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Aktenzeichen / Case Number / N<sup>o</sup> du recours : T 169/88 - 3.2.1

Anmeldenummer / Filing No / N<sup>o</sup> de la demande : 80 100 705.5

Veröffentlichungs-Nr. / Publication No / N<sup>o</sup> de la publication : 0 022 895

Bezeichnung der Erfindung: A cotton yarn-like textured composite yarn and a  
Title of invention: process for manufacturing the same  
Titre de l'invention :

Klassifikation / Classification / Classement : D02G 1/02

ENTSCHEIDUNG / DECISION

vom / of / du 27 March 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

TEIJIN LIMITED

Einsprechender / Opponent / Opposant :

Viscosuisse SA  
Hoechst Aktiengesellschaft

Stichwort / Headword / Référence :

EPO / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step regarding the product (yes)" -  
"Inventive step regarding the process for  
producing the product (no)"

Leitsatz / Headnote / Sommaire



Case Number : T 169/88 - 3.2.1

**D E C I S I O N**  
of the Technical Board of Appeal  
of 27 March 1990

Appellant I :  
(Opponent 02)

Hoechst Aktiengesellschaft  
Postfach 800320  
D-6230 Frankfurt am Main 80

Appellant II :  
(Opponent 01)

Viscosuisse SA  
CH-6020 Emmenbrücke (CH)

Respondent :  
(Proprietor of the patent)

TEIJIN LIMITED  
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Representative :

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Decision under appeal :

Decision of the Opposition Division of the European  
Patent Office dated 17 February 1988 rejecting  
the oppositions filed against European patent  
No. 0 022 895 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : F. Gumbel

Members : M. Liscourt

W. Moser

## Summary of Facts and Submissions

I. European patent application No. 80 100 705.5, which had been filed on 12 February 1980, claiming priority from a Japanese application filed on 24 July 1979, was granted as European patent No. 0 022 895 on 6 February 1985.

II. Notices of opposition were filed requesting the complete revocation of the patent in suit on the grounds that its subject-matter was not patentable within the meaning of Articles 52 to 57 EPC.

During opposition procedure, the following documents were particularly cited:

- (I) DE-A-1 760 214
- (II) DE-A-1 915 821
- (4) DE-A-1 660 492
- (7) JP-53-65436.

III. In a decision posted on 17 February 1988, the Opposition Division rejected the oppositions.

IV. Appellants I and II (Opponents 02 and 01) filed notices of appeal on 12 April 1988 and 14 April 1988, respectively, and paid the appeal fees at the same time. Statements setting out the grounds of appeal were filed on 27 June 1988 and 14 April 1988, respectively.

Appellant I submitted that the patent in suit ought to be revoked because the combined teaching of documents (I) and (II) would render obvious the process according to Claim 10 and thus by way of implication also of the product

according to Claim 1 of this patent. Appellant II, on his part, objected that the yarn as defined in Claim 1 of the patent in suit did not involve an inventive step in view of the teaching of documents (II) and (7).

- V. The Respondent (proprietor of the patent in suit) objected to the arguments set forth by the Appellants and came to the conclusion that the latter had failed to prove their allegation that the decision under appeal was based upon inconsistent considerations and that the patent in suit should be revoked.
- VI. In a communication attached to the summons to oral proceedings, the Board expressed its provisional opinion that, even if Claim 1 were considered to be allowable, this would not necessarily imply that the process according to Claim 10 was also allowable, since there was no explicit or implicit indication to be found showing that said process claim was limited and sufficiently adapted to the production of the yarn according to Claim 1.
- VII. On 22 February 1990, Appellant II filed observations on the Respondent's replies to the statements of grounds, maintaining that a mere combination of documents (II) and (7) would lead to the subject-matter of Claims 1 and 10 of the patent in suit.
- VIII. During the oral proceedings held on 27 March 1990, the Respondent submitted that the patent in suit be maintained on the basis of either of the following requests:

(a) main request:

Claims 1 and 10 submitted during oral proceedings;  
Claims 2 to 9 and 11 to 14 as granted; description and drawings as granted;

(b) subsidiary request:

Claims 1 to 9 and description as submitted at the oral proceedings, drawings as granted.

