres which are melted and deformed. It is thus not considered reasonable, given the disclosure in the patent, for the skilled person to be able to identify fluff pulp fibres in such a matrix of polymer particles and thermoplastic fibres. Even if, as suggested by the respondent, microscopic analysis of a slice through the thin layer were to be used as the method of analysis (albeit that this is also not disclosed in the patent), this method would evidently not allow clear identification of fluff pulp fibres. This is particularly the case due to the remaining diaper thickness at the bottom of a groove potentially being only 10% of 2mm (see data for core thickness t and groove depth d in para. [0012]), this

remaining diaper thickness (i.e. 0.2mm) having to incorporate a backsheet, topsheet and absorbent and diffusive sheet within it before the thickness of the thin layer is even considered.

1.3.4 Furthermore, this thin layer, also in the region below the groove, in accordance with the claim contains SAP particles, such that the method of determination and particularly the location of the measurement sample are highly important factors. None of these is however disclosed in the patent. It is evident that a local measurement (encompassing a measurement within a small volume, for example) where a high concentration of SAP particles exists necessarily implies that fibres are not present, even though immediately adjacent to this area the fibre distribution density may be very high. In this regard it is noted that the patent does not define whether a local value or average value is to be used, nor how large any such local volume should be. Thus, when making a comparison of a local fibre distribution density to a fibre distribution density in the core (see also below), the ability to establish any useful value depends entirely on the measurement method and location, neither of which is given.

1.3.5 The respondent's argument regarding the application of additional fluff pulp fibres prior to groove formation necessarily providing a thin layer with a higher fibre distribution density than the remaining core is not accepted. As found in 1.3.2 above, the disclosed groove formation through compression would alone produce a significantly non-homogeneous fibre distribution between the bottom and the side-walls of the groove. This non-homogeneity would be exacerbated through any variable distribution of fluff pulp fibres present in the thickness direction of the core i.e. from topsheet

to backsheet (see col. 2, lines 50 to 57). The consequence is that the fibre distribution density within the thin layer when produced in the only way disclosed, would vary to such an extent that the skilled person would require guidance as to precisely where in the thin layer the claimed fibre distribution density comparison is to be made. No such guidance is given in the patent.

1.3.6 The extent of the thin layer and its boundary to the remaining core would also not be clearly recognisable in the claimed diaper, such that the skilled person would not unambiguously know where in the diaper to measure the fibre distribution density of the thin layer. The respondent's suggestion that, as referred to in Mr Igaue's affidavit and described in US-A-3 017 304, the thin layer would be produced through compression of a wetted portion of the core and would thus be readily identifiable as a defined layer, was not convincing. The core of the claimed diaper includes SAP particles, unlike US-A-3 017 304 which consists solely of wood pulp (see col. 8, lines 40 to 49), such that exposure of the claimed core to compression in the presence of water would respond differently due to the presence of the SAP particles in the core. The respondent was thus unable to convince the Board that a thin layer with any measure of defined boundaries would result from the skilled person carrying out the invention as disclosed in the patent.

1.3.7 It thus follows that the fluff pulp fibre distribution density in the thin layer cannot be reliably ascertained by the skilled person based on the information provided in the patent as a whole.

1.4 In view of the above, following the disclosure provided in the patent, the skilled person would be unable to reliably ascertain the fibre distribution density in the thin layer in order to arrive at any meaningful comparative fibre distribution density with that around a depth of the core. This conclusion under Article 83 EPC 1973 results in the finding that the patent in suit does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The European patent is revoked.

The Registrar:

The Chairman:



M. H. A. Patin

M. Harrison

Decision electronically authenticated