Internal distribution code:

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

Datasheet for the decision of 31 January 2018

Case Number: T 2170/12 - 3.2.05

Application Number: 05769632.0

Publication Number: 1786617

IPC: B29C70/54, B32B3/02, F03D1/06

Language of the proceedings: EN

Title of invention:
A method of cutting off laminate layers, eg a glass-fibre or carbon-fibre laminate layer in the blade of a wind turbine

Patent Proprietor:
LM Wind Power A/S

Opponent:
Vestas Wind Systems A/S

Headword:

Relevant legal provisions:
EPC 1973 Art. 54(2), 56, 100(b)
EPC Art. 54(3)

Keyword:
Sufficiency of disclosure - auxiliary request 7 (yes)
Non-patent literature - availability to the public (no)
Inventive step - auxiliary request 7 (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2170/12 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 31 January 2018

Appellant I: (Patent Proprietor)	LM Wind Power A/S Jupitervej 6 6000 Kolding (DK)
Representative:	Steven Richard Kitchen LM Wind Power A/S Jupitervej 6 6000 Kolding (DK)
Appellant II: (Opponent)	Vestas Wind Systems A/S Alsvej 21 8940 Randers SV (DK)
Representative:	Jakob Pade Frederiksen Inspicos P/S Kogle Allé 2 2970 Hørsholm (DK)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 13 August 2012 concerning maintenance of European patent No. 1786617 in amended form**

Composition of the Board:

Chairman	M. Poock
Members:	P. Lanz
	J. Geschwind

Summary of Facts and Submissions

I. The appeals by the patent proprietor and the opponent are each against the interlocutory decision of the opposition division on the version in which European patent EP-B-1 786 617 met the requirements of the European Patent Convention.

II. During the opposition proceedings, the opponent had raised the grounds for opposition according to Articles 100(a) (lack of novelty and lack of inventive step) and 100(b) EPC 1973.

III. Oral proceedings were held before the board of appeal on 31 January 2018.

IV. Appellant I (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims filed as auxiliary request 7 with the grounds of appeal.

V. Appellant II (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

VI. The documents referred to during the appeal proceedings include the following:

D1: US 4 015 035;

D2: US 5 281 454;

D3: JP 05-057829;

D4: US 2002/0148555;

D5: GB 2 310 822;

D8: WO 03/078832;

D10: Michael Chun-Yung Niu, "Composite Airframe Structures", 1st edition 1992, Chapter 5, pages 336 to 340;

D11: WO 2004/078461;

D12: M.R. Maheri, "An improved method for testing unidirectional FRP composites in tension", Composite Structures 33 (1995), pages 27-34;

D14: Blade System Design Studies Volume I: Composite Technologies for Large Wind Turbine Blades, printed July 2002;

D15: B. Khan and M.R. Wisnom, "Scaling Effects in Notched Composites (SINCS)", 20 April 2004;

D15a: Email exchange between Magnus Holmberg at Vestas and Professor Michael Wisnom of the University of Bristol on 14 May 2012 and 17 May 2012;

D25: SAND 2004-0073 June 2004, "Blade System Design Studies Volume II: Preliminary Blade Designs and Recommended Test Matrix"; Dayton A. Griffin, Global Energy Concepts, LLC;

D26: 2001 ASME Wind Energy Symposium Technical Papers: "Spectrum Fatigue Lifetime and Residual Strength for Fiberglass Laminates in Tension", Wahl et al., AIAA-2001-0025;

D27: Composite Structures, Vol. 37, 1997, "Design and Analysis of Test Coupons for Composite Blade Repairs"; Oztelcan et al., pages 185-193;

D28: Journal of the American Helicopter Society, April 1998, Vol. 43, No. 2, pages 146-155: "Fatigue Life Methodology for Tapered Composite Flexibeam Laminates"; Murri et al.;

