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**Datasheet for the decision
of 13 December 2007**

Case Number: T 1034/05 - 3.2.06

Application Number: 98919959.1

Publication Number: 0910690

IPC: D04H 1/46

Language of the proceedings: EN

Title of invention:

Simplified process for making thick fibrous structures

Patentee:

Goodrich Corporation

Opponent:

Messier-Bugatti

Headword:

-

Relevant legal provisions:

EPC Art. 123(2), 84, 83

Relevant legal provisions (EPC 1973):

-

Keyword:

"Main request - remittal to department of first instance"

Decisions cited:

-

Catchword:

-



Case Number: T 1034/05 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 13 December 2007

Appellant: Goodrich Corporation
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 12 July 2005
revoking European patent No. 0910690 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Alting Van Geusau
Members: M. Harrison
K. Garnett

Summary of Facts and Submissions

- I. This case concerns the appeal by the appellant (proprietor) against the decision of the Opposition Division posted on 12 July 2005 revoking European patent number 0 910 690.
- II. With its grounds of appeal, the appellant filed a main request and a series of auxiliary requests.
- III. In its communication of 21 September 2007, the Board informed the parties *inter alia* that claim 1 of all requests did not appear to fulfil the requirements of Article 123(2) EPC.
- IV. In the appellant's submission of 13 November 2007, five additional auxiliary requests were filed.
- V. During the oral proceedings of 13 December 2007, the appellant replaced all requests by a main request including a single independent claim and two dependent claims.

The appellant requested that the decision under appeal be set aside and that the patent be maintained in an amended form based on the claims of the main request.

- VI. The respondent (opponent) requested dismissal of the appeal.

VII. Claim 1 of the main request reads as follows:

"A needle-felting process, comprising the steps of:
- feeding loose fiber (40,140) into a needle-felting machine (10,100) and repeatedly driving a multitude of felting needles (20,120) into said loose fiber (40, 140) thereby binding said loose fiber (40,140) into a coherent fibrous structure (42,62,142) having a thickness (46,70,146) that increases as loose fiber (40,140) is accreted to said fibrous structure (42,62,142) wherein the loose fiber is disposed over the coherent fibrous structure as a mass of loose fiber consisting of disordered loose fiber said multitude of felting needles (20,120) initially penetrate all the way through said fibrous structure (42,62,142) and eventually do not penetrate all the way through said fibrous structure (42,62,142) as said thickness (46,70,146) increases."

VIII. Dependent claim 3 of the main request reads as follows:

"The process of claim 1, further comprising the steps of:
- repeating disposing and accreting said loose fiber (40,140) a multitude of times until said thickness (46,70,146) reaches said desired thickness."

IX. The appellant's submissions may be summarised as follows:

Claim 1 of the main request was essentially a combination of filed (and granted) claims 1, 3 and 7. The term "mass" was used throughout the application in relation to loose and disordered fibre, whereby the

amendment to claim 1 to include this term was not open to objection. Likewise, the filed and granted claims did not put any restriction on the point in time when the disordering was carried out. The requirements of Article 123(2) EPC were thus met.

The subject matter of claim 3 as amended was clear. The expression "said desired thickness" was already present in granted claim 5, from which claim 3 emanates. No objection to clarity under Article 84 EPC arose out of the amendments made and thus an objection of lack of clarity under Article 84 EPC was not available for use by the opponent.

The objection under Article 83 EPC was unwarranted. From the disclosure in the patent, the skilled person could perform the needle-felting process claimed. The objections raised by the respondent related to perceived properties of the resultant products, which were not part of the claimed invention. All steps of the claims could be carried out without any difficulty by a skilled person.

The subject matter of claim 1 was novel over:

D1: WO-A-98/36187

In particular, D1 did not disclose loose fibre being disposed as a mass of loose fibre, nor did it disclose that the fibre was disposed as disordered loose fibre.

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

Claim 1 did not specify that fibre was first placed on the web and then disordered, but merely that it was disposed as a mass of disordered fibre. The description in the filed application only supported the steps of disposing and then disordering. The amendment was thus contrary to Article 123(2) EPC.

