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Datasheet for the decision of 5 February 2015

Case Number: T 1633/12 - 3.2.08

Application Number: 02707863.3

Publication Number: 1377690

IPC: C22B9/18, C22B9/14, C22C19/03

Language of the proceedings: EN

Title of invention:
METHOD FOR PRODUCING LARGE DIAMETER INGOTS OF NICKEL BASE ALLOYS

Patent Proprietor:
ATI Properties, Inc.

Opponents:
Carpenter Technology Corporation
AUBERT & DUVAL

Headword:

Relevant legal provisions:
EPC Art. 107, 100(c), 100(b)

Keyword:
Admissibility of appeal - (yes)
Amendments - added subject-matter (no)
Sufficiency of disclosure - (yes)

Decisions cited:

Catchword:

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Case Number: T 1633/12 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 5 February 2015

Appellant: (Patent Proprietor)	ATI Properties, Inc. 1600 N.E. Old Salem Road Albany, OR 97321-0580 (US)
Representative:	Potter Clarkson LLP The Belgrave Centre Talbot Street Nottingham, NG1 5GG (GB)
Respondent: (Opponent 1)	Carpenter Technology Corporation 2 Meridian Boulevard Wyomissing PA 19610-1339 (US)
Representative:	Bewley, Ewan Stuart Ipulse 4 Bloomsbury Place London WC1A 2QA (GB)
Respondent: (Opponent 2)	AUBERT & DUVAL Tour Maine Montparnasse 33 avenue du Maine 75755 Paris Cedex 15 (FR)
Representative:	Portal, Frédéric Cabinet Lavoix 2, Place d'Estienne d'Orves 75441 Paris Cedex 09 (FR)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 25 May 2012 revoking European patent No. 1377690 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	T. Kriner
Members:	M. Alvazzi Delfrate
	D. T. Keeling

Summary of Facts and Submissions

I. By a decision posted on 25 May 2012 the opposition division revoked European patent No. 1 377 690.

In its decision the Opposition Division dealt solely with the grounds of opposition under Article 100(c) EPC (which was found not to justify the revocation of the patent) and Article 100(b) EPC (which was found to justify the revocation of the patent). The objections raised under Article 100(a) EPC were not decided upon.

II. The appellant (patent proprietor) lodged an appeal against that decision in the prescribed form and within the prescribed time limit.

III. Oral proceedings before the Board of Appeal were held on 5 February 2015.

IV. The appellant requested that the decision under appeal be set aside and the patent maintained as granted (Main Request) or in the alternative that the patent be maintained on the basis of the claims of one of Auxiliary Requests 1 to 19 filed with letter of 24 February 2012. Moreover, it requested that, in the event that the Board were to conclude that any of the requests fulfilled the requirements of Article 100(b) and (c) EPC, the case be remitted to the Opposition Division for consideration of the remaining grounds of opposition.

The respondent (opponent 2) requested that the appeal be rejected as inadmissible or, if found admissible, that it be rejected as unfounded. Moreover, it requested that the new material submitted by the appellant with letter of 2 January 2015 not be admitted

into the proceedings and that, in the event that the Board were to conclude that the grounds of opposition under Article 100(b) and (c) EPC were unfounded, the Board decide on the issue of inventive step.

Opponent 1 had withdrawn its opposition and withdrawn from the appeal proceedings with letter dated 16 September 2013.

V. Claim 1 of the **main request** reads as follows:

"A method of producing a nickel base superalloy that is substantially free of positive and negative segregation, the method comprising:

casting an alloy that is a nickel base superalloy within a casting mold;

annealing and overaging the alloy by heating the alloy at at least 1200°F (649°C) for at least 10 hours;

electroslag remelting the alloy at a melt rate of at least 8lbs/min (3.63kg/min);

transferring the alloy to a heating furnace within 4 hours of complete solidification;

holding the alloy within the heating furnace at a first temperature of 600°F (316°C) to 1800°F (982°C) for at least 10 hours;

increasing the furnace temperature from the first temperature to a second temperature of at least 2125°f (1163°C) in a manner to inhibit thermal stresses within the alloy;

holding at the second temperature for at least 10 hours;

vacuum arc remelting a VAR electrode of the alloy at a melt rate of 8 to 11 lbs/minute (3.63 to 5kg/minute) to provide a VAR ingot."