D30: 2003 ASME Wind Energy Symposium Technical Papers: "Alternative Composite Materials for Megawatt Scale Wind Turbine Blades: Design Consideration and Recommended Testing"; Griffin and Ashwill, AIAA-2003-0696;

D31: Wind Energy 1994 "Fatigue of Fiberglass Generic Materials and Substructures", Mandell et al., SED Vol. 15, Wind Energy 1994, ASME 1994;

D32: US 6 264 877 B1;

D33: US 2003/0116262;

D34: Witness statement of Magnus Holmberg accompanied by supporting documents D34A to D34G;

D35: Witness statement of Professor Michael Wisnom;

D36: Witness statement of Christopher Owens, including accompanying figures and CD-ROM, dated 20 December 2012;

D39: Erich Hau, "Windkraftanlagen Grundlagen, Technik, Einsatz, Wirtschaftlichkeit", 2nd edition 1996, Springer Verlag, pages 186 and 187.

VII. The independent claims of auxiliary request 7, which corresponds to the version considered allowable by the opposition division, have the following wording:

"1. A method of cutting of laminate layers (301) for use in a fibre-reinforced laminate object comprising a number of combined laminate layers (301), characterised in that, along a section of the at least one rim of the laminate layer, a tapering cut (303) is performed through the thickness (302) of the laminate layer whereby the thickness of the laminate layer is reduced, and wherein the tapering cut (303) is carried out by means of a rotating cutting unit (1203), which has a tapering profile."

"7. A fibre-reinforced laminate object in the form of the blade of a wind turbine, wherein the blade of the wind turbine comprises a number of combined laminate layers, characterised in that, at least along a section of the at least one rim, the laminate layer is cut off taperingly through the thickness of the laminate layer, whereby the thickness of the laminate layer is reduced."

VIII. The arguments presented by appellant I in writing and during the oral proceedings are essentially as follows:

Claim 1

The subject-matter of claim 1 of auxiliary request 7 was based on an inventive step, since there was nothing in the prior art which could render the use of a rotating cutting unit in the method of claim 1 obvious.

Moreover, the disclosure of the subject-matter of claim 1 in the patent was sufficient. Reference could be made

in particular to Figure 12 of the opposed patent. The experiments according to document D36 and the video did not aim at reproducing this example. Rather, in view of claim 1 as filed (since replaced), a cattle trimmer and a carpet cutter were used for the tests. It was evident that the general purpose was to let them fail. In fact, they showed only that these methods using a cattle trimmer or a carpet cutter were tedious and impractical. However, these experiments were not suitable for demonstrating the insufficiency of the disclosure of the subject-matter of claim 1 of auxiliary request 7, which specified that a rotating cutting unit with a tapering profile was to be used, as illustrated in particular in Figure 12 of the patent.

Claim 7

Document D8 could be seen as the closest prior art. Appellant II's assertion that the two upper layers (6) in Figure 5 of document D8 could be considered as one layer was refuted. Rather, this drawing clearly depicted eight separate layers. The characterising feature of claim 7 was thus not disclosed in document D8. The technical effect achieved was to minimise the occurrence of resin highways and to reduce the risk of air pockets. Regarding the claimed solution it was emphasised that in scarf joints the ends to be joined were glued to each other, which was not the case in the patent in suit, where the chamfering was done after curing. Moreover, the skilled person would not take document D5 into account since it related to small thermoplastic boat hulls; their dimensions could not be compared with the claimed wind turbine blade, and the technology of document D5 was incompatible with document D8. Additionally, document D14 (see top of page 43) dissuaded the skilled person from using

thermoplastic materials in wind turbine blades. Hence, a combination of documents D8 and D5 could not render the claimed subject-matter obvious. As to document D12, it was observed that this prior art related to test specimens, which were structurally different from a wind turbine blade; test specimens belonged to a technical field that was remote from wind turbine blades. Also, the further attacks based on documents D1, D2, D3, D4, D10, D25, D27 and D28 were based on hindsight, as none of those documents, as such, related to wind turbine blades and the problem underlying the claimed invention.