The expression "said desired thickness" in claim 3 was unclear, since no antecedent existed for the terminology "desired thickness" and the word "desired" had no comprehensible meaning for a skilled person. The requirements of Article 84 EPC were thus not met.

Using the only disclosure in the patent, a skilled person would be unable to perform the invention of claim 1 across its entire scope. The EPO Boards of Appeal had consistently held this to be a requirement in relation to Article 83 EPC (see "Case Law of the Boards of Appeal of the European Patent Office", Section II.A.3, pages 202 to 205 of the French version of this publication, as supplied by the respondent in its letter of 12 November 2007). For the fibrous products to be made by the process of the invention, including the main types of products which would be envisaged, such as annular blanks for disc brakes, a high degree of homogeneity/uniformity was always required within and throughout the entire structure. This was shown in, for example, the prior art documents in the file. With the method shown in e.g. Fig. 9 of the patent, which also covered the manufacture of such products, the depicted cross-lapping method resulted in a large build-up of material at the inner edge of

smallest diameter, which was greater than that at the outer edge when the material was lapped back upon itself, which provided a non-uniform and locally piled-up structure. Moreover, no means were disclosed as such for providing cross-lapping as shown in Fig. 9, which required somehow keeping the cross-lapped fibre within the borders of the inner and outer circumferences of the underlying coherent fibrous structure. Additionally, adequately flat faces of the fibrous structure could not be obtained, even though this was disclosed as being the case in e.g. column 14, lines 14 to 18. As regards the possibility of feeding a mass of loose disordered fibre, which was apparently also covered by the terminology in claim 1, no means were disclosed for doing this. Likewise if disordering occurred after feeding, no means were disclosed for doing this. Claim 1, over its whole scope, however included such methods. The requirements of Article 83 EPC were not met since a skilled person could not carry out the invention without additional information to that disclosed in the patent.

The subject matter of claim 1 lacked novelty over D1. The only features in dispute were (i) loose fibre being disposed over a coherent fibrous structure and (ii) the loose fibre being disposed as a mass of loose fibre consisting of disordered loose fibre. As to feature (i), D1 disclosed, e.g. in Fig. 5A, a mass of loose fibre being disposed over the underlying coherent fibrous structure, in the form of a continuously laid ribbon or tow. The definition of "mass of loose fiber" did not exclude such an embodiment. As regard feature (ii), the ribbon in Fig. 5A was constituted by a large number of smaller fibres and these were only lightly joined to

each other within the ribbon. These smaller fibres, even if originally substantially parallel, which was not a requirement, were disposed in overlapping spiral paths and thus, with respect to one another in respective overlapping spiral paths, formed a disordered mass. If the ribbon or tow comprised threads or yarns, such were known to be formed by lightly twisted smaller fibres which were clearly disordered and thus represented a mass of loose fibre as defined in the claim.

Reasons for the Decision

1. *Article 123(2) EPC*

In the main request, claim 1 as granted has been amended by the introduction of the following features:

"wherein the loose fiber is disposed over the coherent fibrous structure as a mass of loose fiber consisting of disordered loose fiber".

The respondent argued that a step of disordering which was subsequent to the step of feeding the fibre (fiber) was not defined in claim 1 and thus the requirements of Article 123(2) were contravened. However, in claim 1 as well as claims 5 and 7 as filed, no restriction is made as to when the disordering is effected. In respect of the features of claim 1 as filed and the alternatively-phrased definition of at least some of those features in independent claim 5 as filed, it is evident that the invention in the application as filed provides an unambiguous disclosure of the step of disposing

disordered loose fibre, albeit at an unspecified location and time. Thus the amendment made to claim 1 as granted, by the introduction of the aforementioned features, as in the main request, does not contravene Article 123(2) EPC since the subject matter concerning the aspect of disordering was already part of the subject matter of the claims as filed. Due to the foregoing conclusion, it is unnecessary to consider whether the description as filed also discloses the step of disposing the fibre as disordered loose fibre, since the claims by themselves already provide sufficient basis for the amendment.

