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**Datasheet for the decision
of 10 October 2023**

Case Number: T 0095/20 - 3.2.08

Application Number: 11731468.2

Publication Number: 2591230

IPC: F16B11/00, F03D1/06

Language of the proceedings: EN

Title of invention:

WIND TURBINE BLADE

Patent Proprietor:

Blade Dynamics Limited

Opponent:

Vestas Wind Systems A/S

Headword:

Relevant legal provisions:

EPC Art. 54, 56

RPBA 2020 Art. 11, 12(3), 13(2)

Keyword:

Novelty - (yes)

Inventive step - (yes)

Remittal - (no)

Reply to statement of grounds of appeal - party's complete appeal case

Amendment after summons - taken into account (no)

Decisions cited:

Catchword:



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Case Number: T 0095/20 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 10 October 2023

Appellant: Blade Dynamics Limited
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Representative: COPA Copenhagen Patents
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Respondent: Vestas Wind Systems A/S
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Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
4 November 2019 concerning maintenance of the
European Patent No. 2591230 in amended form.

Composition of the Board:

Chairman C. Schmidt
Members: M. Foulger
C. Vetter

Summary of Facts and Submissions

- I. With the decision posted on 4 November 2019, the opposition division found that the patent and the invention to which it related, according to the then valid auxiliary request 6 met the requirements of the EPC. They found that the subject-matter of claim 1 of the patent and of auxiliary request 1 was known from E1, that claim 15 of auxiliary request 2 did not involve an inventive step in view of E2 and E3 "in the light of E4", and that claim 1 of auxiliary requests 3, 4 and 5 did not involve an inventive step in view of E1 and E22.
- II. The patent proprietor filed an appeal against this decision.
- III. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained as granted, or in the alternative that the patent be maintained according to one of the auxiliary requests 1 - 7 filed on 16 March 2020 with the appeal.
- IV. The respondent (opponent) requested that the appeal be dismissed.
- V. Oral proceedings were held before the Board on 10 October 2023.
- VI. The following documents are relevant for this decision:
E1: DE 10235496 A1
E2: US 2009/162208 A1
E3: "Design Concepts for Sectional Wind Turbine Blades", 1999

E4: "Blade System Design Studies Volume 1: Composite Technologies for Large Wind Turbine Blades", Griffin, 2002

E6: DE 10 2008 055540 A1

E7: US 2010/135820 A1

E22: JP 2005/299620 A

VII. Claim 1 of the main request (patent as granted) reads:

" **(F1.1)** A wind turbine blade comprising an aerodynamic fairing supported along at least a portion of its axial length by a spar,

(F1.2) the spar comprising at least two spar segments (2) joined end-to-end at an interface, each spar segment comprising a shear web (3) with a spar cap (4) on each side;

characterised in that

(F1.3) the outer face (6) of each spar cap tapers inwardly towards the interface such that its depth is reduced towards the interface creating a recess on each side of the interface formed by the tapered faces of adjacent spar caps; and

(F1.4) a respective connection piece (8) sized to fit into each recess,

(F1.5) each connection piece being fixed to the tapered faces of adjacent spar caps to form a double scarf joint."

VIII. The appellant argued essentially the following:

a) Novelty

The subject-matter of claim 1 was new over the disclosure of E1 because E1 did not disclose where the spar cap was located in the blade.

b) Remittal to the opposition division

The appellant referred to Article 11 RPBA 2020 which provides that the Board should not remit the case to the opposition division unless special reasons present themselves for doing so. As the opposition division had already decided on inventive step with respect to the auxiliary requests then this would be a reason not to remit.

c) Admittance of inventive step attacks starting from E6

The appellant argued that, according to Article 12(3) RPBA 2020, the reply to the appeal shall contain the respondent's complete appeal case. The respondent had however only included inventive step attacks based on E1 and E2 as closest prior art and thus the attacks starting from E6 were a change to their appeal case. This change in the respondent's appeal case should not be admitted into the proceedings (Article 13(2) RPBA 2020).

d) Inventive step

The subject-matter of claim 1 involved an inventive step when starting from either E1 or E2 as closest prior art.

IX. The respondent argued essentially the following:

a) Novelty

The subject-matter of claim 1 was not new with respect to E1. It was in particular important to consider how the skilled person would read E1 and what conclusions

they would reach with regard to the spar caps.

b) Remittal to the opposition division

The question of whether the subject-matter of claim 1 of the patent as granted involved an inventive step had never been considered by the opposition division. This was a special reason for remitting the case to the opposition division.

c) Admittance of inventive step attacks starting from E6

It was only after receiving the Board's preliminary opinion that it had become apparent that the Board may not follow the opposition division. This necessitated further submissions on the subject of inventive step.

d) Inventive step

The subject-matter of claim 1 did not involve an inventive step taking either E1 or E2 as closest prior art.