Finally, document D11 was prior art pursuant to Article 54(3) EPC, and the arguments based on it with regard to inventive step were moot. Documents D15, which was covered by an implicit confidentiality agreement, D25, D30 and the alleged public prior use of document D34 did not belong to the prior art. They could therefore not be taken into account for the assessment of inventive step.

IX. Appellant II's written and oral submissions may be summarised as follows:

Claim 1

The subject-matter of claim 1 of auxiliary request 7 was not based on an inventive step. Document D5 or D12 formed the closest prior art. The subject-matter of claim 1 differed from those known solutions in that the tapering cut was carried out by means of a rotating cutting unit which had a tapering profile. No plausible technical effect was apparent for this feature. Hence, the problem to be solved resided in the selection of an adequate cutting tool. For a person skilled in the art,

no inventive step was required for the claimed choice of a rotating cutting unit from the available options.

Moreover, the disclosure of the subject-matter of claim 1 in the patent was insufficient. The claim covered a method of cutting one single layer without resin. In this case, the fibres had no support. The patent remained silent on the measures needed to implement the claimed method. The experiments of document D36 and the video showed that a rotating cutting tool was not capable of producing a straight cut along the rim of the layer. This evidence raised serious doubts based on verifiable facts. Hence, the burden of proof regarding sufficiency of disclosure lay with appellant I as patent proprietor. However, the objection had not been rebutted by appellant I. In those circumstances, the disclosure of the subject-matter of claim 1 had to be considered insufficient.

Claim 7

Regarding the definition of the term "taper", reference was made to paragraph [0019] of the patent specification, according to which a stepwise reduction of the thickness as shown in Figures 4F and 4L of the patent was covered by the claim wording *"cut off taperingly"*. Document D8 was considered the closest prior art for the subject-matter of claim 7. This document disclosed a layered laminate structure, wherein the thickness gradually decreased in a stepwise manner as shown in Figure 5. Taking into account that the contested claim did not exclude the possibility of a layer consisting of several sub-layers, the two upper layers 6 shown in Figure 5 of document D8, in combination, could be considered *"the laminate layer"* within the meaning of disputed claim 7. Based on this

understanding, Figure 5 of document D8 disclosed a layer (consisting of sub-layers 6) which was cut off taperingly. Consequently, document D8 disclosed all the features of claim 7 of auxiliary request 7, which was therefore not based on an inventive step.

If the term "layer" was interpreted in a narrower sense, the subject-matter of claim 7 differed from Figure 5 of document D8 in that the (single) layer was cut off taperingly. It was noted that the alleged technical effect of avoiding air pockets was not necessarily achieved by such a tapering cut. This was in particular the case for the embodiment of Figure 5 of the patent. In view of the lack of a technical effect of the distinguishing feature, the objective technical problem was merely how to provide an alternative way of reducing the thickness of the laminate layer along a section of the rim. However, a design according to Figure 10 of the patent was generally known by the skilled person as a scarf joint. In that respect, reference could also be made to documents D1, D2 and D5, which disclosed examples of such joints. The skilled person would immediately consider this known joint design as an alternative to the joint shown in Figure 5 of document D8. From that point of view as well, the subject-matter of claim 7 was not based on an inventive step.

Moreover, the skilled person would take into account that document D5 explicitly suggested that the edges of the material could be tapered and the tapered portions overlapped at the joints between sections of material (see D5, page 4, lines 19 to 21). Consequently, a combination of documents D8 and D5 likewise rendered the subject-matter of claim 7 obvious. It was added that document D5 related to large-scale structures such

as boat hulls (see D5, page 1, lines 3 to 5). Since the manufacturing techniques used for windmill blades were inherited and borrowed from the boat building sector (see document D39, top of page 187), the skilled person active in the design of wind turbine blades would be aware of document D5 and take it into account. Regarding the issue that document D5 related to thermoplastic material, it was observed that the claimed taper design was independent of the resin type, in particular of whether thermosetting or thermoplastic resins were selected. Furthermore, the use of thermoplastic resins for windmill blades was known, as evidenced by documents D30, D32 and D33. Document D14 did not prove that there was a general technical prejudice in that respect; it merely warned against using thermoplastics in large wind turbines.

Tapering cuts were also known from document D12, which disclosed this feature in the context of a test specimen (see D12, page 28, Figure 1). Hence, the subject-matter of claim 7 was not inventive over a combination of documents D8 and D12. That these documents would indeed be combined was proven by documents D25, D26, D28 and D31, which suggested that the use of test samples was a fundamental part of blade design.

In view of the claim being directed to a manufacturing process, document D5 too could be considered the closest prior art. The same was true of document D12 in view of the structural similarities with the subject-matter of claim 7.

Finally, document D15 alone or in combination with documents D8, D30, D32 or D33, the prior use of document D34, document D11, the common general

knowledge disclosed in documents D9 and D10, or each of documents D1, D2, D3, D4, D10, D25, D27 and D28 would likewise render the fibre-reinforced object of claim 7 of auxiliary request 7 obvious.

Reasons for the Decision

1. Prior art status of cited documents

1.1 Document D11

It is uncontested that, for the patent in suit, document D11 constitutes prior art under Article 54(3) EPC. This document can therefore not be considered when assessing inventive step.

1.2 Document D15

1.2.1 It is disputed between the parties whether or not document D15, a report established in the context of a project called SINCS, was made available to the public before the priority date of the patent. The opposition division concluded (see contested decision, Reasons 3.1) that it had not been proven when document D15 was generally made available and when it was circulated to interested parties.

1.2.2 According to the boards' established case law, for a written description to be regarded as having been made available to the public, it suffices that it was possible for the public to gain knowledge of its content without any obligation of confidentiality restricting the use or dissemination of such knowledge. As to whether written information contained in a document has been made publicly available, it is generally necessary to establish all the facts: where

did the documents turn up; in what circumstances were they made accessible to the public, and who constituted the public in the case in question; was there any explicit or implicit confidentiality agreement; and when (date or period of time) were said documents publicly available (cf. Case Law of the Boards of Appeal of the European Patent Office, 8th edition 2016, I.C.3.2.1 a)).

1.2.3 In the case of document D15, appellant II filed witness statement D35 by Professor Michael Wisnom, one of the authors of document D15. According to his statement, there was no bar of confidentiality restricting the use or dissemination of any information regarding the SINCS project to the public. Indeed, EPSRC (which funded the project) encouraged the dissemination of information regarding SINCS to the public. Thus, Professor Wisnom considered any information disseminated to the collaborators of SINCS as made available to the public. It was his understanding that all members of SINCS were free to circulate to other members of the public any knowledge gained by them as part of SINCS. During a meeting on 20 April 2004, copies of document D15 were distributed to the project collaborators. Following the meeting, document D15 was sent to the SINCS collaborators by email. Professor Wisnom confirmed that, in keeping with the arrangements of the SINCS project stated above, no bar of confidentiality restricting the use or dissemination of the contents of document D15 was imposed on any of the recipients and that he, and all of the recipients, would have considered its contents made available to the public on the date of the meeting of 20 April 2004.

1.2.4 The board notes that on 20 April 2004 document D15 seems to have been distributed only to the project

collaborators. In fact, the meeting on that day and the subsequent distribution of document D15 by email were restricted to persons directly involved in the project. Appellant I suggests that these circumstances would imply confidentiality, even if no non-disclosure agreement was signed. It is indeed not apparent that (and if so, when and to whom) the document was disseminated to a wider public or that its content was the subject of a public presentation (see document D15a). Moreover, Professor Wisnom makes reference to *"the arrangements of the SINCS project"*, which did not restrict the use or dissemination of the contents of document D15. However, no detailed evidence (e.g. in the form of contractual arrangements) is provided in that respect. The same applies to the general statement that EPSRC, the funders of the project, *"encouraged the dissemination of information regarding SINCS to the public"*. In view of the available facts and taking into account the short period of time between the earliest possible potential publication date and the priority date of the patent (less than four months), the board does not consider it sufficiently proven that the public had access to document D15 before the priority date of the patent and that the document thus forms part of the state of the art in accordance with Article 54(2) EPC 1973

Consequently, document D15 cannot be taken into account for the examination of the claimed subject-matter in respect of inventive step.

1.3 As to the further disputed questions of whether documents D25 and D30 and the alleged public prior use of document D34 form part of the state of the art, it is noted that the substance of these documents is less relevant for the contested issue of inventive step than

the prior art already available to the board. Even if documents D25 and D30 and the alleged public prior use of document D34 were considered to form part of the state of the art, they would have no potential bearing upon the outcome of the present appeal case, as explained in point 4.3 below. Hence, their prior art status can be left undecided.

2. Claim 1, sufficiency of disclosure

2.1 As a rule, an objection of lack of sufficient disclosure presupposes that there are serious doubts in that respect, substantiated by verifiable facts. In order to establish insufficiency of disclosure, the burden of proof initially is upon an opponent to establish that a skilled reader of the patent, using common general knowledge, would be unable to carry out the invention (cf. Case Law of the Boards of Appeal of the European Patent Office, 8th edition, 2016, II.C.8).

2.2 The subject-matter of present claim 1 is essentially directed to a method of cutting laminate layers, wherein the tapering cut is carried out by means of a rotating cutting unit which has a tapering profile. Appellant II argues that the disclosure of the method in the patent was insufficient. In particular, the patent remained silent on the measures needed to implement the method. Moreover, it alleges that all attempts to put the claimed subject-matter into practice had failed, as evidenced by witness statement D36 and the corresponding video.

2.3 Regarding the disclosure of the subject-matter of contested claim 1, the board first refers to Figures 12 and 13, as well as to the passage of the description starting at column 6, line 52. This disclosure in the

patent supports the presumption that no inventive skills are required by the skilled person, who can avail himself of his common general knowledge and the specification of the opposed patent, to carry out the tapering cut by means of a rotating cutting unit which has a tapering profile as shown in Figure 12. The experiments of document D36 and the corresponding video do not call this presumption into question. Concerning the test with the rotary cutter, document D36 (page 4/4, third paragraph) explicitly states that:

"While all combinations of rotary cutter tool (cutter and grinder) did cut through all combinations of fibre tested, the cuts produced were very messy and produced highly distorted fibres around the cut. None of the cuts to any fibre sheet using the rotary cutter had, in my view, a shape the same as in any of Fig. 4A to 4M of the Patent."

This statement actually confirms that a taper cut could be achieved by means of a rotating cutting unit having a tapering profile, even if the result were not exactly as depicted in the patent. Consequently, the evidence on file is not suitable to raise serious doubts, substantiated by verifiable facts, that the skilled person was not able to carry out the tapering cut by means of a rotating cutting unit with a tapering profile.

In these circumstances, the disclosure in the patent as a whole has to be considered sufficient to enable the skilled person to carry out the invention as defined in claim 1 of auxiliary request 7, Article 100(b) EPC 1973.

3. Claim 1, inventive step

3.1 It is uncontested that the method of claim 1 differs from document D5 or D12 at least in the features of the tapering cut being carried out by means of a rotating cutting unit which has a tapering profile. Appellant II essentially argues that, for a person skilled in the art, no inventive step was required for choosing a rotating cutting unit with a tapering profile from the available options.

3.2 The board notes that the prior art cited in the present appeal proceedings does not mention a rotating cutting unit. Moreover, no explanation is given as to which options for a cutting tool were available to the skilled person at the relevant date of the patent and why the skilled person would have chosen the claimed rotating cutting unit with a tapering profile from those available options. Appellant II's objection is, hence, based on an *ex post facto* analysis.

In view of the above, the presence of an inventive step in the sense of Article 56 EPC 1973 cannot be denied as regards the subject-matter of claim 1 of auxiliary request 7.

4. Claim 7, inventive step

4.1 Closest prior art

4.1.1 Following the established case law of the boards of appeal, the closest prior art for assessing inventive step is normally a prior-art document disclosing subject-matter conceived for the same purpose or aiming at the same objective as the claimed invention and

having the most relevant technical features in common, i.e. requiring the minimum of structural modifications (cf. Case Law of the Boards of Appeal of the European Patent Office, 8th edition 2016, I.D.3.1). The closest prior art normally constitutes the most promising starting point for an obvious development leading to the claimed invention.

4.1.2 Present claim 7 is directed to a fibre-reinforced laminate object in the form of a wind turbine blade. Document D8, which likewise concerns a fibre-reinforced laminate wind turbine blade including a tapered layer structure, has more technical features in common with the claimed subject-matter than the other documents on file. In particular, document D5 specifically mentions boat hulls, other marine structures and storage tanks but not wind turbine blades. Since document D8 discloses subject-matter conceived for the same purpose as the claimed invention and having the most relevant technical features in common with the contested claim, the board shares the parties' view that document D8 forms the closest prior art for the subject-matter of claim 7.

4.2 Structural differences

4.2.1 In one line of attack, appellant II submits that the laminate layer of claim 7 could consist of two sub-layers. The two upper layers of Figure 5 of document D8, when considered together, would then constitute a layer within the meaning of claim 7, which is cut off taperingly through its thickness, as shown in Figure 4F of the patent. Since document D8 disclosed all the features of claim 7, the claimed subject-matter could not be based on an inventive step.

4.2.2 The board does not share this view. Reference is first made to the relevant part of claim 7, which is worded as follows:

"... wherein the blade of the wind turbine comprises a number of combined laminate layers, characterised in that, at least along a section of the at least one rim, the laminate layer is cut off taperingly through the thickness of the laminate layer, whereby the thickness of the laminate layer is reduced." (underlined by the board).

The aspect of tapering along the thickness in claim 7 clearly refers to *"the laminate layer"* and not to the stack of combined laminate layers. In view of that, the claim wording requires at least one (single) laminate layer to have an end portion, which is cut off taperingly through its thickness. This understanding is not in contradiction with Figure 4F of the patent showing that tapering at the end of the (single) layer can be realised in various ways, *inter alia* in a stepwise manner.

Turning to Figure 5 of prior-art document D8, it is observed that a stepwise tapering through the thickness of the stack of laminate layers is envisaged. However, the individual layers do not exhibit a reduction of their thickness due to a tapering cut-off. Based on the interpretation of claim 7 as established above, Figure 5 of document D8 does not anticipate the characterising portion of the disputed claim.

The board concludes that the subject-matter of claim 7 differs from the content of document D8 at least in that the laminate layer is cut off taperingly through the thickness of the laminate layer, at least along a

section of the at least one rim, whereby the thickness of the laminate layer is reduced.

4.3 Obviousness of the claimed solution

4.3.1 In further lines of attack based on document D8, appellant II is of the opinion that the technical problem was how to provide an alternative way of reducing the layer thickness. In view of documents D1 and D2 and the explicit teaching of document D5 that the edges of the material could be tapered and the tapered portions overlapped at the joints between sections of material, the skilled person would combine documents D8 and D5 and thereby immediately arrive at the subject-matter of claim 7. Alternatively, document D8 could be combined with document D12, which also disclosed a tapering cut.

4.3.2 The board cannot endorse this point of view either. On the one hand, the closest prior-art document D8 is generally directed to providing a smooth transition between two areas of a windmill blade having differing stiffness. In particular, Figure 5 shows an example of such a transitional zone from an area containing carbon fibres to a neighbouring area of reduced stiffness containing glass fibres (see D8, page 10, lines 19 to 27). It is uncontested that this embodiment anticipates the wording of the preamble of present claim 7.

On the other hand, document D5 is directed to a method of moulding a structure using fibre-reinforced layers. According to one of the disclosed manufacturing techniques, the layers are joined before moulding. The aspect of tapering the edges of the material, on which appellant II primarily relies for a disclosure of the characterising portion of the contested claim, is

mentioned in document D5 (page 4, lines 16 to 21) in this specific context:

"Joining techniques include stitching, welding and the use of adhesives. If stitching is employed, the stitch material can be a reinforcing fibre, which will enhance the z-axis properties of the material if appropriately aligned, or a thermoplastic filament, which melts under further processing and forms a weld. At the joins between sections of material, the edges of the material can be tapered and the tapered portions overlapped, with stitching passing through the overlapped portions."

Document D5 thus discloses a tapering of the layer edges only in connection with a specific variant in which the fibre layers are joined before moulding and the joining is done by stitching. Moreover, there is no apparent link between the cited passage of document D5 and the background of Figure 5 in document D8. The board sees no obvious reason why the skilled person should consider document D5 when looking for an alternative way of reducing the layer thickness in the area of stiffness transition of the windmill blade according to document D8. Consequently, a combination of documents D8 and D5 cannot render the claimed subject-matter obvious. This conclusion is not altered by documents D30, D32 and D33, which provide evidence for the use of thermoplastic materials in windmill blades, or by the general statement of document D39 that the manufacturing techniques in the windmill industry were inherited from the boat building sector.

4.3.3 The board adds that the same is true if document D8 were combined with document D12: document D12 concerns the design of specimens for tension tests and discloses

in Figure 1 that the outer layers are tapered by machining after moulding. Here, too, tapering is mentioned in a specific technical context, for which no connection to the background of Figure 5 in document D8 is apparent. The board again sees no reason why the skilled person should take into account techniques for manufacturing tensile test specimens when looking for an alternative way of reducing the layer thickness in the area of stiffness transition of the windmill blade of document D8. The corresponding argument based on documents D25, D26, D28 and D31 that the development of composite materials used for windmills required testing, and that test samples would be used for this purpose, cannot convincingly explain why the skilled person should take over not only the (successfully) tested composite material for a structural part of the windmill, but also the test specimen design, even though the latter has a different purpose and different dimensions and is subject to different loads. For the sake of completeness, it is added that the general reference to scarf joints disclosed in documents D1 and D2 does not provide conclusive substantiation as to why the skilled person would, without hindsight, modify the design of the laminate layer ends of the transitional zone of Figure 5 of document D8 in order to arrive at the claimed subject-matter.

4.3.4 The above conclusion applies *a fortiori* if a starting point which is more remote than document D8, in particular any of documents D1, D2, D3, D4, D5, D12, D25, D27, D28 and D34, is used for the assessment of inventive step. Regarding document D25, it is in particular observed that the parts cited by appellant II (Figures 20 to 26 and the text of section 5) referring to ply drops and transitions do not contain a specific teaching pointing the skilled person to a

laminate layer being cut off taperingly through the thickness of the laminate layer at least along a section of the at least one rim. Finally, the prior use of document D34 is directed to the use of scarf joints for plywood and not for fibre-reinforced laminate layers as understood by the skilled person.

4.3.5 For these reasons, the arguments put forward by appellant II against claim 7 do not establish that its subject-matter is obvious. Consequently, the presence of an inventive step cannot be denied as regards the subject-matter of claim 7 of auxiliary request 7, Article 56 EPC 1973.

Order

For these reasons it is decided that:

Both appeals are dismissed.

The Registrar: The Chairman:

L. Malécot-Grob M. Poock

Decision electronically authenticated