The **auxiliary requests** are not relevant for the present decision.

VI. Following documents played a role for the present decision:

AD2 to AD7: Alloy 718 and Alloy 706 specifications;
D3: A.D. Helms et al. "Extending the Size Limits of Cast/Wrought Superalloy Ingots", Superalloys 1996, pages 427-433, 1996;
D4: Choudhury et al., "State of the Art of Superalloys Production for Aerospace and Other Applications Using VIM/VAR and VIM/ESR", ISIJ International, Vol. 32, No. 5, pages 563-574, 1992;
D11: S. M. Grose, "The Vacuum Arc Remelting of Large Diameter Alloy 706", Proc. of Superalloys 718, 625, 706 and Various Derivatives, pages 49-53, 1994;
D14: R. Kennedy et al. "Large Diameter Superalloy Ingots", The Minerals, Metals & Materials Society, 2000, pages 159-171;
D32: ASTM Designation B637-06- Standard Specification for Precipitation-Hardening Nickel Alloys Bars, Forgings, and Forging Stock for High-Temperature Service;
D43: US -B- 6 416 564;
D55: R.L. Williamson "Declaration on Start-up and gap Control Procedures for VAR casting Large Diameter Superalloy Ingots";

D57a: copy of California State Business Registry web page;
D57b: copy of Delaware State Business Registry web page;
D57c: copy of US PTO Patent assignment details;
AD51: Extract from Oregon Secretary of State- Corporation Division- Business name search

VII. The arguments of the appellant can be summarised as follows:

Admissibility of the appeal

ATI Properties Inc. was formed in 1994. It adopted its present name in 1998. The US application from which the patent in suit claims priority was assigned to ATI properties Inc. in 2001. Hence, it was clear that ATI properties Inc. had the right to file the application underlying the patent. As a consequence, it had been a party to the proceedings at all times and was entitled to appeal against the contested decision.

Article 100(c) EPC

The application as originally filed referred to 718 and 706 alloys and to their UNS norms. These norms disclosed the compositions of these alloys, as could be seen for instance from D32. Hence, there was no addition of information by their explicit disclosure, as was done in paragraphs [0005] and [0006] of the patent. Concerning the "broad composition" disclosed on page 11 of the application as filed and the compositions of AD2 to AD7, they were not the official UNS norm. Moreover, they essentially corresponded to the compositions given in the patent. Therefore, the explicit disclosure of the composition of the alloys

718 and 706 did not result in an extension of the patent beyond the content of the application as filed.

Article 100(b) EPC

The person skilled in the art had no difficulty in carrying out the VAR step of the process of claim 1. He was well aware that arc gap and start-up parameters had to be carefully controlled. He did not, however, need to know the precise values of these parameters since, as stated in D55, they were specific to the furnace to be used and could be established on the basis of his common general knowledge and routine experimentation. Therefore, the patent in suit sufficiently disclosed how to carry out the invention.

Article 100(a) EPC

The Opposition Division took no decision on the grounds of opposition under Article 100(a) EPC. Since the elements to be considered for such a decision were different from those relevant for Article 100(b) EPC and Article 100(c) EPC, the case should be remitted to the opposition division to consider the objections under Article 100(a) EPC.

VIII. The arguments of the respondent can be summarised as follows:

Admissibility of the appeal

AD51 showed that ATI Properties Inc. was first registered in 2003. Hence, it could not validly apply for the application underlying the patent in suit, which was filed in 2002. Consequently, it had no right to the patent in suit and could not lodge an appeal

against the decision of the opposition division to revoke it. Therefore, the appeal was not admissible.

Article 100(c) EPC

The application as originally filed referred to 718 and 706 alloys. However, for the 718 alloy, it merely disclosed a so-called "broad composition" whereas no composition at all was given for the 706 alloy. Hence, the disclosure of the compositions of these alloys in paragraphs [0005] and [0006] introduced subject-matter which extended beyond the content of the application as filed, especially because, as shown in AD2 to AD7, there were differences within the compositions of the alloys of paragraphs [0005] and [0006] and those disclosed in the prior art, for instance in the content of S, which as shown in D43 had a technical effect.