Reasons for the Decision

1. Novelty with respect to E1

Claim 1 requires that the outer face of each spar cap tapers inwardly towards the interface such that its depth is reduced towards the interface creating a recess on each side of the interface formed by the tapered faces of adjacent spar caps (Feature 1.3).

The respondent referred to the common general knowledge of the skilled person and how they would understand the

term "spar cap". They argued that, in E1, the spar cap was at the surface of the blade and that the recess 114 was in the spar cap as required by the claim.

The Board considers however that E1 does not unambiguously disclose the position of the spar caps. The only disclosure of "spar cap" in E1 is in paragraph [0016] where spar caps ("Gurte") are mentioned. These are according to this passage connected to each other by means of spars ("Stege"). It is not clear how this passage relates to the disclosure of Fig. 2 because the terminology in the description of Fig. 2 is different. For example, the element 120 which the respondent identifies as a shear web is referred to as a "Holm" in the description of Fig. 2. This indicates that the spar caps or "Gurte" referred to in paragraph [0016] are not actually shown in Fig. 2.

The Board therefore considers that the location of the recess with respect to the spar cap is not unambiguously disclosed in E1, so that E1 does not directly and unambiguously disclose that the outer face of the spar cap tapers inwardly such that its depth is reduced towards the interface.

Hence, feature 1.3 is not known from E1. The subject-matter of claim 1 is therefore new.

2. Remittal to the opposition division

The respondent requested that the case be remitted to the opposition division as they had not considered inventive step with relation to the main request.

The appellant argued that the opposition division had indeed considered inventive step with respect to some

of the lower ranking requests in opposition proceedings and thus effectively also with respect to this request. They considered that this was a good reason not to remit the affair to the opposition division.

Article 11 RPBA 2020 provides that the Board shall not remit a case to the previous instance unless special reasons present themselves for doing so. In the present case, the Board holds that, as the opposition division has already considered inventive step albeit in relation to another, even further restricted, request, that this constitutes rather a special reason not to remit the case.

The Board therefore rejected the request for remittal of the case to the opposition division.

3. Admittance of inventive step attacks

According to Article 12(3) RPBA 2020, the reply to the appeal shall contain the respondent's complete appeal case.

In the current case, the respondent's reply only mentioned inventive step attacks starting from E1 or E2 as closest prior art. The attacks against inventive step of claim 1 of the main request starting from E6 were argued for the first time in the respondents letter dated 2 August 2023 (page 11, point 6). Consequently the further attacks starting from E6 as closest prior art constituted an amendment to the respondent's appeal case.

Apart from pointing out that these attacks were made after having receiving the Board's preliminary opinion which made apparent that the Board may not follow the

opposition division, the respondent did not indicate which exceptional reasons justified this change in their case. In appeal proceedings, however, the mere fact that the the Board's communication revealed that it may not agree to the contested decision does not establish such exceptional reasons.

These further attacks were consequently not admitted into the appeal proceedings (Article 13(2) RPBA 2020).

4. Inventive step

4.1 Considering E1 as closest prior art

4.1.1 Disclosure of E1

As discussed above, E1 does not disclose feature 1.3 of claim 1.

4.1.2 Problem to be solved

The respondent suggested that the objective technical problem was to provide a strong joint.

4.1.3 Considering E1 alone

E1 teaches that the joint should take into account the fact that the power transmission in fibre composites, which are usually used for the manufacture of rotor blades of wind turbines, must have as large a surface as possible (see paragraph [0011]).

Thus, applying the teachings of E1, in order to provide a strong joint, the skilled person would increase the surface area of the joint within the fairing itself. There is no hint or suggestion in E1 to put the

connection in the spar cap.

Thus, in order to solve the above problem the skilled person would provide a large surface area for the connection piece. The skilled person would thus not have arrived at the subject-matter of claim 1 without the utilisation of inventive skill.

