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

Case Number: T 1315/21 - 3.2.04

Application Number: 13164914.7

Publication Number: 2796709

IPC: F03D1/00

Language of the proceedings: EN

Title of invention:

Wind turbine blade holding arrangement

Patent Proprietor:

Siemens Gamesa Renewable Energy A/S

Opponent:

LM WP Patent Holding A/S

LM Wind Power A/S

Headword:

Relevant legal provisions:

EPC Art. 56, 123(2)

EPC R. 80

RPBA 2020 Art. 13(1), 13(2)

Keyword:

Inventive step - (no)

Amendment occasioned by ground for opposition - (yes)

Amendments - intermediate generalisation

Amendment after summons - exercise of discretion

Decisions cited:

T 0323/05

Catchword:



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Case Number: T 1315/21 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 10 May 2023

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
18 June 2021 concerning maintenance of the
European Patent No. 2796709 in amended form.**

Composition of the Board:

Chairman A. de Vries
Members: S. Oechsner de Coninck
T. Bokor

Summary of Facts and Submissions

- I. The opponent (two legal persons as joint opponents) and the patentee both appeal against the decision of the opposition division concerning maintenance of the European Patent No. 2796709 in amended form.

- II. The opposition was based on the grounds of Articles 100(b) and Art 100(a) EPC in combination with lack of novelty and inventive step. In its written decision the Opposition Division held that claim 1 as granted lacked inventive step but that the patent as amended according to auxiliary request 1 complied with the requirements of the EPC, having regard in particular to the following documents that also played a role in the present proceedings:

E1: DK 176328 B1 and its translation E1a
E9: WO 2008/004195 A2

- III. In a communication dated 13 December 2022 in preparation for oral proceedings the Board gave a provisional opinion on the relevant issues.

- IV. Oral proceedings were held on 10 May 2023 in the presence of all parties.

- V. The appellant proprietor requests that the decision under appeal be set aside and the patent be maintained as granted, in the alternative that the patent be maintained in amended form according to the auxiliary request 1 underlying the impugned decision, alternatively that the patent be maintained according to auxiliary request 2 filed during oral proceedings before the Board.

VI. The appellant opponent requests that the decision under appeal be set aside and the patent be revoked.

VII. The wording of the independent claim 1 of the different requests reads as follows:

Main request

"A wind turbine blade holding arrangement (1, 2, 3) comprising a root frame (1) for securing to a root portion (61) of a blade (6); an airfoil clamp (3) for arranging about an airfoil portion (62) of the blade (6); and an airfoil frame (2) for supporting the airfoil clamp (3); characterized in that the root frame (1) and airfoil clamp (3) are realised for use in a vertical blade orientation (V) in a first storage and/or transport stage of the blade (6) and also for use in a horizontal blade orientation (H) in a second storage and/or transport stage of the blade (6), wherein the horizontal and vertical blade orientations (H, V) are essentially at right angles to each other."

Auxiliary request 1 (additions with respect to granted claim 1 underlined by the Board).

"A wind turbine blade holding arrangement (1, 2, 3) comprising a root frame (1) for securing to a root portion (61) of a blade (6); an airfoil clamp (3) for arranging about an airfoil portion (62) of the blade (6), which airfoil clamp (3) is in turn mounted to a foot (30) realised to rest on a horizontal surface when the blade (6) is in a vertical blade orientation (V); and an airfoil frame (2) for supporting the airfoil clamp (3), wherein the airfoil clamp (3) and the foot (30) are dimensioned to fit within the upper portion of

the airfoil frame (2) when the blade (6) is in a horizontal blade orientation (H) ;

characterized in that the root frame (1) and airfoil clamp (3) are realised for use in a vertical blade orientation (V) in a first storage and/or transport stage of the blade (6) and also for use in a horizontal blade orientation (H) in a second storage and/or transport stage of the blade (6), wherein the horizontal and vertical blade orientations (H, V) are essentially at right angles to each other; and wherein a frame (1, 2) is realised to be stacked on a further frame (1, 2) of the same type."

Auxiliary request 2:

Claim 1 of this request adds to claim 1 of auxiliary request 1 the following expression as a last feature of its preamble:

" , so that the blade (6) in this horizontal orientation can be lowered into place on a waiting airfoil frame (2), and the airfoil clamp (3) can be dropped into the airfoil frame (2) and secured to this;"

VIII. The appellant proprietor argues as follows:

- The subject-matter of claim 1 of the main request involves an inventive step over the combination of E9 with E1.
- The amendments made to claim 1 of the auxiliary request 1 incorporate all the functionally related features derivable from the context of paragraphs 0023 and 0032 of the application as filed, and thus does not add subject-matter.
- The filing of auxiliary request 2 is justified by exceptional circumstances and the amendments made overcome all the objections raised. There is no unallowable intermediate generalisation and Article 123(2) EPC is complied with.