2. *Article 84 EPC*

The respondent's objections, to the expression "said desired thickness" in claim 3 as lacking clarity and to the expression having no antecedent despite the use of the word "said", relate to the requirements of Article 84 EPC. However, the expression includes features of a granted claim, namely granted claim 5, which, as a result of the amendments introduced by means of the main request, as such remain unaffected in meaning.

Thus an objection under Article 84 EPC is not available in respect of the objected expression, since Article 84 EPC is not an opposition ground as specified in Article 100 EPC, nor does the objection relate to terminology which became unclear as a result of amendments made to the patent.

3. *Article 83 EPC*

The various steps in claim 1 relate to a needle-felting process. None of these defines a process by which a specific product is produced, nor do the defined steps imply the use of automated arrangements which must be capable providing a particular level of homogeneity or uniformity, or any other specific product characteristic.

The respondent's objections are however in part related to the lack of disclosure of arrangements capable of producing these products, in particular disc brake blanks, with a certain degree of uniformity or homogeneity. As such, these objections have effectively been raised against aspects of a process which are not part of the claimed invention and the Board therefore concludes that such objections do not relate to a contravention of the requirements of Article 83 EPC for the invention claimed.

In as far as the respondent's objections also relate to the lack of disclosure for carrying out the process steps as they are claimed, the Board does not find the opponent's arguments convincing. The means for performing the steps of feeding loose fibre, needling loose fibre to thereby bind the fibre into a coherent structure, and disposing a mass of loose fibre over the coherent fibrous structure, are all well known to a skilled person. No convincing evidence has been provided to the contrary. In as far as claim 1 also defines disposing a mass of loose fibre consisting of disordered loose fibre, the Board again sees no difficulty for a skilled person to carry out this step,

even though a means for doing this is not disclosed in the patent; it is well known for example that loose fibre can be stored in e.g. a container such as a small hopper. This mass of fibre can simply be fed by opening the container outlet allowing the mass of loose fibre to be fed by gravity on to the underlying and (normally) moving fibrous structure. In column 5 of the patent, lines 36 to 43, it is also explained that loose fibre could be first be heaped onto the needling support or fibrous structure and then be subjected to further operations so as to provide a disordered mass before the mass passes under the needling head. Means for doing this, even though this specific method is not defined in the claims, are anyway not mechanically complicated. It should be noted in this regard, that the disclosure in the patent or application, to which Article 83 EPC refers, is a disclosure as read by a skilled person, and is not limited to the explicit disclosure appearing in the patent but also includes implicit disclosure to a skilled person.

In respect of the arrangement shown in Fig. 9 of the patent, showing cross-lapping of fibre onto disordered fibre below it and to which particular reference was made by the respondent, the inner periphery of the annular fibrous structure seems indeed to include more material than the outer periphery due to the cross-lapping process over an annulus, and thus a difference of thickness would appear to exist across the radial direction. No means are disclosed for preventing this. However, this is not relevant with respect to Article 83 EPC, since claim 1 does not specifically require that a uniform and flat surface should result after needling, nor at any other stage for that matter.

Should such an even surface be ultimately required for any reason, the fibrous product resulting from the process shown in Figure 9 can anyway simply be trimmed appropriately; claim 1 does not exclude such a step. The resulting annular fibrous structure might not then be particularly homogeneous, but, as mentioned above, this not a requirement of the invention according to the claims, nor is it a requirement that the product even be annular. Further, the way in which the boundaries of the cross-lapped fibre shown in Fig. 9 are maintained is not described; however this is also not a feature of claim 1 and, in any case, the skilled person would have no difficulty in arranging boundary walls at the inner and outer perimeters should such be required (i.e. in the event that the laying-down device was not already set-up to limit such areas by its own limited movements).

The respondent argued further that the invention had to be able to be carried out over the whole scope of the claims, in order to meet the requirements of Article 83 EPC. The Board does not dispute that this is the case, but the respondent has failed to demonstrate any feature (in regard to the whole scope of the claims) which cannot be carried out by a skilled person using his general knowledge.

The respondent's further objection regarding the requirement of carrying out the invention over the whole scope of the claims for every possible variation is based on the premise that the claims also cover the possibility that the method could be used for making specific products, e.g. disc brake blanks, which normally require a high degree of uniformity and

homogeneity, for which however no means are disclosed in respect of the steps of claim 1. However this is of no relevance to Article 83 EPC in regard to the present claims, since it is not a requirement of the invention (as defined by the claims) that such uniformity and homogeneity characteristics are present in any products produced, nor that any means be provided to give such characteristics.

Thus, in respect of the objections made by the respondent, the Board finds that the requirements of Article 83 EPC are met.

4. *Novelty*

With respect to the disclosure in D1, only the following features of claim 1 are in dispute:

(i) "loose fiber being disposed over the coherent fibrous structure",

and

(ii) "... as a mass of loose fiber consisting of disordered loose fiber".

Regarding feature (i), D1 discloses in the embodiment of Figure 5A (in conjunction with the basic set-up disclosed with respect to Figure 3) a needle-felting process whereby a continuous ribbon is laid down on an underlying coherent fibrous structure of previously laid down and needled ribbon. The ribbon is laid down spirally, such that a part of one spiral is superposed on part of at least one of the other spirals. The

superposed individual loops of the spiral pattern are not in the form of a coherent fibrous structure before needling (since they are merely laid upon each other) and thus they constitute generally a mass of loose fibre. The patent in column 4, lines 7 to 12, defines the term "loose fiber" as meaning "fiber that is not in the form of a coherent fibrous structure". Therefore, the Board concludes that this feature is indeed disclosed in D1.

With regard to feature (ii), the Board observes that the ribbon which is laid down in D1 forms an ordered spiral pattern. The ribbon itself is thus not disordered when disposed over the underlying coherent annular fibrous structure. Feature (ii) consequently does not correspond to the superposed layers of a part of the ribbon on another part of the ribbon.

In D1 the ribbon itself may consist of discontinuous fibres which are weakly joined to one another (see page 2, lines 23 to 26). This forms a coherent structure and therefore does not correspond to a mass of loose fibre as defined in the patent. The coherent nature of the fibres in the ribbon is also evident for example in Figure 3 which shows the ribbon 24 being transported whilst supporting its own weight. Due to this (albeit weak) joint, these smaller fibres which are the fibres making up the ribbon cannot correspond to the fibres which are defined as disordered in feature (ii).

Also, the fibres which form the ribbon are made of discontinuous small fibres which are essentially parallel to one another, even if slightly twisted (see

D1, page 2, lines 11 to 14). These thus represent an essentially ordered mass between each other, even if the fibres in one part of the ribbon lie at a different angle to fibres in another part of the ribbon.

The respondent further argued that a tow or ribbon in the form of a thread or a yarn would comprise smaller fibres which were disordered. However these smaller fibres would also constitute a coherent structure by being combined in the form of a coherent thread or yarn, so that this would also not correspond to feature (ii) of claim 1; D1 anyway does not disclose the use of a thread or a yarn.

Although the respondent argued that the opposed patent, in column 4, lines 7 to 14, disclosed a tow or ribbon as an example of loose fibre, i.e. not in the form of a coherent fibrous structure, it is to be noted that this section in fact states that "Loose fiber ... may be in the form of tows, rovings, slivers...", i.e. referring to a plurality of such items and not that an individual tow itself necessarily constitutes a mass of disordered loose fibre.

The Board thus finds that the subject matter of claim 1 is novel over the disclosure contained in D1.

5. *Remittal*

In the decision under appeal, the Opposition Division decided on the matter of novelty, but only in respect of document D1. The Board thus finds that remittal of the case back to the opposition division for further examination of the opposition is appropriate, since

further documents were cited against the novelty of claim 1, albeit in a less restricted form, and the matter of inventive step has also not been decided.

The parties did not file any requests or advance any arguments opposing remittal of the case.

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 for continuation of the opposition proceedings.

The Registrar:

The Chairman:

S. Sánchez Chiquero

P. Alting van Geusau