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**DECISION
of 4 October 2000**

Case Number: T 0599/97 - 3.2.6

Application Number: 94909475.9

Publication Number: 0680527

IPC: D04B 21/00

Language of the proceedings: EN

Title of invention:

Fabric backing for orthopedic support materials

Applicant:

MINNESOTA MINING AND MANUFACTURING COMPANY

Opponent:

-

Headword:

Fabric Backing/3M

Relevant legal provisions:

EPC Art. 82, 84, 123(2)
EPC R. 29(1)

Keyword:

"Novelty - yes"
"Inventive step - yes"

Decisions cited:

-

Catchword:

-



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Boards of Appeal

Chambres de recours

Case Number: T 0599/97 - 3.2.6

D E C I S I O N
of the Technical Board of Appeal 3.2.6
of 4 October 2000

Appellant:

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Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 14 January 1997
refusing European patent application
No. 94 909 475.9 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: P. Alting van Geusau
Members: G. C. Kadner
M. J. Vogel

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Summary of Facts and Submissions

- I. European patent application No. 94 909 475.9, filed as an international application on 19 January 1994, and published under the international publication number WO 94/17229, was refused by a decision of the Examining Division dated 14 January 1997.

- II. The decision was based on the set of 31 claims filed with letter dated 1 October 1996 .

The decision to refuse the application was issued following the response of the Applicant to the first communication of the Examining Division, said communication referring to the deficiencies mentioned in the international preliminary examination report drawn up for the present application.

The Examining Division held that the objections raised in the communication relating to lack of unity, lack of clarity due to missing essential features in the claims, inconsistencies in the description and lack of novelty and/or inventive step had not been overcome. Therefore substantial deficiencies as referred to in this communication remained, and therefore the application had to be rejected.

The following documents were cited in the examining procedure:

- (D1) WO-A-90/02539

- (D2) GB-A-2 257 440

- (D3) WO-A-83/01736

- (D4) US-A-4 668 563

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(D5) US-A-4 940 047

(D6) US-A-4 667 661

(D7) US-A-4 574 793

(D8) Dipl.-Ing. I. Heidenreich, Dipl.-Ing. H. Ninow:
Microfasern - Modewelle oder Standard von morgen?
Melliand Textilberichte 12/1991

III. The Appellant (Applicant) lodged an appeal against this decision on 13 March 1977 and paid the appeal fee on the same day. Together with the statement of grounds of appeal, filed on 16 May 1997, the Appellant submitted a new set of claims 1 to 32. The Appellant argued that the requirements of Article 113(1) EPC had been violated by the Examination Division which called for a refund of the appeal fee.

IV. In a communication, the Board of Appeal expressed the preliminary opinion that the application documents were partially contradictory, and insofar did not meet the requirements of Article 84 EPC. Reasons were given as to why the Appellant's submission in respect of a violation of Article 113(1) EPC were not considered valid.

V. Following an interview with the rapporteur of the Board and a further telephone conversation the Appellant filed new claims 1 to 24 with letter dated 1 September 2000, and amended pages 2, 3a, and 6 of the description.

VI. The Appellant requests grant of a patent based on these documents together with amended pages 1, 3 to 5, and 7 to 28 as filed with letter dated 13 July 2000. The request for reimbursement of the appeal fee was withdrawn.

The current independent claims 1, 20 and 24 read as follows:

"1. A resin-coated sheet material comprising:

- (a) an extensible knit fabric comprising different non-fiberglass yarn components; and
- (b) a curable resin coated on the fabric,

characterized in that one of the yarn components is a non-fiberglass micro-denier yarn of no greater than 1.65 dtex (1,5 denier), and wherein the knit fabric has an extensibility of 15-100 % measured 1 minute after applying a load of 0,26 N per mm.

20. A method of making the resin-coated sheet material of any preceding claim, the method comprising the steps of:

- (a) knitting the stretch yarn, micro-denier yarn, and stiffness-controlling yarn with a three-bar warp knitting machine;
- (b) shrinking the fabric;
- (c) calendaring the fabric to reduce the thickness of the fabric; and
- (d) coating a curable resin on the fabric.

24. Use of the resin-coated sheet material of any of claims 1-19 for preparing an orthopaedic support material."

VII. In support of its request the Appellant mainly argued that the Examining Division was wrong in supposing that the non-fiberglass yarn "PA 1" disclosed in D5, table 2, was a "microdenier" yarn. It was apparent for the skilled person that this example contained two piles of a yarn of 110 dtex and 34 single filaments. The resulting filament size then amounted to a value of 3.22 dtex per filament. Since the use of microdenier yarns in a resin-coated extensible knit fabric was not hinted at in the prior art the claimed subject-matter was inventive.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments*
 - 2.1 The features of claim 1 are essentially disclosed in the originally filed claims 1, 2, and description, page 4, lines 8 to 19, page 6, lines 28 to 30. The indication "*comprising different non-fibreglass yarn components*" follows from the disclosure in the description that no fiberglass should be incorporated in the knit material, and the examples according to which the knit fabric comprises a microdenier yarn in combination with a non-fiberglass stretch yarn and/or a non-fiberglass stiffness controlling yarn (see the originally filed claims 7 and 11).