- IX. The appellant opponent argues as follows:
- The subject-matter of claim 1 of the main request lacks inventive step over E9 and E1.
 - Auxiliary request 1 should not have been admitted by the opposition division under Rule 80 EPC. The amendments made to claim 1 of the auxiliary request 1 isolate features from the context of paragraphs 0023 and 0032 of the application as filed and omit other features that are functionally related.
 - The filing of auxiliary request 2 is not justified by exceptional circumstances, nor do the amendments overcome the objection of intermediate generalisation.

Reasons for the Decision

1. The appeals are admissible.
2. Background

The patent concerns a wind turbine blade holding arrangement (claim 1) and method of handling the same (claim 12). In order to easily hold these very long and wide blades during transportation and storage in which the blade is laid down and can be positioned in two main different orientations about its main axis (vertical and horizontal, figure 2 and 3, the claims define a root frame and a remote airfoil clamp mounted in a frame. The clamp is further provided with a foot in claim 1 and 12 as upheld.

3. Main request - inventive step
 - 3.1 E9 as starting point discloses a method and holding arrangement for transporting rotor blades. In relation to figure 2, paragraph 0035 discloses a first mounting

3 for supporting the blade root and thus corresponding to the root frame of claim 1. A second mounting 4 is positioned between the first mounting and the blade tip, thus located about an airfoil portion of the blade, and is seen to correspond to the airfoil frame defined in claim 1. The first - root - mounting is further specified in paragraph 0036 in relation to figure 3, as enabling transportation of the blade in both relatively horizontal and relatively vertical (chordwise) positions. These positions - essentially at right angles - also correspond to the orientations in a transport stage of the blade defined in the characterising part of claim 1.

- 3.2 E9 further elaborates in paragraph 0036 on possible fixing elements for supporting the blade in the mounting. These fixing elements can be in the form of *"belts, articulated arms, loop bands ... or any element capable of providing an adequate blade support"*. Whereas paragraph 0036 primarily refers to the first mounting receiving the root, the second mounting lacks any precise disclosure as to how the airfoil section is held therein. Moreover, the indication that the fixing elements are required to support the blade does not imply any "clamping action" in the common technical understanding of this term (e.g. Merriam Webster's definition 1 "Device designed to bind or constrict or press two or more parts together ..."). In particular the alternatives of belts or articulated arms do not necessarily include or require component parts clamping the airfoil between them.

Thus the second mounting of E9 does not directly and unambiguously disclose an airfoil clamp. The provision of such a clamp thus constitutes the distinguishing

feature of the holding arrangement of claim 1 over E9 for that embodiment.

3.3 The patent does not disclose any specific advantages for realising the means for supporting the airfoil portion of the blade within the airfoil frame in the form of a clamp. According to the last sentence on paragraph 0007, the clamp simply allows to hold the airfoil part of the blade in the horizontal and vertical orientations. The skilled person in the field of wind turbines understands that the airfoil clamp thus represents a particular way of realizing the support of the wind turbine blade within the airfoil frame. Based on this technical effect, the associated objective technical problem can be formulated as how to realise a suitable support for an airfoil frame. The skilled person, who is tasked with this problem, is an engineer in the field of wind turbines, in particular one involved in their manufacture and handling.

3.4 In seeking a concrete realisation of a suitable support within an airfoil frame as in E9 (there also referred to as "fixing element"), the skilled person would obviously start from the suggestion already made for the various alternative ways of fixing in paragraph 0036 for the first mounting 3. Although suggested in the context of the first mounting 3, the skilled person immediately recognises that any of the means mentioned in this non exhaustive list of fixing elements: "...belts, articulated arms, loop bands, a resilient material or any other mechanism, device, or element capable of providing an adequate blade (1) support" are also suitable for the second mounting in the outer airfoil portion as they are equally able to provide adequate support of an airfoil section in that portion.

3.5 The Board disagrees with the appellant proprietor that the skilled person would first need to identify a deficiency in the fixing elements of E9 before developing further solutions. In fact the skilled person does not depart from a specific solution disclosed in E9 because, as already seen above, the non-exhaustive list of suggested means leaves it open how exactly the skilled person should realise the fixing arrangement of the airfoil portion as long as it fulfils the purpose of adequate blade support. Exactly because this is left open the skilled person is motivated to look elsewhere to complete E9's teaching. In that context they would consider any of the suggested alternatives suitable for supporting an airfoil portion, in particular also that of articulated arms. Choosing any one of these suggested alternatives naturally does not require an inventive insight. Inventive step then turns on how that obvious choice is realized.

