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Datasheet for the decision of 12 December 2018

Case Number: T 2262/14 - 3.2.06

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Language of the proceedings: EN

Title of invention:
ROTOR FOR STEAM TURBINE AND PROCESS FOR PRODUCING THE SAME

Patent Proprietor:
Mitsubishi Hitachi Power Systems, Ltd.

Opponent:
Siemens Aktiengesellschaft

Headword:

Relevant legal provisions:
RPBA Art. 12(4), 13(1)
EPC R. 80
EPC Art. 100, 84, 111(1), 104(1), 100(c)

Keyword:
Late-filed main request - submitted with the statement of grounds of appeal
Late-filed auxiliary requests - admitted (yes)
Amendment occasioned by ground for opposition - amendments allowable (no)
Claims - clarity - auxiliary request 1 (no) - clarity - auxiliary request 2 (yes)
Remittal to the department of first instance - (yes)
Apportionment of costs - (no)

Decisions cited:
G 0003/14, T 0611/90

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 2262/14 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 12 December 2018

Appellant: (Patent Proprietor)	Mitsubishi Hitachi Power Systems, Ltd. 3-1, Minatomirai 3-chome, Nishi-ku, Yokohama 220-8401 (JP)
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Appellant: (Opponent)	Siemens Aktiengesellschaft Werner-von-Siemens-Straße 1 80333 München (DE)
Representative:	Siemens AG Postfach 22 16 34 80506 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 7 October 2014 concerning maintenance of the European Patent No. 1898048 in amended form.**

Composition of the Board:

Chairman M. Harrison
Members: P. Cipriano
E. Kossonakou

Summary of Facts and Submissions

I. Appeals were filed by both the appellant-opponent and the appellant-patent proprietor against the interlocutory decision of the opposition division in which it found that European patent No. 1 898 048 in an amended form met the requirements of the EPC.

II. The appellant-opponent, hereinafter simply "opponent", requested with its grounds of appeal that the interlocutory decision be set aside and the patent be revoked.

III. The appellant- patent proprietor, hereinafter simply "(patent) proprietor", requested with its grounds of appeal that the interlocutory decision be set aside and the patent be maintained according to its main request or, subsidiarily, according to one of its auxiliary requests 1 to 5.

IV. The following documents, referred to by the opponent in its grounds of appeal, are relevant to the present decision:

E1 JP 61 112702 A and its translation into English

E8 "Thermal Spray Processes" - revised by Daryl E. Crawmer, Thermal Spray Technologies Inc.

E12 "Thermal spray coating technology - a review". Solid State Science and Technology, Vol.11, No.1 (2003) 109-117

E13 Cross-sectional micro-photos of HVOF and detonation sprayed alloy-steel coating

V. The Board issued a summons to oral proceedings including a communication containing its provisional opinion, in which it indicated *inter alia* that the Board presumed the word "arbitral" was intended to mean "arbitrary"; further, that it might require discussion how the feature "the coating layer is obtained by a high velocity flame spray (HVOF) method" (from claim 1 of the main request), which was a product-by-process feature, was to be interpreted and indeed whether it defined the steam turbine rotor in a suitable manner in terms of Article 84 EPC, in particular with regard to the identifiable structural properties that such product-by-process feature might imply in the coated rotor.

Regarding claim 4 of the main request, it was stated that it might be discussed whether the use of the definite article "the" would necessarily have allowed the skilled person reading the claim to unambiguously understand that "the coating layer" referred to the "spray coating layer" defined previously in the same claim. The Board also considered that it might be questioned why such an amendment was made in the claim compared to claim 4 as granted, as this amendment appeared not to be in accordance with Rule 80 EPC.

VI. With letter dated 12 November 2018, the proprietor filed new auxiliary requests 1-7 replacing previous auxiliary requests 1-5.

VII. Oral proceedings were held before the Board on 12 December 2018, during which the proprietor filed new auxiliary requests 1 and 2, which replaced previous auxiliary requests 1 and 2, as well as auxiliary requests 6A, 7A, 7B, 8A and 8B, which replaced previous auxiliary requests 6 and 7.

The patent proprietor requested that the decision under appeal be set aside and the European patent No. 1 898 048 be maintained on the basis of

the main request filed with its statement setting out the grounds of appeal dated 16 February 2015 or

one of auxiliary requests 1 and 2 filed during the oral proceedings or

one of auxiliary requests 3 to 5 filed with letter dated 12 November 2018 or

one of auxiliary requests 6A, 7A, 7B, 8A and 8B filed during oral proceedings.

The proprietor also requested remittal of the case on the basis of any request found to meet the requirements of Articles 84 and 123(2) EPC for which an objection pursuant to Article 83 EPC would have to be discussed. Finally, an apportionment of costs was requested in case of remittal.

The opponent requested that the decision under appeal be set aside and the patent be revoked.

VIII. Claim 4 of the main request reads as follows:

"A method of manufacturing a steam turbine rotor shaft made of 9 to 13% Cr heat resisting steel, which comprises:

forming a spray coating layer of a low alloy steel containing 3% of Cr or less by a high velocity flame spray (HVOF; high velocity oxy-fuel method) on a sliding face of a journal of the rotor shaft, and

subjecting the surface of the coating layer to machining or polishing to produce a surface of the sliding face having a desired size and surface roughness."

Claim 1 of auxiliary request 1 reads as follows:
"A steam turbine rotor shaft made of 9 to 13% Cr heat resisting steel, having a sliding surface of a journal is provided with a coating layer of a low alloy steel containing Cr of 3% or less
characterized in that
the coating layer is obtained by a high velocity flame spray (HVOF) method; and
the coating layer has an area rate of defects including pores and oxides in an arbitrary cross sectional structure of 3 to 15%."

Claim 4 of auxiliary request 1 reads as follows:
"A method of manufacturing a steam turbine rotor shaft made of 9 to 13% Cr heat resisting steel according to claim 1, which comprises:
forming a spray coating layer of a low alloy steel containing 3% of Cr or less by a high velocity flame spray (HVOF; high velocity oxy-fuel method) on a sliding face of a journal of the rotor shaft, and

subjecting the surface of the spray coating layer to machining or polishing to produce a surface of the sliding face having a desired size and surface roughness."

Claim 1 of auxiliary request 2 reads as follows:
"A steam turbine rotor made of 9 to 13% Cr heat resisting steel, having a sliding surface of a journal is provided with a coating layer of a low alloy steel containing Cr of 3% or less

characterized in that

the coating layer is obtained by a high velocity flame spray method, the method namely being high velocity oxy-fuel spray method; and

the coating layer has an area rate of defects including pores and oxides in an arbitral cross sectional structure of 3 to 15%."

Claim 4 of auxiliary request 2 reads as follows:
"A method of manufacturing a steam turbine rotor shaft made of 9 to 13% Cr heat resisting steel, which comprises:

forming a spray coating layer of a low alloy steel containing 3% of Cr or less by a high velocity flame spray, namely being high velocity oxy-fuel spray method, on a sliding face of a journal of the rotor shaft, and

subjecting the surface of the spray coating layer to machining or polishing to produce a surface of the sliding face having a desired size and surface roughness."

IX. The arguments of the opponent may be summarised as follows:

Main request - admittance

The task of the Board of Appeal was to solely review the correctness of the decision and not to deal with new subject-matter. In addition, a request comprising amended claim 4 could have been filed before. Thus, the

main request should not be admitted into the proceedings.

Main request - allowability

The removal of the term "spray" from the feature "surface of the spray coating layer", as in granted claim 4, was not occasioned by a ground of opposition as required by Rule 80 EPC and therefore the main request was not allowable.

Auxiliary request 1 - admittance

The first auxiliary request should not be admitted, since the introduction of the term "shaft" was not occasioned by a ground of opposition as required by Rule 80 EPC.

Auxiliary request 1 - clarity

The location in the claim of the expression "according to claim 1" following the expression "heat resisting steel" did not allow the skilled person reading claim 4 to establish exactly which features of claim 1 were being referenced, since claim 1 was directed to a steam turbine rotor shaft and not to 9 to 13% Cr heat resisting steel. Claim 4 was thus not clear.

Auxiliary request 2 - admittance

The request should not be admitted into the proceedings because the subject-matter of claim 4 had never been pursued before, such that the opponent could not reasonably be expected to deal with.

Auxiliary request 2 - Article 84 EPC

The subject-matter of claim 1 was not supported by the description according to Article 84 EPC, since the description only disclosed examples of coating methods for the layer having the exact same spray conditions when applying high velocity oxy-fuel (hereinafter also referred to as HVOF) spray and resulting in the same area rate of defects of about 10%. Without specifying any spray conditions or operational parameters that would result in the claimed area rate of defects of 3 to 15%, the claim lacked support in the description.

The feature "coating layer obtained by the high velocity flame spray method" in claim 1 was a product-by-process feature that did not provide the coated rotor with any identifiable structural property, since one could not tell from the resulting coating by which method it had been obtained. The method and coating properties in Table 1 of each of E8 and E12 overlapped, such that it was not possible to recognize, in the coated layer, which process had been used. The paragraphs bridging pages 4 to 5 and 6 to 7 also stated that HVOF was similar to detonation gun spraying.

Further, it was impossible to derive from the cross-sections in E13 any meaningful information since variations in the spray conditions within the same process were also responsible for different results.

Annealing was not an implicit necessary step of the detonation gun coating method. E1 always referred to the annealing process as a subsequent step to the explosive spraying - see page 6, column 1, last paragraph and page 7, column 1, second paragraph. In

addition, HVOF also produced the same structure as plasma spraying.

Regarding claim 4, the amended expression "forming a spray coating layer of a low alloy steel containing 3% of Cr or less by a high velocity flame spray, namely being high velocity oxy-fuel spray method" was unclear, since the term "spray" in the main clause referred to a powder being sprayed, which was not a "spray method" as indicated in the dependent clause. It was thus unclear for the skilled person reading the claim what the high velocity oxy-fuel spray method was referring to.

Remittal of the case for further prosecution

The opponent had no objections to remittal.

X. The arguments of the proprietor may be summarised as follows:

Main request - admittance

There was no reason to file the main request earlier during the opposition proceedings.

Main request - allowability

The amendment intended to overcome a potential objection under Article 100(c) EPC due to the reference to a "coating layer" in paragraph [0019] (instead of a "spray coating layer" in granted claim 4) and it was irrelevant whether the objection was overcome or not in order for the requirement of Rule 80 EPC to be fulfilled.

Further, the scope of the claim was not changed by the deletion of the term "spray" in claim 4, such that the amendment was allowable.

Auxiliary request 1 - admittance

The introduction of the term "shaft" in claim 1 was required by the introduced reference to claim 1 in claim 4, which itself referred to a shaft.

Auxiliary request 1 - clarity

It was clear that the reference to claim 1 in claim 4 encompassed only the features of the preamble.

Auxiliary request 2 - admittance

Auxiliary request 2 was an immediate reaction to the preliminary opinion of the Board. Further, the opposition division had followed a narrower interpretation of the feature "high velocity flame spray (HVOF) method" which corresponded to the current amended feature, such that there was no new subject-matter which needed to be discussed in the appeal proceedings.

Auxiliary request 2 - Article 84 EPC

Paragraph [0020] supported the subject-matter of claim 1. Even if the Board disagreed, according to the decision G 3/14, the introduction of the area rate of defects from claim 3 into claim 1 did not introduce a new non-compliance with Article 84 EPC which was not already there, such that it fell outside the extent to which claim 1 could be examined for compliance with the requirements of Article 84 EPC.

The product-by-process feature defined a coating layer with identifiable structural properties. Table 1 of each of E8 and E12 showed that the detonation gun and the HVOF method had different properties that led to differences recognizable in the respectively produced coatings, i.e. different adhesion strengths and % of defects. The contrary could not be concluded from the paragraphs in E8 between pages 4 and 5 as well as 6 and 7, since they only compared specific aspects and situations and could not serve as a general comparison between the two methods. The resulting cross-sectional micrograph photos in E13 confirmed that denser coatings were obtained by the detonation gun method. In addition, as page 6, last paragraph of the first column of the translation of E1 disclosed, the coating by the detonation gun method necessarily required an annealing step to increase the resistance to external force that was implicit and could easily be recognized in the coating cross-section.

HVOF also employed higher particle velocities and lower particle temperatures which resulted in a different structure when compared to plasma spraying, where the complete melting of the powder and subsequent quench and solidification resulted in a different structure.

Regarding claim 4, the skilled person reading the claim understood that the high velocity oxy-fuel spray method referred to the whole method step of forming a spray coating layer by a spray.

Remittal of the case for further prosecution

The objection regarding sufficiency of disclosure of a turbine rotor coating obtained by HVOF having an area

rate of defects of 3 to 15% was brought up for the first time with the grounds of appeal by the opponent and it was not part of the appealed decision.

Apportionment of costs

The late-filed facts admitted by the Board regarding the sufficiency of disclosure of the area rate of defects when applying HVOF justified an apportionment of costs.