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Since the state of the art according to document US-A-4 940 047 (D5) which forms the precharacterising portion of claim 1, discloses a resin-coated sheet material comprising *two non-fiberglass yarn components* the term "*different*" in the statement indicating the designation of the subject-matter of the invention correctly indicates that at least two different yarns are present in the fabric.

- 2.2 Claims 3 to 15, 17, 18, and 20 to 24 are covered by the originally filed claims 3 to 13, 14, 15, 20, 23, and 28 to 31. The subject-matter of claim 2, 16, and 19 is disclosed in the originally filed description, page 6, lines 28 to 31, page 9, lines 12 to 13, and page 19, lines 24 to 26, respectively.
- 2.3 In the Board's opinion it is allowable in the present case to use the expressions "impregnated" and "coated" for equivalent processes. The prior art disclosed in US-A-4 940 047 also uses both these terms in the same meaning.
- 2.4 In view of the above findings the present application documents do not give rise to objections under Article 123(2) or Article 84 EPC.

3. *Novelty*

- 3.1 In none of documents D1 to D7 is a microdenier yarn mentioned *expressis verbis*. Considering D5, the Board agrees with the Appellant that the yarn "PA 1" in table 2 of D5 is a 220 dtex yarn. The expression "110 dtex, f 34 x2" means that the yarn has 2 threads, each of 110 dtex and 34 filaments which leads to the conclusion that the single filament is a 3.22 dtex filament.

3.2 Also considering the reference in column 3, line 43 to the book "Synthesefasern", published in 1981, it is clear that the disclosure of D5 does not concern microdenier yarns in the meaning of the patent (≤ 1.65 dtex) since there are only mentioned "feintitriche Filamentgarne" (fine-denier yarns) of 3 to 22 dtex.

3.3 The definition of "Mikrofasern" (microfibers) given by D8 refers to those comprising single filaments of ≤ 1 dtex whereas in the present application they are defined as no greater than 1.65 dtex. Document D8 discloses microdenier yarns of no greater than 1.65 dtex as such, and as can be seen from "Bild 3", the trends to the development of these yarns started about 1980. However, there is no information about the use of microdenier yarns of no greater than 1.65 dtex as one of different yarn components in a knit fabric of the specified extensibility of claim 1.

3.4 Therefore the use of microdenier yarn of no greater than 1.65 dtex in a knit fabric establishes novelty of the subject-matter of claim 1.

3.5 Claim 20 concerns a method and claim 24 concerns the use of the resin-coated material of claim 1. Novelty of the subject-matter of these claims is therefore supported by the novelty of the resin-coated material defined in claim 1 .

4. Inventive step

4.1 The closest state of the art is represented by D5 relating to construction materials, in particular for medical support dressings. By substitution of glass fibres by other organic fibers radiolucency of the sheet-like structure is improved (column 7, lines 45 to 46).

The further object to be solved by the subject-matter of the present application is to provide a backing material that is sufficiently conformable to a patient's limb, has low potential for constriction, resists wrinkling during application, and provides a cured cast that exhibits high strength, rigidity, and porosity.

These objects are solved by the resin-coated material defined in claim 1, and in particular by using a microdenier yarn of no greater than 1.65 dtex in a knit fabric having the specified extensibility.

- 4.2 The only document which relates to microdenier yarns is D8, and it describes the application of those yarns in clothing and fashion industry. According to this prior art high watertightness is achieved in wefts. There is no information about the properties when microdenier yarn is used in knits.
- 4.3 Considering this teaching of D8 concerning the properties of microdenier yarns and the resulting high watertightness in wefts, no suggestion is derivable that by the application of a microdenier yarn in a knit fabric any of the relevant parameters of the material known from D5 could be improved. Furthermore, the indicated high watertightness is considered to go against the desired improved resin holding capacity of the claimed material. Consequently there is no lead to be found in D8 to use microfilament yarns in a resin-coated sheet material as known from D5.
- 4.4 Therefore the skilled person would not arrive at the subject-matter of claim 1 without the exercise of inventive activity in the meaning of Article 56 EPC.

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4.5 By their incorporation of the resin-coated material of claim 1, claims 20 and 24 include the same inventive subject-matter.

5. Summarising, in the Board's judgement, the proposed solutions to the technical problem underlying the present patent application defined in the independent claims 1, 20, and 24 are inventive and therefore these claims as well as their dependent claims relating to particular embodiments of the invention in accordance with Rule 29(3) EPC, can form the basis for grant of a patent.

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Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to grant a patent on the basis of:

Claims: 1 to 24, filed with letter dated
1 September 2000

Description: pages 1, 2, 4, 5, and 7 to 28, filed
with letter dated 19 July 2000
pages 3, 3a, and 6, filed with letter
dated 1 September 2000
pages 29 to 48 as originally filed

Drawings: 4 sheets, Figures 1a to 7, as originally
filed

The Registrar

The Chairman

M. Patin



P. Alting van Geusau




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