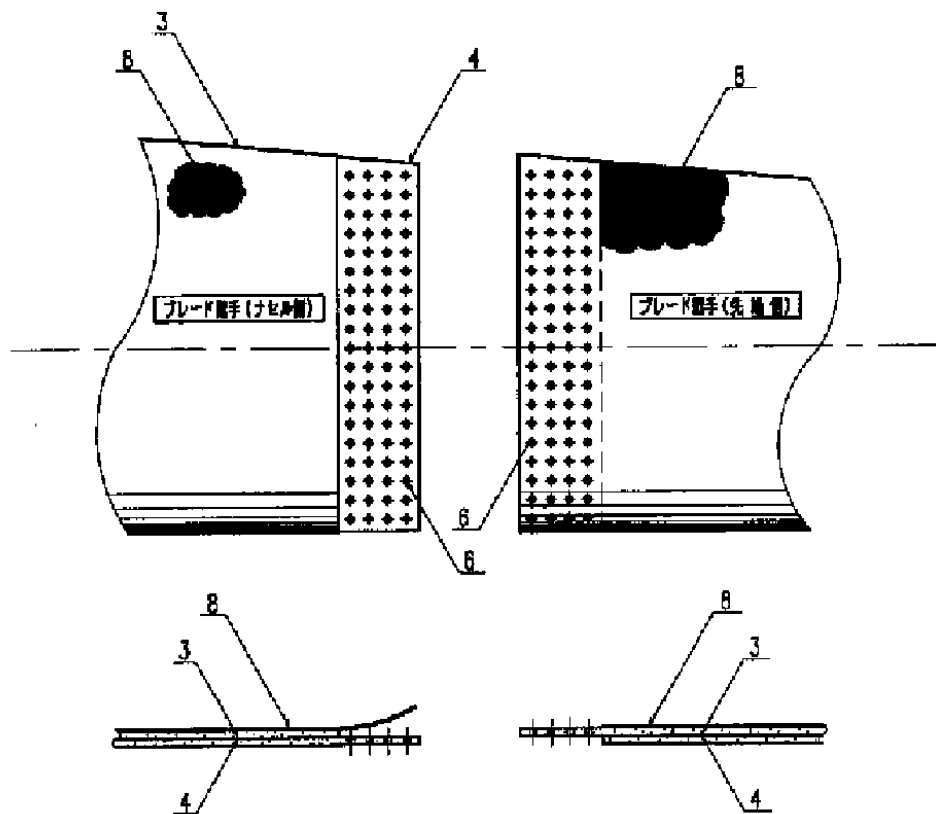
4.1.4 Considering E7

E7 discloses a wind turbine rotor blade spar cap laminate repair (paragraph [0001]). The repair comprises a double scarf with a wedge recess, see paragraphs [0025] and [0026] as well as Fig. 5.

The Board holds that the skilled person would not consider E7 when designing a blade connection because E7 is concerned with repairing a damaged blade. The claim requires that the interface between adjacent spar caps is tapered such that the connection piece forms a double scarf joint. E7 on the other hand does not disclose adjacent spar caps forming a double scarf joint. Thus, even if the skilled person were to have considered E7 then this document contains no teaching which would have lead to the subject-matter of claim 1.

4.1.5 Considering E22

【 図 2 】



E22 discloses an overlapping arrangement, see Fig. 2 reproduced above. It neither mentions a spar cap nor does it disclose a double scarf joint. Thus, E22 does not contain any hint that would have led the skilled person to the subject-matter of claim 1.

4.1.6 Hence, the subject-matter of claim 1 involves an inventive step in the light of the teachings of E1 taken alone or combined with the teachings of E7 or E22.

4.2 Considering E2 as closest prior art

E2 discloses the features of the preamble of claim 1. The blade of E2 is formed of two blade segments each joined to a spar cap by means of single scarf joints.

However, feature 1.3 is not known from E2 because whereas one spar cap tapers inwardly, the other spar cap tapers in the other direction, i.e. outwardly. Moreover, a recess is not created between the tapered faces of adjacent spar caps. Features 1.4 and 1.5 are not known from E2 because there is no connection piece and only a single scarf joint is shown.

The invention defined in claim 1 of E2 uses spar cap brackets to facilitate alignment of the segments of the spar cap brackets.

As argued by the respondent, this prior art wind turbine blade has the disadvantage that the protruding parts are prone to breakage (cf. patent [0010]). The problem to be solved was therefore to provide an improvement to this joint which did not suffer from this disadvantage (patent [0013]).

The respondent further argued that the skilled person would have referred to E3 to find a solution to this problem and would have selected the bonded design described in section 2.3. The respondent also argued that E4 (first two paragraphs on p. 46) taught that a bonded joint provided the lowest cost and reliability solution.

The Board did not however find this convincing because E3 rather dismisses the laminated joint as a solution, indeed in Table 1 of E3 it is the lowest rated solution. Even taking account the teaching of E4, it is not clear how the skilled person could combine these embodiments of E2 and E3 because the relevant embodiment of E3 has the joint in the shell of the blade and not in the spar caps. E2 further teaches

using brackets 22, see Fig. 8, in order to construct the blade which teaches away from using the embodiment of E3.

The respondent also referred to E5 as evidence of a double scarf joint used to join aerodynamic elements. The Board however holds that the skilled person would not have considered this document because it relates to method of joining elements using a mandrel and pressing on top. As such the method of E5 is not suitable for the manufacture of wind turbine blades.

In order to arrive at the subject-matter of claim 1 the skilled person would have to depart from the teaching of E2 and join the segments directly using a double scarf joint. There is no teaching in the prior art that would have motivated the skilled person to make this step.

4.3 Therefore, the subject-matter of claim 1 involves an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is maintained as granted.

The Registrar:

The Chairman:



C. Moser

C. Schmidt

Decision electronically authenticated