3.6 When the skilled person makes the obvious choice of articulated arms to realize the support within the airfoil frame they will seek in the pertinent technical field of turbine blade manufacture and handling any disclosures concerning articulated arms for holding a blade in position. Amongst these they would find the teaching of E1, which they would see as a promising arrangement as it shows how a turbine blade is held between two arms. In more detail, E1 discloses a trolley for transporting a wind turbine blade that comprises a blade tip carriage 5 depicted in detail in figure 4 and explained in the last paragraph of page 6 and first paragraph of page 7 of the translation E1a. A fastening device 17 to support a blade tip 3 is arranged in a slewing ring 10 and comprises two lateral rods 18, 19 mounted therein. At the end of each rod an

arm 20, 21 is pivotally connected and operated by a respective spindle 22. At their side facing each other each arm is provided with pressure shoes 24, 25 brought into contact with both sides of the airfoil portion in clamping action. This allows to provide at least two different orientations for the blade profile e.g. shown in figure 2 (horizontal) and figure 5 (vertical). The skilled person seeking a practical implementation of the articulated arms mentioned in E9 would find it obvious to adopt exactly the same configuration of rods, articulated arms and shoes and incorporate it within the frame of the second mounting 4 of E9.

- 3.7 The Board is unconvinced that the skilled person would consider E1 incompatible with E9 because E1 is concerned only with holding a blade during manufacture and its arrangement would therefore not be suitable for transportation or shipping as disclosed in E9. Starting from E9 the skilled person merely seeks a way to realize the suggested articulated arms to support the blade at a position remote from its root. They would recognise immediately that this is realised in E1, irrespective and independently of the fact that the slewing ring in which the arms are retained is made to rotate by rotation imparted to the blade under action of the driven rollers 48 located on the other, remote carriage 4 (figure 1) rather than being held in fixed position within a quadrangular mounting frame as in E9. Thus, they would as a matter of course and in straightforward manner adopt the arms and clamp arrangement of E1 to realize a support for the airfoil frame of E9. This would require a minimum of routine adaptation with the arms dimensioned to fit within the frame and fixed in an appropriate manner and at appropriate points of the frame. The Board is certainly unable to recognise any incompatibility or

unsuitability due to the different purposes of E1 and E9 (transportation over shorter distances during manufacture in E1 and storage and transportation over longer distances for shipping in E9).

- 3.8 Nor would the skilled person need to retain the slewing ring when adopting the arm and clamp configuration of E1. The skilled person is primarily interested in realizing an articulated arm support for a blade airfoil and which is itself already located within the second mounting 4. There is no need for them to dispense with this mounting frame and replace it with the slewing ring of E1. Attachment of the pressing means 24, 25 (that form the clamp) to the airfoil surface remains the same, as does the configuration of pivoting arms 20, 21 and rods 18, 19. The skilled person might need to adjust the length of the rods 18, 19 so that they are received within the frame mounting of E9, or modify their attachment to fit a quadrangular frame but that is a matter of routine design effort. The structure of the second mounting visible in figure 2 of E9, at the rear the carrier is seen to have the same quadrangular form as the first mounting 3, last sentence of paragraph 0035. The mounting thus includes an outer frame that would be very well suited to receive two ends of each rod disclosed in E1. The mounting 4 itself is already designed to be turned from vertical to horizontal e.g. by 90°, a feature that would naturally be retained when realizing the support. As the skilled person recognizes that they need not also adopt the slewing ring, the issue of the cost of adopting the ring of E1 (where cost is any case normally not seen as a technical bar) is moot.

3.9 The Board thus confirms the conclusion of the opposition division that the subject-matter of granted claim 1 lacks an inventive step.

4. Auxiliary request 1

4.1 *Admission by opposition division, Rule 80 EPC*

The appellant opponent submits that the opposition division should not have admitted auxiliary request 1 as contrary to Rule 80 EPC because one of the added features is already known from E9.

Whether or not one of a number of amendments to a claim individually addresses opposition grounds is irrelevant as long as the amendments together as a whole can be seen to be a genuine attempt to address an opposition ground. T 0323/05 which concerns amendments of the description has no bearing on this matter. Otherwise, the division appears to have exercised its discretion according to the correct criteria and after having heard the parties (this has not been contested).