The Appellants maintained their requests that the decision under appeal should be set aside and that the patent in suit should be revoked.

IX. Claim 1 according to both requests submitted by the Respondent and Claim 10 according to his main request read as follows:

1. "A false twist textured composite yarn having the appearance and touch of a cotton yarn, said textured composite yarn comprising a core yarn and a sheath yarn composed of more than 40 filaments having a thickness less than 2 deniers per filament, said sheath yarn being wrapped around the core yarn with a length difference ratio of at least 15%, wherein a part of said filaments of the sheath yarn are wrapped around the core yarn with successive alternate twists in which a wrapping angle of a helix of the S- and Z-twists is  $360^\circ$  or less than  $360^\circ$ , while said part of said filaments being substantially cohered and at least partially adhered to the core yarn by fusion of the core yarn at the boundary region where the component filaments of the sheath yarn and the core yarn meet, and the remaining component filaments of the sheath yarn being individually separate from each other and being wrapped around the core yarn and the coherent filaments while said remaining filaments are in a crimped state, so that a three-layer structure is formed."

10. "A process for producing a composite yarn according to Claim 1 comprising over feeding a multifilament yarn (B) composed of more than 40 filaments having a thickness less than 2 deniers per filament to a synthetic continuous filament yarn (A) having a break elongation of at least 70% in a false-twisted state and a fusing temperature lower than that of said yarn (B); wrapping the yarn (B) around the yarn (A) by use of rotational force of the yarn (A); simultaneous draw-false twisting (i.e. in-draw texturing) the yarns (A) and (B) at a draw ratio of (Rf) from 1.1 through a value of the break elongation represented by percentage of the yarn (A) $\times 0.01 + 0.8$  and under processing temperature between the fusing temperatures of said multifilament yarns (A) and (B); fusing the yarn (A) in the state wherein the yarn (B) is wrapped around the yarn (A); and untwisting the yarns (A) and (B)."

#### Reasons for the Decision

1. The appeals comply with Articles 106 to 108 and Rule 64 EPC and are, therefore, admissible.
2. Claims 1 and 10 as granted have been amended during appeal proceedings.
  - 2.1 Claim 1 has been modified by adding the feature "in which a wrapping angle of a helix of the S- and Z-twists is 360° or less than 360°". This feature was already present in the application as originally filed (see page 3, lines 10 to 13), where it was combined with the other features of Claim 1. It is also present in the description of the patent in suit.
  - 2.2 Claim 10 has been modified by adding a reference to Claim 1 which limits the purpose of the process to the production

of a yarn as defined in Claim 1. This purpose was clearly disclosed in the originally filed description.

2.3 Therefore, Claims 1 and 10 now on file satisfy the requirements laid down in Article 123(2) EPC. Moreover, since the scope of these claims has been restricted through the addition of limiting features, the requirements of Article 123(3) EPC are satisfied as well.

2.4 Thus, from a formal point of view, these amended claims are allowable.

3. As regards patentability of the product according to Claim 1, the following is to be observed:

3.1 None of the cited documents shows a yarn having a wrapping angle of 360° or less. Consequently, the subject-matter of Claim 1 is novel.

3.2 In document (II), which may be considered to represent the closest prior art among the cited documents, a false twist composite yarn is described comprising a core yarn and a sheath yarn composed of filaments having a certain thickness and being wrapped around said core yarn with a length difference ratio of e.g. 18%, wherein a part of said sheath yarn filaments are wrapped around the core yarn with alternate twists, whereby said part of filaments are substantially cohered.

3.3 In order to avoid mutual slippage of the sheath and core filaments and thus to enhance structural stability of the composed yarn and bring about the appearance and touch of a cotton yarn, the yarn defined in Claim 1 differs from the yarn disclosed in document (II) in that it shows in particular the following additional features:

the part of the sheath filaments being substantially cohered is at least partially adhered to the core yarn by fusion of the core yarn, the wrapping angle, the titre and the number of sheath filaments fulfil certain conditions and a three layer structure is formed. The question now arises whether these additional features involve an inventive step having regard to the state of the art (within the meaning of Article 56 EPC).

- 3.4 According to Appellant II, the man skilled in the art who wanted to perform the process according to document (II), being faced with the difficulties of handling said yarn because the sheath filaments can slide along the core filaments, would have been automatically led to the solution of document (7), as described in the translation of said document (7) filed by Appellant I on 22 February 1990. This translation has been challenged by the Respondent because, in his view, there was no certainty that this document represented a correct translation of said document (7). However, no evidence was provided in this respect.

Therefore, in the Board's view, there is no reason to doubt the correctness of the translation of document (7) on file. However, even if the man skilled in the art would have thought to combine the respective teaching with the one of document II, this would not lead to the subject-matter of Claim 1 because, as noticed by the Respondent, said document (7) nowhere states that the filaments of the sheath are adhered to the filaments of the core by fusion of the core yarn filaments; even if the handling temperatures were the same, there are some other parameters which have to cooperate to bring different filaments to adhere, such as the drawing speed and the length of the heater, which facts have not been established in document (7) to be of a kind such as to cause adherence by fusion of the core yarn filaments.



In addition, the special way the sheath is arranged around the core at an "angle of 360° or less" was neither known from nor suggested by the cited documents, even when combined with document DE-A-2 255 460, which is a continuation of document (II), and the result consisting in the cotton-like aspect could not be expected.

3.5 According to Appellant I, it is usual for any skilled person making synthetic yarns to produce at least a yarn reproducing the aspect of cotton fibers as mentioned for example on page 19, line 15 in document (4) and to do so by adopting fibers having the adapted denier. Therefore, if the man skilled in the art is faced with the partial problem which is exposed in the impugned patent and consisting in achieving a yarn having the appearance and touch of a cotton yarn, he would obviously apply such fine sheath fibres when using the teaching of document (II) with overfeed of the sheath filaments. This may be true but, for the reasons set out above, this does not, in the Board's judgment, mean that he would automatically obtain the structure of the claimed yarn with the three layers.

3.6 It has also been submitted that a combination of the teachings of documents (I) and (II) would have led the man skilled in the art, faced with the problem of the present patent, to the subject-matter of Claim 1, because in document (I) there is advice that such a texturising process can provide for a yarn having excellent properties for further processing and because this document for achieving these properties describes a process wherein the handling temperature is about the fusion temperature of one of the components so that a sticking of the components to one another would occur.

However, there is no suggestion in document (I) to set the processing conditions in such a way that the components stick together without forming a single cohesive filament, thus leading to the three-layer structure as specified in Claim 1.

- 3.7 It appears, therefore, that the man skilled in the art faced with the problem underlying the invention would not have succeeded in reaching the solution consisting in the yarn which is the subject-matter of Claim 1, without performing inventive activity. The subject-matter of Claim 1, therefore, is considered to involve an inventive step according to Articles 52 and 56 EPC.
4. As Claims 2 to 9 are of the same category and deal with particular embodiments of the yarn according to Claim 1, their subject-matter also satisfy the requirements of Articles 52 and 56 EPC.
5. As regards the process forming the subject-matter of Claim 10, the Board's considerations are as follows:
- 5.1 In agreement with what was stated by the Appellants, Claim 10 does not, in the Board's judgement, comprise all features necessary in view of obtaining the yarn as defined in Claim 1; some of these features can only be found in the description. In particular, the features concerning the 15% overfeed and the specific measures enabling solely a part of the sheath yarn filaments to cohere and to adhere to the core thus forming the claimed three-layer structure with separate outer sheath filaments are missing in Claim 10. Thus, despite the reference to Claim 1, Claim 10 cannot be considered to represent a claim for a process specially adapted for the manufacture of the product (Claim 1) within the meaning of Rule 30(a) and (c) EPC. It cannot be duly said, in the present case, that via the reference to

Claim 1 additional aspects specifying the process are introduced into Claim 10 by implication. In any case, given the fact that Claim 10 relates to a different category, it has to be considered to be an independent claim, the patentability of which has basically to be assessed separately (cf. Pagenberg, Münchner Gemeinschaftskommentar, 5. Lieferung, Erfinderische Tätigkeit, Article 56, Rdu. 14).

5.2 From the fact that Claim 10 represents an independent claim aimed at a process not specially adapted for the manufacture of the claimed product it ensues that there exists no stringent connection between the patentability of product Claims 1 to 9 on the one hand and the process Claims 10 to 14 on the other (cf. T 01/81 "Thermoplastische Muffen", OJ EPO 1981, 439, point 4). In this context, reference is also made to points 5 and 6.1 of the earlier decision T 189/88 dated 15 December 1989 of this Board.

6. Concerning patentability of the subject-matter of Claim 10, the following is observed:

6.1 As exposed by the Appellants in their written and oral submissions, from documents 7 or (II) a process for making a composite yarn is known comprising most of the features of the process according to Claim 10. If it is found by the skilled person that the yarns produced by this process show the drawback that the sheath filaments slide along the core filaments during the handling of said yarns, which produces faults in the products made with said yarns, this certainly would motivate this person to search in the respective literature if said problem had already been solved. Thus, document (I) would offer him a solution in the form of a process showing the same main features and in which, furthermore, in order to arrive at a yarn having excellent handling properties, the filaments of the core yarns have a

fusing temperature which is lower than the one of the sheath yarn, and in which process the heating means of the draw-false twisting device are heated at a temperatures situated between the two fusing temperatures so that by combining the teachings of the documents (I) and (II), or (I) and (7) and choosing the sheath filaments in number and fineness such that the desired cotton-like appearance could be expected (see suggestions in document (4)), the man skilled in the art would arrive at the process according to Claim 10 without the exercise of an inventive activity.

6.2 It has been objected by the Respondent that the processes of documents (II), (I) and (7) cannot lead to the result that only a part of the sheath filaments are fused together at the boundary regions and adhered to the core filaments whilst the other part of the sheath filaments remain individually separate, thus forming a three-layer structure. Although this is true, the Board holds that the corresponding process features are not fully stated in Claim 10 and, therefore, this aspect cannot be taken into account.

6.3 According to the Respondent, the product which is obtained by the process of Claim 10 shows enhanced properties which are in favour of inventive step. Although the yarn according to Claim 1 satisfies these conditions, this fact cannot be taken into account in favour of the process as long as it is not the direct result of the process steps or process conditions set out in Claim 10.

6.4 It has been observed that although the man skilled in the art had had the opportunity to combine the teachings of documents (I) and (II) for ten years, nobody came upon the idea of doing so.

This fact may in certain cases be an additional indication which could influence the appreciation of inventive step in cases where there is a doubt but which does not suffice per se to prove an inventive step in the absence of any reasoning relating to serious difficulties or a prejudice which may have prevented the skilled person from combining the respective teachings.

- 6.5 For the above reasons, no inventive step can be recognised in the subject-matter of Claim 10, which, hence, does not satisfy the requirements of Articles 52 and 56 EPC.
7. For these reasons, the main request concerning Claims 1 to 14 cannot be accepted.
8. Since the auxiliary request is restricted to Claims 1 to 9, the subject-matter of which is patentable (see points 3 and 4 above), said auxiliary request is allowable.

The objection of insufficient disclosure under Article 100b EPC raised by Appellant I during the oral proceedings was not substantiated. The Board has no doubts that the patent as a whole, particularly in the given Examples, provides sufficient disclosure to the skilled person to arrive at the product of Claim 1 without the exercise of inventive skills.

#### Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The main request is rejected.

3. The case is remitted to the first instance with the order to maintain the patent on the basis of the documents according to the above auxiliary request (Claims 1 to 9 and description as submitted at the oral proceedings, drawings as granted).

The Registrar:

*S. Fabiani*

S. Fabiani

The Chairman:

*F. Gumbel*

F. Gumbel

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