Reasons for the Decision

1. Main request - admittance

1.1 The main request was filed together with the grounds of appeal. It contains claims 1 to 3 corresponding to the amended claims 1 to 3 as found allowable by the opposition division and an amended independent claim 4.

1.2 Article 12(4) RPBA requires the Board to take into account everything presented by the parties under Article 12(1) RPBA if and to the extent that it relates to the case under appeal and meets the requirements in Article 12(2) RPBA. However, according to Article 12(4) RPBA, the Board has the discretionary power to hold inadmissible facts, evidence and requests that could have been presented or were not admitted in the first instance proceedings.

1.3 Thus, contrary to the argument of the opponent that the task of the Board of Appeal was solely to review the correctness of the decision, an automatic refusal of the requests whenever they could theoretically have

been filed before the opposition division would contravene Article 12(4) RPBA which leaves this matter to the discretion of the Board.

1.4 The opponent's argument, that a request comprising amended claim 4 could have been filed earlier, is not accepted. The opponent has not brought forward any specific reason as to why the amendments carried out in claim 4 of the main request were in some way evident or rendered obvious through the course of the opposition proceedings and should have been made before the appeal phase, and the Board also does not find any reason to conclude that this was the case.

1.5 Thus, the Board found no reason to exclude the main request from the proceedings.

2. Main request - allowability

2.1 The subject-matter of claim 4 was amended in relation to granted claim 4 such that the term "spray" in the feature "the surface of the spray coating layer" was deleted.

2.2 Rule 80 EPC specifies *inter alia* that the claims may be amended, provided that the amendments are occasioned by a ground for opposition under Article 100 EPC.

2.3 The replacement of the feature "the spray coating layer" by the feature "the coating layer" is arguably an attempt to make granted claim 4 clearer by referring to the coating layer in the same way as in claim 1 and is for this reason not occasioned by any ground of opposition under Article 100 EPC, since lack of clarity is not a ground for opposition.

2.4 The proprietor argued that the amendment was made in order to overcome a potential objection under Article 100(c) EPC due to the reference to a "coating layer" in paragraph [0019] (instead of a "spray coating layer" in granted claim 4) and that it was irrelevant whether the objection was overcome by the amendment or not in order for the requirement of Rule 80 EPC to be fulfilled.

The Board does not accept this. Paragraph [0019] refers to "forming a coating layer [...] by a method of high velocity flame spray" and so relates to a previous feature in claim 4 and not to the feature which has been amended. Further, the aforementioned previous feature in granted claim 4, still related to paragraph [0019], defines "a spray coating layer" and has not been amended. Thus, whilst it may be irrelevant whether the potential objection was actually overcome by the amendment, the Board is not convinced that paragraph [0019] is related to the amended feature in question and that it could serve as a basis for any realistic potential objection made under Article 100(c) EPC.

It is immaterial in this context whether there is no change of subject-matter, as the proprietor argued (and this is not anyway necessarily the case here), since this is not a requirement of Rule 80 EPC.

2.5 It follows that the amendment carried out in claim 4 does not comply with the requirement of Rule 80 EPC and thus the main request is not allowable.

3. Auxiliary request 1 - admittance

3.1 Claim 1 of auxiliary request 1 was amended such that it is now directed to "A steam turbine rotor shaft" and the term "arbitral" has been changed to "arbitrary".

The Board finds the amendment from the term "arbitral" into "arbitrary" is unjustified, since the only possible understanding for the skilled person is that the term "arbitral" in this context means "arbitrary", and thus the term needs to remain unchanged. With the agreement of the proprietor and in the absence of any counter-argument from the opponent, claim 1 was then interpreted such that "arbitral" means "arbitrary".

Claim 4 was amended such that it is now directed to "A method of manufacturing a steam rotor turbine shaft made of 9 to 13% Cr heat resisting steel according to claim 1".

3.2 The auxiliary request was filed after the time limit for filing the response to the appeal grounds of the opponent (Article 12(1) and (2) RPBA) and therefore constitutes an amendment to the proprietor's complete case.

According to Article 13(1) RPBA, any amendment to a party's case may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of *inter alia* the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy.

In order to be in line with the requirement of procedural economy, amendments should be *prima facie* allowable in the sense that they at least overcome the objections raised against previous requests without giving rise to any new ones.

3.3 The argument from the opponent, that the introduction of the term "shaft" in claim 1 was not occasioned by a

ground of opposition and was thus objectionable under Rule 80 EPC, is not accepted by the Board. This amendment necessarily results from the addition of a reference to claim 1 in claim 4 - noting that claim 4 itself is directed to a method of manufacturing a steam turbine rotor shaft - in response to a potential novelty objection to claim 4 (see communication of the Board dated 29 October 2018, point 1.4.2) and is necessary to provide clarity when introducing the back-reference to claim 1. The amendment in claim 1 to include the word "shaft", was thus made to overcome a potential clarity objection. The Board also finds that this amendment does not give rise to any new objection.

3.4 Thus, auxiliary request 1 is admitted into the proceedings.

4. Auxiliary request 1 - clarity

4.1 Claim 4 was amended such that it is now directed to "A method of manufacturing a steam rotor turbine shaft made of 9 to 13% Cr heat resisting steel according to claim 1".

4.2 The amendment carried out in claim 4 results in claim 4 lacking clarity, since it cannot be unambiguously established if the reference is, for example, to the shaft comprising all the features of claim 1, simply to the raw heat resisting steel of claim 1 or to an intermediate product such as the shaft comprising only the features of a certain part of claim 1 (such as the preamble of claim 1 only according to the argument of proprietor). The location in the claim of the expression "according to claim 1" following the expression "heat resisting steel" does not allow the skilled person reading claim 4 to establish exactly

which features of claim 1 are being referenced, since claim 1 is directed to a steam turbine rotor shaft and not to 9 to 13% Cr heat resisting steel.

4.3 The Board does not accept the proprietor's argument that the reference to claim 1 encompasses only the features of the preamble. The expression "according to claim 1" *per se* normally refers generally to claim 1 and not to the preamble or any other part of claim 1, but the current drafting puts this normal understanding into doubt. Whilst there is no clear indication as to why the skilled person would understand this expression as referring only to the preamble of claim 1, the skilled person is still left in doubt as to what might be being referred to.

4.4 The subject-matter of claim 4 therefore does not fulfil the requirement of clarity of Article 84 EPC, such that auxiliary request 1 is not allowable.

5. Auxiliary request 2 - admittance

5.1 Auxiliary request 2 was filed during the oral proceedings. The subject-matter in both claims 1 and 4 of this request was amended in relation to the granted claims such that the high velocity flame spray method is now explicitly limited to a high velocity oxy-fuel spray method.

5.2 As explained in point 3.2 above according to Article 13(1) RPBA, any amendment to a party's case may be admitted and considered at the Board's discretion.

Furthermore, Article 13(3) RPBA stipulates that amendments sought to be made after oral proceedings have been arranged shall not be admitted if they raise

issues which the Board or the other party or parties cannot reasonably be expected to deal with without adjournment of the oral proceedings.

5.3 The Board finds that the amendments carried out in auxiliary request 2 represent an immediate reaction to the points 1.1.2 to 1.14 of the preliminary opinion issued by the Board that were still outstanding and had not been addressed in another way in any of the previously discussed requests. These amendments address the issue regarding the interpretation of the feature "high velocity flame spray method" of claims 1 and 4 that was previously discussed in the interlocutory decision of the opposition division and relevant for assessing which features are known from the prior art in the context of novelty and inventive step.

5.4 The argument from the opponent, that the request should not be admitted into the proceedings because the subject-matter of claim 4 had never been pursued before, is not accepted be the Board.

First, amendments to a party's case are foreseen in Article 13(1) and (3) RPBA, as explained above under points 3.2 and 5.2.

Second, the amendment carried out by the proprietor (the explicit limitation of claims 1 and 4 to a high velocity oxy-fuel spray method) simply allows the interpretation of the subject-matter of claims 1 to 4 to be correctly restored to the way that the opposition division had anyway understood the claim, such that it cannot be considered to be subject-matter which the opponent cannot reasonably be expected to deal with without adjournment of the oral proceedings under Article 13(3) RPBA, as argued by the opponent.

5.5 The Board thus exercised its discretion under Article 13(1) and (3) RPBA to admit auxiliary request 2 into the proceedings.

6. Auxiliary request 2 - Article 84 EPC

Claim 1 - Lack of support

6.1 The opponent argued that the subject-matter of claim 1 was not supported by the description as required by Article 84 EPC, since the application only disclosed examples of coating methods for the layer having exactly identical spray conditions when applying high velocity oxy-fuel spray and resulting in the same area rate of defects of about 10%. It further argued that, without specifying any spray conditions or operational parameters that would result in the claimed area rate of defects of 3 to 15%, the claim lacked support in the description.

6.2 The Board does not accept the opponent's arguments for the following reasons.

6.2.1 Whilst the Board finds that paragraph [0020] of the patent forms a basis in the description for the subject-matter of claims 1 and 4 by disclosing explicitly the invention of claims 1 and 4 (i.e. that the invention is performed (executed) by forming a coating layer on a sliding surface of a journal of a steam turbine with the characteristics of claim 1 such as an area rate of defects of 3 to 15%), it also notes that the claimed area rate of defects was originally present in granted dependent claim 3.

6.2.2 According to G 3/14 (see Reasons, point 84), it needs to be established if the lack of compliance with Article 84 EPC has been introduced by the amendment or not. The contested feature was - as said - present in granted claim 3, admittedly connected to the other features of that claim, from which it has then been "disconnected" and incorporated into the independent claim 1 under consideration (thus constituting a "Type A(ii) amendment", see G 3/14, points 3 and 84). The Board finds that any possible lack of support between the claims and the description cannot arise from the disconnection of a feature from claim 3 and its introduction into claim 1 and must (anyway) have existed before.

6.2.3 Thus the question, if any specific operational parameters or spray conditions necessary to achieve the claimed area rate of defects is missing, was already present in the granted claims and cannot result from the introduction of the feature into claim 1.

It follows that this amendment falls outside of the extent to which claim 1 can be examined for compliance with the requirements of Article 84 EPC.

Claim 1 - Product-by-process feature "obtained by"

6.3 The opponent argued that the feature "coating layer obtained by a high velocity flame spray method" in claim 1 of the auxiliary requests 1, 2, 3 and 4 was a product-by-process feature that did not attribute any identifiable structural property to the coated rotor, since a skilled person could not tell from the resulting coating by which method it had been obtained.

6.4 Contrary to the opponent's argument, the Board finds that the combination of the product-by-process feature

"the coating layer is obtained by a high velocity flame spray method, the method namely being high velocity oxy-fuel spray method"

with the resulting feature

"the coating layer has an area rate of defects including pores and oxides in an arbitral cross sectional structure of 3 to 15%"

defines a coating layer with identifiable structural properties.

Table 1 of E12 does not show an overlap between the obtainable area rate of defects (oxide content & porosity) of HVOF and a detonation gun method. In addition, the lowest claimed area rate of defects of 3% falls within the area rate of defects of HVOF and is almost triple that given as the maximum possible value achievable through the detonation gun process. Also E8, page 2, column 2, last paragraph and Table 1 of E8 suggest that the detonation gun process produces a lower porosity than the one claimed as well as lower oxides respectively. Table 1 of each of E12 and E8 also discloses that the adhesion bond strength obtainable by using a detonation gun is higher than the one obtained using HVOF. This is not in contradiction with the passage bridging pages 4 and 5 of E8 cited by the opponent - HVOF and detonation gun are similar processes but only "in some respects" - or the passage between pages 6 and 7 of E8, stating that both processes are "comparable". These passages do not convey any information to the skilled person as to how

similar both processes are and how this is reflected in the resulting coating structures.

6.5 On the contrary, the cross-sectional micro-photos shown in Figures 1 and 2 of E13 disclose different structures for each method, as also argued by the proprietor, but the Board finds them inconclusive, since they have been obtained under non-comparable spray conditions and the area rate of defects for the detonation sprayed coating of Figure 2 is not known. It is not possible to deduce from E13 if the same processes under different spraying conditions would have always lead to differing results.

6.6 The Board also finds, contrary to the argument from the proprietor, that annealing is not an implicit step of the detonation gun coating method. E1 (see page 6, column 1, last paragraph, page 7, column 1, second paragraph, the abstract or claim 1) referred to the annealing "process" always as a subsequent step applied to the coated layer after the explosive spraying. The skilled person would thus consider that E1 teaches the skilled person that applying an annealing step after spraying has certain benefits but not that use of one implies use of the other.

6.7 Contrary to the argument of the opponent, HVOF also produces a different structure in comparison to plasma spraying. As can be seen in Table 1 of E8 and E12, HVOF employs higher particle velocities and lower particle temperatures which result in a different structure, since in plasma spraying the complete melting of the powder and subsequent quenching and solidification results in lower hardness values and residual stress of the coating, as explained in paragraphs [0039] to [0041] of the patent and the paragraph bridging pages 6 and 7 of E8.

6.8 On the basis of the arguments presented and the available facts, the Board finds that the claimed coating layer therefore has different structural properties that are particular to the process through which it has been obtained and that these can also be identified in the finished product.

6.9 The subject-matter of claim 1 thus fulfils the requirements of Article 84 EPC.

Claim 4

6.10 The opponent argued that the amended expression "forming a spray coating layer of a low alloy steel containing 3% of Cr or less by a high velocity flame spray, namely being high velocity oxy-fuel spray method" was unclear, since the term "spray" in the main clause refers to a powder being sprayed, which was not a "spray method" as indicated in the dependent clause. It was thus unclear for the skilled person reading the expression what the high velocity oxy-fuel spray method was referring to.

6.11 The Board does not accept this argument since the skilled person should rule out interpretations which are illogical and do not make technical sense. Thus, the skilled person reading the claim with a mind willing to understand realises that (although grammatically incorrect) the high velocity oxy-fuel spray method refers to the whole method step of forming a spray coating layer by a spray. This is the only technically sensible interpretation (also when taking into account the whole disclosure of the patent).

6.12 The subject-matter of claim 4 thus fulfils the requirements of Article 84 EPC.

7. Remittal of the case for further prosecution

7.1 The proprietor requested remittal of the case on the basis of any request found to meet the requirements of Article 84 EPC and 123(2) EPC for which an objection pursuant to Article 83 EPC would have to be discussed. The opponent had no objections under Article 123(2) EPC to the subject-matter of these claims or to the request for remittal.

7.2 Under Article 111(1) EPC, second sentence, the Board of Appeal may either decide on the appeal or remit the case to the department which was responsible for the decision appealed. The appropriateness of a remittal is decided by the Board on the merits of the particular case. There is no absolute right to have every issue decided upon at two instances. Further, criteria which can be taken into account when deciding on a remittal include the parties' requests, the general interest that proceedings are brought to a close within an appropriate period of time and whether or not there has been comprehensive assessment of the case during the proceedings.

7.3 The objection regarding sufficiency of disclosure (Article 83 EPC) for a turbine rotor coating obtained by HVOF having an area rate of defects of 3 to 15% was brought up for the first time with the grounds of appeal by the opponent and it was not part of the appealed decision (albeit cited by the opponent under the incorrect legal norm of "lack of support", while referring to factors relevant evidently to sufficiency - see opponent's grounds of appeal, pages 8 and 9). It

is not normally the function of the Board to consider and decide upon questions which were raised for the first time during the appeal proceedings and which may require more time for the parties to provide evidence and develop their arguments, in particular to show that values above 10% were indeed possible, even though not seemingly supported by the current literature on file. The Board thus concludes that under the present circumstances it is not appropriate to reach a decision in the appeal proceedings on the matter of sufficiency of disclosure for the first time.

7.4 For these reasons, the Board decides, in the exercise of its discretion conferred by Article 111(1) EPC and on the basis of the second auxiliary request, to remit the case to the opposition division for further prosecution of the opposition.

8. Apportionment of costs

8.1 It is clear that additional costs will be incurred as a result of remittal. However, the Board cannot see anything in the opponent's behaviour, which would warrant a different apportionment of costs for reasons of equity: the substantive facts and arguments regarding sufficiency of disclosure concerning the area rate of defects when applying HVOF are not late-filed (as the proprietor argued), since they were already in the grounds of appeal (see e.g. point 3.1, page 9, 4th paragraph) albeit under another legal norm and the opponent simply stated with its letter dated 25 April 2018 (see page 6) that this previous objection concerned the requirements of Article 83 EPC.

The proprietor supported its request for a different apportionment of costs by reference to T 611/90.

Contrary to the argument of the proprietor however, T 611/90 lacks relevance, since it relates to the admittance of a prior use and not to arguments based on facts from the file which have not yet been considered (see T 611/90, points 2 and 3). This does not equate to the situation in the present case.

8.2 Therefore, there are no reasons of equity in accordance with Article 104(1) EPC which would justify a different apportionment of costs. The proprietor's request is therefore to be rejected.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division for further prosecution.

3. The request for apportionment of costs is rejected.

The Registrar: The Chairman:

M. H. A. Patin M. Harrison

Decision electronically authenticated