Thus the Board does not see any reason, let alone a legal basis, for reversing the opposition division's decision to admit auxiliary request 1, which thus forms part of the impugned decision. The request thus also remains in the proceedings before the Board.

4.2 *Added subject-matter*

4.2.1 Claim 1 of auxiliary request 1 had been amended to include a number of features from the description and filed claims.

In particular the added feature of the airfoil clamp and the foot being dimensioned to fit within the *upper portion* of the airfoil frame when the blade is in a horizontal position blade orientation, said to derive from paragraph 0032, appears to have been isolated from its specific context in that paragraph.

Paragraph 0032 explains in reference to figure 3 how the blade is lifted, rotated a quarter turn (from its vertical orientation shown in figure 2) into a horizontal orientation and then lowered into place over a tip frame 2 that is already in place. Placement is then shown in greater detail in figure 4. In the Board's understanding of this passage and the figures the significance of the mention of the *upper portion* of the frame 2 stems from the placement of blade in that portion as described in the preceding lines of the paragraph, namely by lowering it from above into the frame. This is possible only because the frame is designed to receive the blade with arm and clamp *from above* and *support* them in that upper portion of the frame. Thus, as also evident from the detailed view of figure 4, the mounting frame 2 is open from above in its upper portion so as to receive the lowered clamp and foot assembly, and also includes a horizontal beam or retaining means in the upper part of the frame allowing the blade to stay in an upper portion. In this regard the airfoil frame differs significantly from the root mounting frame 1, as is evident from any of the figures that show both. The statement that the clamp and foot fit within the *upper portion* is only fully understood within that context: this feature is structurally and functionally closely linked with the frame design.

4.2.2 In this regard figures 3 and 4 are not *merely* illustrative of an upper portion as argued by the appellant proprietor. There is nothing to suggest that these figures are anything other than an integral part of the explanation given in paragraph 0032. Nor does the application as filed disclose or reasonably suggest any other embodiment of the clamp and foot assembly nesting within the upper part of the airfoil frame. Figures 3,4 and 6 effectively show the same airfoil frame mounting design.

4.2.3 Thus the Board finds that - contrary to the impugned decision - the amendment to claim 1 of the auxiliary request 1 by isolating a feature from its close structural and functional context has resulted in an unallowable intermediate generalisation and so adds subject-matter contrary to Article 123(2) EPC.

5. Auxiliary request 2 - Admittance under Articles 13(1) and (2) RPBA

5.1 Claim 1 of this request adds to claim 1 of auxiliary request 1 the following expression as a last feature of its preamble:

" ,so that the blade (6) in this horizontal orientation can be lowered into place on a waiting airfoil frame (2), and the airfoil clamp (3) can be dropped into the airfoil frame (2) and secured to this; "

5.2 The auxiliary request 2 was filed at the oral proceedings before the board, and amounts to an amendment to the Appellant-proprietor's case in the sense of Article 13 RPBA.

- 5.3 The Board considers the filing of auxiliary request 2 to be justified by the fact that during the oral proceedings before the Board the debate on added subject-matter shifted to an aspect of paragraph 0032 that had not been discussed in that form or detail in writing. This was seen by the Board as an exceptional circumstance in the sense of Article 13(2) RPBA.
- 5.4 However, the Board does not find that this further amendment *prima facie* overcomes the objection of added subject-matter, as required by Article 13(1) RPBA, which must apply also to late amendments to a party's case. Rather than incorporating the relevant features of the frame design as might be inferred from paragraph 0032 in conjunction with figures 3 and 4 (see above), the appellant proprietor has chosen to include a further feature from paragraph 0021. This paragraph also describes lifting, rotation and lowering of the blade so it is dropped *into* a tip frame (which must thus be open at the top), where it is then secured in an unspecified manner. However, it does so in a different context. The focus of this paragraph 0021 is *connecting means*, a feature not included, possibly resulting in a different intermediate generalization. There is also no mention of placement in an *upper* portion of the frame which in paragraph 0032 is explained and understood only in reference to figures 3 and 4, and the specific securing means shown there. It is not immediately apparent to the Board that these different aspects of paragraphs 0021 and 0032 may be combined within the original disclosure of the application as filed.

- 5.5 For the above reasons, the Board in exercising its discretion under Article 13(1) RPBA decided not to admit Auxiliary request 2 into the appeal proceedings.
6. The appellant proprietor's appeal for the main request fails. As the Board finds that the division was wrong to find that the first auxiliary request did not add subject-matter it must set the decision aside. As no allowable request remains, the Board must revoke the patent pursuant to Article 101(2) and (3) (b) EPC.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside.**
2. **The patent is revoked.**

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated