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**Datasheet for the decision  
of 29 August 2019**

**Case Number:** T 0589/16 - 3.3.05  
**Application Number:** 05783460.8  
**Publication Number:** 1832665  
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B21B27/02, B22D13/02,  
B22D19/16, C22C37/06, F16C13/00  
**Language of the proceedings:** EN

**Title of invention:**

CENTRIFUGALLY CAST EXTERNAL LAYER FOR ROLLING ROLL AND METHOD  
FOR MANUFACTURE THEREOF

**Patent Proprietor:**

HITACHI METALS, LTD.

**Opponents:**

Eisenwerk Sulzau-Werfen, R & E. Weinberger AG  
et al.

**Headword:**

Centrifugally cast layer/Hitachi

**Relevant legal provisions:**

EPC Art. 123(2), 100(b), 83, 100(a), 54(1), 56  
EPC R. 103(1)(a)

**Keyword:**

Amendments - allowable (yes)  
Sufficiency of disclosure - (yes)  
Novelty - (yes)  
Inventive step - (yes)  
Reimbursement of appeal fee - (no)

**Decisions cited:**

T 0002/80, T 0224/05, T 0815/07, G 0004/95

**Catchword:**



**Beschwerdekammern**  
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Case Number: T 0589/16 - 3.3.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.05**  
**of 29 August 2019**

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**Decision under appeal:** **Interlocutory decision of the Opposition**  
**Division of the European Patent Office posted on**  
**18 January 2016 concerning maintenance of the**  
**European Patent No. 1832665 in amended form.**

**Composition of the Board:**

**Chairman** E. Bendl  
**Members:** S. Besselmann  
S. Fernández de Córdoba

## Summary of Facts and Submissions

I. The present appeal lies from the interlocutory decision of the opposition division to maintain European patent No. 1832665 in amended form.

II. The patent in suit concerns a centrifugally cast external layer for a rolling roll.

III. Claim 1 of the main request that was decided upon by the opposition division is the same as that in the current appeal proceedings. It reads as follows:

*"A centrifugally cast outer layer for a roll having a composition comprising, by mass, 4.5-9% of C, 0.1-3.5% of Si, 0.1-3.5% of Mn, 18-40% of V, and at least one selected from the group consisting of 1-15% of Cr, 0.5-20% of Mo, and 1-40% of W, the balance being Fe and inevitable impurity elements, characterised in that the area ratio of MC carbide in the outer layer is 20-60%,  
that the average diameter of circles equivalent to the MC carbide particles is 15-50  $\mu\text{m}$ , and  
that optionally:  
the outer layer comprises at least one selected from the group consisting of 2% or less of Ni, 10% or less of Co, 0.5% or less of Ti and 0.5% or less of Al [sic] by mass;  
part of V is substituted by Nb in an amount satisfying the following formula (1):  
 $18\% \leq V\% + 0.55 \times Nb\% \leq 40\%$  (by mass); and (1)  
the outer layer satisfies the following formula (2):  
 $0 \leq C\% - 0.2 \times (V\% + 0.55 \times Nb\%) \leq 2\%$  (by mass) (2)"*

IV. The opposition division decided that this claim did not fulfill the requirements of Article 123(2) EPC, because

the feature defining the average diameter of circles equivalent to the MC carbide particles ("average diameter") had only been disclosed in conjunction with the Vickers hardness of the matrix. The set of claims that then formed auxiliary request 1 was found to be allowable.

V. In the decision under appeal, the following documents are referred to, *inter alia*:

D1 JP H09 256108 A (KAWASAKI STEEL CO)  
30 September 1997

D1a machine translation of D1

VI. Both parties appealed this decision.

VII. With its grounds of appeal, the proprietor (appellant-proprietor) submitted *inter alia* a new main request corresponding to claims 1-8 of the main request dealt with by the opposition division, method claims 9-10 having been deleted.

During oral proceedings, the appellant-proprietor presented a table entitled "Figure 16 vs. A23".

The appellant-proprietor also requested reimbursement of the appeal fee.

VIII. With its grounds of appeal, the joint opponents (joint appellants, "appellant-opponent" below) raised objections under Articles 83, 123(2), 54 (in view of D1), and 56 EPC.

During oral proceedings, the appellant-opponent presented two documents in support of its arguments, one being a figure entitled "Comparison of D1 against main request claim 1", and one being an annotated and

supplemented version of figure 16 of the patent in suit.

IX. The appellant-proprietor's arguments, where relevant to the present decision, can be summarised as follows:

The requirements of Article 123(2) EPC are met because the average diameter of the MC carbide particles is not linked to the Vickers hardness.

The claimed invention is sufficiently disclosed, several examples having been provided in the patent in suit.

The subject-matter of claim 1 differs from D1 in respect of the carbon content, the area ratio of the MC carbide, and the average diameter of the MC carbide particles. Each of these differences contributes to solving the technical problem of improving wear resistance. Starting from D1, the skilled person would not have arrived at the subject-matter of claim 1 in an obvious manner.

The request for reimbursement of the appeal fee is justified because the opposition division should not have allowed the oral submissions by the accompanying person. It failed to correctly apply the criteria set out in G 4/95: it did not identify any special circumstances, as required according to criterion II. (b) (iii) of the headnote of the decision.

X. The appellant-opponent's arguments, where relevant for the present decision, can be summarised as follows:

The claims have not been correctly interpreted by the opposition division. Claim 1 defines the composition of the roll, not of the outer layer.

The requirements of Article 123(2) EPC are not met, because claim 1 extends beyond the scope of original claim 9, which referred back to claim 7 or 8.

The invention has not been sufficiently disclosed. Only a few examples have been provided, and the skilled person would not have known how to carry out the invention across the entire scope of the claims. There is no teaching of how the claimed structural features may be obtained. In particular, it would not have been possible to provide the claimed area ratio of 20% or 60% at a vanadium content of 18%. This is evidenced by figure 16 and by paired figures 5-6 and 7-8 of the patent in suit.

Further evidence of insufficiency of disclosure is that the claim encompasses compositions which cannot be provided: the amounts of the components add up to more than 100%, as in T 2/80. Furthermore, the "Vickers hardness" has not been defined in terms of the load for measuring it, as required according to T 224/05. Applying the considerations set out in T 815/07, the absence of this definition places an undue burden on the skilled person seeking to reproduce the invention, resulting in insufficiency of disclosure.

The claimed subject-matter does not constitute a novel selection in view of D1, if the entire disclosure of D1 is taken into account, as illustrated by the "Comparison of D1 against main request claim 1". The general description of the MC carbide particle diameter in paragraph [0018] of D1 does not represent the

average particle diameter which would actually be measured. The actual value would be larger, due to the segregation of larger particles. Moreover, the claimed particle diameter is the result of using a centrifugal casting method. Using centrifugal casting in D1 gives the same particle diameter.

The claimed subject-matter is obvious in view of each of examples A23 and A22 of D1. These examples inherently have an MC carbide area ratio within the scope of claim 1, based on the correlation shown in figure 16 of the patent in suit, this correlation being generally applicable. Even if the MC carbide area ratio were a distinguishing feature, it would have been obvious to modify example A23 of D1 by increasing the amount of carbon and the amount of MC carbide. This would have resulted in a larger average diameter of the MC carbide particles, and a larger area ratio.

Inventive step is also lacking because no technical problem is solved if  $Nb/V \geq 0.2$ , considering that the problem of segregation does not occur in this case.

- XI. The appellant-proprietor requested as its main request that the decision under appeal be set aside and the patent be maintained on the basis of the claims filed with the statement of grounds of appeal, or alternatively on the basis of one of the following: auxiliary request 1A, as filed with the letter of 12 August 2019, auxiliary request 1, as maintained by the opposition division, or auxiliary requests 2 to 5, as filed with the letter of 9 September 2015.
- XII. The respondent requested that the decision under appeal be set aside and the patent be revoked.



## **Reasons for the Decision**

### *Main Request*

#### 1. Claim interpretation

- 1.1 Claim 1 relates to "a centrifugally cast outer layer for a roll having a composition comprising, by mass, ... [list of elements]".

The appellant-opponent interpreted this expression as indicating the composition of the roll. In its opinion, the claim thus related to a centrifugally cast outer layer suitable for a roll, said roll having the indicated composition.

- 1.2 From a linguistic point of view, it may be possible to associate the term "having" with either the roll or the outer layer. However, the patent as a whole does not leave any doubt that the indicated composition is that of the outer layer, see paragraphs [0015], [0025], [0054], [0068] and table 2. This interpretation is also supported by paragraphs [0109] and [0116]-[0117]. Moreover, claim 1 itself establishes a relationship between the percentages of C, V, and Nb in the outer layer (see formula (2)). It follows that the mention of V and C in the claim, and hence the indicated composition, likewise refer to the outer layer.

- 1.3 Claim 1 thus has to be understood as defining the composition of the outer layer.

2. Sufficiency of disclosure

2.1 The appellant-opponent's objection that there is an insufficiency of disclosure concerns the following aspects:

- the alleged lack of sufficient instructions to obtain the claimed structural features without undue burden, and to carry out the invention across the entire scope,
- the assertion that the claim encompasses compositions wherein the different amounts add up to more than 100% and
- the implications of the allegedly unclear definition of the "Vickers hardness".

2.2 There is no evidence that the skilled person would have been unable to obtain the claimed structural features, or to carry out the invention across the entire scope of the claims, for the following reasons:

2.2.1 The appellant-opponent explicitly acknowledged that invention examples 1, 2, 4, and 6 could be re-worked. Its objection was that there was no teaching of how these examples could be generalised, in order to carry out the invention across the entire scope of the claims. It argued that information regarding the centrifuge speed, the duration, the temperature, and the cooling rate were missing, as were instructions on how to determine the cutting depth. The appellant-opponent stressed that claim 1 encompassed embodiments wherein the vanadium content was 18%, which could not result in the claimed area ratio of 20% or even 60%, as was evidenced by figure 16 and by the paired figures 5-6 and 7-8 of the patent in suit.

- 2.2.2 However, there is no evidence that the skilled person would have been unable to select a melt composition, apply a centrifugal casting method, and determine a suitable cutting depth.
- 2.2.3 Relevant instructions are provided not only in the examples (including a description of the heat treatment in paragraph [0126]), but also in paragraphs [0108]-[0117] (regarding the centrifugal casting and the necessary cutting depth), as well as in form of the general teaching of the invention. The general teaching is to positively utilize the known phenomenon of MC carbide segregation during centrifugal casting, by removing an outer portion of a centrifugally cast body exhibiting a MC carbide concentration gradient, in order to increase the concentration of MC particles in the resulting outer layer, see paragraph [0012]).

Hence, the resulting MC carbide area ratio and the vanadium content (or the value of formula (1)) can be controlled *inter alia* by selecting a suitable cutting depth (see the paired figures 5-6 and 7-8).

Both parties argued that segregation was not only by particle density, but also by particle size. The selection of the cutting depth consequently also influences the average diameter of the MC carbide particles.

- 2.2.4 It has not been shown that the skilled person would have been unable to vary the specific examples on the basis of these general instructions, thereby obtaining ranges of vanadium contents (or of values of formula (1)), of MC carbide area ratios and of average diameters of MC carbide particles.

2.2.5 In particular, it has not been shown that a detailed description of the mentioned simulation and the prediction of cutting depth (paragraphs [0113] and [0114]) would have been necessary. Furthermore, there is no reason why the skilled person could not have determined the relevant parameters, including the cutting depth, by simple experiment.

2.2.6 The appellant-opponent has not provided any proof that the claim encompasses embodiments which cannot be carried out. The indicated parameters are interdependent. The claim does not require the entire range of area ratios, including an area ratio of 60%, to be obtainable at the same vanadium content of for example 18%.

The appellant-opponent observed, with reference to figure 16 and the paired figures indicated, that a vanadium content of 18% would have resulted in an area ratio larger than 20%, so that the claimed embodiment having an area ratio of 20% could not have been produced.

2.2.7 However, the claim is unambiguous in that both the vanadium content (or the value of formula (1)) and the area ratio must fall within the claimed ranges. The possible inconsistency only concerns the boundary of the claim. It has not been shown that the claimed range for the area ratio was incompatible with the range of the vanadium content (or the range of values according to formula (1)).

2.2.8 The observation that the lower limit of the value of formula (1) might not correspond exactly to the lower limit of the area ratio is based solely on the extrapolation shown in figure 16. It is not known to

what extent deviations from this figure may be obtained when carrying out the teaching of the patent in suit. Moreover, the possible inconsistency indicated would in the present case not have prevented the skilled person from carrying out the invention; the skilled person would merely have ruled out embodiments in which one of the requirements of the claim is not fulfilled.

2.3 The appellant-opponent also argued that the claim encompassed compositions which could not be produced because the components added up to more than 100%.

2.3.1 Specifically, the sum of the maximum contents of the components defined in the preamble is said to be 131%, allegedly in contradiction to T 2/80.

However, T 2/80 related to the question of clarity and concerned a case where a particular maximum content of one component in a mixture could never be achieved. In the present case, each of the indicated maximum contents may be provided, because the claim encompasses suitable amounts for the remaining components.

2.3.2 The appellant-opponent additionally reasoned that the composition defined in the preamble was a closed composition, the components thus adding up to 100%. In its opinion, the additional presence of the elements listed in the optional part of the claim (Ni, Co, etc.) was not therefore possible, because otherwise a total of greater than 100% would be obtained.

2.3.3 There is no basis for this interpretation, according to which the optional features define a subsequent modification of a given initial definition, thereby affecting all percentages in said initial definition. Rather, the requirements of the preamble remain valid

for embodiments according to the optional part of the claim.

Similarly, the expression "part of V is substituted by Nb" in the optional part of the claim defines an additional requirement, albeit one affecting the range of possible vanadium contents in that the substitution of part of the vanadium by niobium may result in a vanadium content of less than 18% V, as implied by the term "substituted".

- 2.3.4 There is no reason why the skilled person would have been unable to provide an outer layer having a composition according to the optional alternative, comprising the components listed in the preamble in conjunction with the components listed in the optional part of the claim (at least one of Ni, Co, Ti, and Al; Nb), in which the respective contents of the components fall within the claimed ranges.
  
- 2.4 The appellant-opponent raised a further objection of insufficiency of disclosure in claims 2 and 3, because they define the Vickers hardness of the matrix but do not specify the load applied for the measurement.
  - 2.4.1 In T 224/05, relied upon by the appellant-opponent, a claim defining a Vickers hardness without specifying the load was found to be unclear.
  
  - 2.4.2 In the present case, however, the patent in suit specifies that the test piece was measured in a load range of 50-200 g, see paragraph [0139]. Even if this indication of a load range resulted in some uncertainty of the hardness value obtained, this would not in any case have prevented the skilled person from carrying out the invention.

The appellant-opponent has not provided any evidence in support of its argument that the present case was similar to T 815/07 in that the alleged uncertainty (when measuring the Vickers hardness) would have placed an undue, if not insuperable burden upon the skilled person.

2.5 For these reasons, the appellant-opponent has not discharged its burden of proof that further details would have been necessary to reproduce the invention. The invention has been sufficiently disclosed (Article 100(b) EPC in conjunction with Article 83 EPC).

3. Article 123(2) EPC

3.1 According to the decision underlying the present appeals, the feature relating to the average diameter of the MC carbide particles has only been disclosed in conjunction with the feature defining the Vickers hardness of the matrix.

3.2 According to the appellant-proprietor, the relevant basis in the application as filed is the disclosure in paragraphs [0087]-[0088] defining the average diameter of the MC carbide particles.

3.3 These paragraphs [0087]-[0088] form part of a list under the general heading "Structure and properties of centrifugally cast outer layer for a roll", see paragraph [0084], and thus implicitly refer to the general teaching of the patent and consequently also to the subject-matter of original claim 1.

3.4 The contentious point is whether this disclosure is implicitly linked to the general disclosure of the Vickers hardness of the matrix in paragraphs [0098]-[0099] of the original application.

3.5 While the indications relating to the Vickers hardness of the matrix form part of the same list under the same general heading in paragraph [0084], there is no inextricable, explicit or implicit link between an average diameter of the MC carbide particles of 15 - 50  $\mu\text{m}$  and a Vickers hardness of the matrix of 550 - 900.

Paragraph [0099] indicates disadvantages caused by a Vickers hardness of less than 550 and more than 900, respectively, but the range 550 - 900 is not presented as an absolute requirement of the claimed subject-matter.

As argued by the appellant-proprietor, the hardness of the matrix is not influenced by the size and area ratio of the MC carbide particles outside the matrix. The mention of the precipitation of extremely fine carbide by heat treatment in paragraph [0099] refers to fine carbide inside the matrix, not to the MC carbide particles outside the matrix.

3.6 Thus, the amendment introducing the average diameter feature is supported by paragraphs [0087]-[0088]. The appellant-opponent's argument that this feature is disclosed as part of a combination of features also involving the Vickers hardness in original claims 7 and 8 is consequently not decisive.

3.7 The appellant-opponent additionally argued that the application as filed did not provide direct and



unambiguous support for the interpretation that the content of V should be at least 18%, even when part of the vanadium was replaced by niobium.

- 3.8 Notwithstanding the interpretation of the board that the minimum of 18% V does not apply when part of the vanadium is substituted by niobium, the features regarding the vanadium content in the preamble of the claim and in formula (1) are defined in exactly the same manner as in original claims 1 and 3, as well as in paragraphs [0063] and [0065]. Their interpretation consequently remains the same.

It may be argued that original claim 3 is effectively an independent claim, and defines a different vanadium content from original claim 1. Present claim 1 retains a definition based on original claim 3 as a separate, optional alternative. Irrespective of possible clarity issues with this claim structure, the present wording of the claim does not introduce any subject-matter which does not derive directly and unambiguously from the application as filed.

- 3.9 Claim 1 of the main request complies with the requirements of Article 123(2) EPC.

#### 4. Novelty

- 4.1 The appellant-opponent raised an objection of lack of novelty in view of D1, which is considered in the form of its machine translation D1a.

- 4.2 According to the appellant-proprietor, D1 does not disclose the required average diameter of the MC carbide particles. The range mentioned in paragraph

[0018] of D1a, namely from several to about 10  $\mu\text{m}$ , is below the claimed range of 15-50  $\mu\text{m}$ .

4.3 The appellant-opponent, by contrast, reasoned that the average diameter of the MC carbide particles actually obtained in D1 had to correspond to that of the patent in suit because a similar preparation process was used, and because the patent in suit did not teach specific measures to adjust this average diameter. The appellant-opponent furthermore argued that D1 did not provide any actual results of measuring the average diameter. According to the appellant-opponent, the apparent contradiction with the maximum value of about 10  $\mu\text{m}$ , explicitly mentioned in D1, was due to the phenomenon of particle segregation based on particle diameter (not density) in accordance with Stoke's law, which was inevitable in D1 and allegedly led to a larger average diameter on the outer surface of the roll.

4.4 These arguments are not convincing. The very purpose of D1 is to avoid segregation (see paragraph [0008] of D1a). There is explicit disclosure in paragraph [0018] of D1a of a particle diameter which is less than that stipulated in claim 1. There is also no basis to conclude that all centrifugal casting methods would inevitably result in the claimed average diameter of the MC carbide particles. On the contrary, table 3 of the patent in suit shows that various average particle diameters are possible, and may lie outside the claimed range.

4.5 Thus, there is no proof that the average diameter of the MC carbide particles obtained in D1 inevitably falls within the claimed range of 15-50  $\mu\text{m}$ . The subject-matter of claim 1 is therefore novel (Article

100(a) EPC in conjunction with Articles 54(1) and (2) EPC).

5. Inventive step

5.1 The appellant-opponent raised an objection of lack of inventive step in view of example A23 of D1 and also in view of example A22.

5.2 D1 relates to the same general purpose of providing a centrifugally cast outer layer of a rolling roll that has, *inter alia*, good abrasion resistance (paragraph [0001] of D1) and is therefore a suitable prior art document for assessing inventive step.

5.3 Example A23 has the closest composition to that defined in claim 1 and is therefore the most suitable starting point.

5.4 D1 does not explicitly describe the composition of the outer layer, but only that of the melt. In view of the teaching in D1 that no segregation occurred (paragraphs [0036]-[0037] and table 4 of D1a), and in line with the approach taken by the appellant-opponent, the composition of the outer layer is equated to that of the melt indicated in table 3.

On this basis, the subject-matter of claim 1 differs from example A23 in respect of the higher carbon content required (at least 4.5% according to claim 1, as opposed to 3.8% in example A23; this was not contested), in the average diameter of the MC carbide particles (see the conclusion regarding novelty), and in the area ratio of the MC carbide.

- 5.5 The conclusion regarding the latter feature, the area ratio, requires more explanation.
- 5.5.1 This feature is not explicitly mentioned in D1. The appellant-opponent argued, on the basis of figure 16, that the area ratio correlated with the combined amount of V and Nb present, calculated by means of formula (1). In the case of example A23, the value of formula (1) was  $16.2\% + 0.55 * 3.6\% = 18.2\%$ . As is clear from figure 16, the corresponding area ratio was thus about 25%.
- 5.5.2 The appellant-proprietor contested the assertion that the correlation shown in figure 16 was applicable to the teaching of D1. It argued that not all of the vanadium and niobium present were necessarily converted to the desired MC carbide particles, but that a proportion could for instance remain in the matrix. The proportion of the V and Nb actually forming the desired MC carbide particles depended *inter alia* on the relative amounts of carbon and carbide-forming elements present and on the specific preparation process used. The carbide-forming elements include elements other than V and Nb, for example Cr and Mo.
- 5.5.3 As calculated by the appellant-proprietor, example A23 relates to a composition wherein the molar amount of carbon is less than the sum of the molar amounts of vanadium and niobium (see the table "Figure 16 vs. A23"), and hence less than that necessary to convert all vanadium and niobium to MC carbide. Other carbide forming elements (Cr, Mo, see paragraphs [0015] and [0016] of D1a) are also present. Moreover, D1 explicitly teaches that it is necessary to retain a proportion of the vanadium in the matrix ("base"), see paragraph [0020] of D1a.

- 5.5.4 These arguments convincingly show that the correlation shown in figure 16 is not generally applicable. Nor is there any proof that it would apply to example A23. The annotated version of figure 16, submitted by the appellant-opponent, merely shows that the correlation may be extended to other examples and comparative examples of the patent in suit, but does not allow any conclusion regarding the examples of D1.
- 5.6 According to the appellant-proprietor, the objective technical problem is the provision of a centrifugally cast outer layer having improved wear resistance.
- 5.7 The board is satisfied that the indicated technical problem has indeed been solved. MC carbide is known to have high hardness and to contribute to wear resistance (see paragraph [0004] of the patent in suit). The experimental results, seen as a whole, also reflect the fact that a high area ratio of MC carbide is associated with improved wear resistance, see table 3.
- 5.8 The question of whether the solution would have been obvious to the skilled person has yet to be assessed.
- 5.9 The appellant-opponent could not identify any teaching that would have guided the skilled person towards the claimed subject-matter.
- 5.10 The relevant example A23 already provides good wear resistance in the sense of D1. The skilled person faced with the technical problem of further improving wear resistance would not have had any motivation to modify this example in the manner necessary to arrive at the subject-matter of claim 1.

5.11 For instance, specifically increasing the carbon content would have reduced the proportion of vanadium remaining in the matrix, in contrast to the teaching of D1 that part of the vanadium is to remain in the matrix in order to improve crack resistance, see paragraph [0020].

5.12 Furthermore, there is no direct teaching towards the claimed range of MC carbide area ratios. While hard carbide is known to improve the abrasion resistance (see paragraph [0017] of D1a), any increase in the proportion of vanadium carbide would have had to be balanced against the need to avoid segregation.

The need to avoid segregation during centrifugal casting is an essential element of the teaching of D1 (see paragraphs [0001] and [0008] of D1a). The appellant-proprietor convincingly argued that too high a content of vanadium entails the risk of segregation and affects the homogeneity of the material (see also paragraph [0019] of D1a which explicitly mentions the risk of poor dissolution).

5.13 Similarly, increasing the average diameter of the MC carbide particles may affect the homogeneity of the material. Both parties stated in their submissions that centrifugal casting entailed segregation based on particle diameter.

5.14 In view of these constraints imposed by the teaching of D1, in particular the need to maintain the desired homogeneity, the skilled person would not have been led to the subject-matter of claim 1, in the expectation of further improving wear resistance.

The patent in suit teaches an entirely different method for obtaining the claimed combination of features, namely by positively utilizing the phenomenon of segregation, see paragraph [0012].

- 5.15 The appellant-opponent proposed example A22 of D1 as an alternative starting point for assessing inventive step. This example has a carbon content within the claimed range, but the contents of vanadium and niobium do not meet the requirement of formula (1). This example is no more relevant than A23, and the same considerations apply, at least in so far as the MC carbide area ratio and the average particle diameter are concerned.

Thus, the same conclusion applies: the skilled person, starting from A22 and faced with the technical problem of improving wear resistance, would not have been led to the subject-matter of claim 1, considering the constraints imposed by the teaching of D1, in particular the need to maintain homogeneity.

- 5.16 The appellant-opponent raised the additional objection that, allegedly, no technical problem was solved when the ratio Nb/V was greater than 0.2, because in this case no segregation of MC carbide occurred, following the teaching of D1. However, this observation concerns the method of preparation and is not relevant for the present product claim.
- 5.17 For these reasons, the subject-matter of claim 1 involves an inventive step (Article 100(a) EPC in conjunction with Article 56 EPC).

*Reimbursement of the appeal fee*

6. Request for reimbursement of the appeal fee (Rule 103(1)a EPC)
- 6.1 The appellant-proprietor requested that the appeal fee be reimbursed because the opposition division had allegedly committed a substantial procedural violation in allowing the technical expert accompanying the appellant-opponent to make oral submissions during oral proceedings. The appellant-proprietor argued that the opposition division had exercised its discretion wrongly by not following the guidelines provided in G 4/95.
- 6.2 Referring to the main criteria set out in G 4/95 (point II of the headnote), the appellant-proprietor argued that criteria (ii) and (iii) had not been correctly applied, because the opposition division had recognised that the request was filed late but had failed to assess whether there were exceptional circumstances which would nevertheless have justified to allow the oral submissions by the technical expert, as required by criterion (iii).

The appellant-proprietor stressed that it was not enough to apply criterion (ii), but that it was additionally necessary to apply criterion (iii), even if criterion (ii) was found to have been met.

It was argued that the allegedly incorrect exercise of discretion had a direct impact on the decision under appeal, because the question of whether the amendments were supported included a number of technical aspects, which the accompanying person had been allowed to comment on.



6.3 It is established jurisprudence that a board of appeal should only overrule the way in which the opposition division exercised its discretion if the board concludes that the opposition division has done so according to the wrong principles, or without taking into account the right principles, or in an unreasonable way (see Case Law of the Boards of Appeal of the EPO, 8th ed. 2016, IV.E.3.6).

It was undisputed that the criteria of G 4/95 had been applied. The contentious point was whether criteria (ii) and (iii) had been correctly applied.

6.4 The decision of the opposition division shows that it took the arguments of both parties into account (see point 4.1 "Admissibility", second and third paragraph), including the appellant-proprietor's argument that the lateness of the appellant-opponent's request prevented him from arranging for a technical expert from Hitachi Metals to accompany him.

According to the opposition division's decision, the request was late but the appellant-proprietor "had had adequate time to assemble those people deemed to have the skills and knowledge assist him", and was "aware ... of which particular issues would be under discussion at the proceedings well before the opponent's request ...".

These findings imply that the opposition division considered that criterion (ii) was fulfilled, namely that the request was made "sufficiently in advance of the oral proceedings so that all opposing parties are able properly to prepare themselves in relation to the proposed oral submissions".

The decision under appeal also contains an indication of "exceptional circumstances" (i.e. the fact that the proprietor's latest submission had only been received 21 days after its submission, and the need for assistance by the technical expert, which arose of this submission), in line with criterion II. (b) (iii) of G 4/95.

However, irrespective of the question under dispute, of whether criterion (iii) had additionally to be applied in this situation, it is in any case clear from the above that the opposition division established the relevant facts and thoroughly examined the circumstances of the case. The reasoning of the opposition division shows why, in its opinion, the oral submissions were admissible in these circumstances. As also stated in its decision, in so doing the opposition division followed the guidance given in G 4/95, albeit without express reference to criteria (ii) and (iii).

- 6.5 Irrespective of whether the board could have arrived at a different conclusion in the circumstances of the case, the board does not agree that the opposition division exercised its discretion according to the wrong principles or in an unreasonable way. No substantial procedural violation occurred which would have justified reimbursement of the appeal fee.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent with claims 1 to 8 according to the main request submitted with the statement of grounds of appeal and a description to be adapted where appropriate.
3. The request of the appellant-proprietor for reimbursement of the appeal fee is rejected.

The Registrar:

The Chairman:



C. Vodz

E. Bendl

Decision electronically authenticated