Article 100(b) EPC

The method of claim 1 comprised the step of vacuum arc remelting (VAR). As evidenced for instance in D3, D4, D11 and D14 the arc gap and the start-up parameters were important factors to be controlled in a VAR process for obtaining a large ingot with fewer defects. However, neither the claims nor the description of the patent provided concrete values for these factors or a teaching as to how to control them. Therefore, the person skilled in the art did not have sufficient information to carry out the invention.

Article 100(a) EPC

It was correct that the objections under Article 100(a) EPC were not decided upon in the decision under appeal. However, in the present case the same criteria were to

be applied to judge the obviousness of the arc gap start-up parameters, relevant for sufficiency of disclosure, and the melt rate, relevant for inventive step. Hence, the Board should deal also with the question of inventive step.

Reasons for the Decision

1. Admissibility of the appeal

According to the respondent, the patent proprietor ATI Properties Inc. was first registered in 2003, so that it could not validly apply for the application underlying the patent in suit on 25 February 2002 (the date of filing of that application) and thus had no right to the patent in suit and could not lodge an appeal against the decision of the Opposition Division. Therefore, in the respondent's view, the appeal was not admissible.

However, document AD51, on which the respondent relies, concerns only the registration of the company in Oregon. By contrast, in the light of D57a to D57c it is clear that ATI Properties Inc. was actually registered (originally in California) before the filing date of the application underlying the patent in suit, for which it could and did validly apply. Accordingly, the respondent's argument relies on a factually wrong premise and is doomed to fail already for this reason. Hence, the Board has no reason to doubt that the appellant was at all times a party to the proceedings and thus entitled to appeal against the decision of the Opposition Division (Article 107 EPC).

Since the appeal complies with the further requirements of Article 108 EPC, the appeal is admissible.

2. Article 100(c) EPC

The application as originally filed refers to 718 and 706 alloys. During the examination procedure it was amended to explicitly recite, as is now the case in paragraphs [0005] and [0006] of the patent in suit, the compositions of the 718 and 706 alloys which are stipulated by the corresponding UNS norms (see the ASTM standard D32 for the 718 alloy).

It is true that these compositions were not disclosed *verbatim* in the application as originally filed which, for the 718 alloy merely discloses a so called "broad composition" (see page 11) and does not explicitly disclose any composition for the 706 alloy. However, the application as filed explicitly refers to the corresponding UNS references of both the 706 and 718 alloy (see page 3, lines 20 to 23 and page 1, lines 20 to 25). Hence, whereas the amendment at issue may be regarded as superfluous, there is no reason to consider that it runs against the requirements of Article 123(2) EPC, because the present text merely describes explicitly information which, by reference to the UNS norm, was already comprised in the application as originally filed.

The fact that the "broad composition" disclosed on page 11 of the application or the compositions of the 706 and 718 alloys disclosed in AD2 to AD7 are not identical with the compositions stipulated in paragraphs [0005] and [0006] does not demonstrate anything to the contrary. As a matter of fact these

compositions differ from those of paragraphs [0005] and [0006] merely in that they do not list all the impurities, such as S, or do not indicate the values of the alloying elements with the same precision. Hence, neither AD2 to AD7, which are not official standards, nor the "broad composition" disclosed on page 11 cast any doubt as to the fact that the information conveyed to the person skilled in the art by the reference to the UNS norms in the application as filed was that the compositions of the 708 and 716 alloys are the same compositions which are now explicitly disclosed in paragraphs [0005] and [0006] of the patent.

Therefore, the patent does not comprise subject-matter which extends beyond the content of the application as originally filed.

3. Article 100(b) EPC

Claim 1 is directed to a method of producing a nickel base superalloy that is substantially free of positive and negative segregation, by a process comprising casting, electroslag remelting and vacuum arc remelting (VAR).

The VAR process is a well-known process. It is common ground that the arc gap and the start-up parameters are important factors to be controlled in this process for obtaining a large ingot with fewer defects. It is also undisputed that neither the claims nor the description of the patent provide concrete values for these factors.

However, as evidenced by D55 (see point "5.Summary") the specific values of these parameters depend on the specific furnace to be used. The declaration D55 also

explains that these values could be obtained on the basis of considerations belonging to the common general knowledge of the person skilled in the art already in the 1990s (see points 3. and 4.). These statements are also consistent with documents D3, D4, D11 and D14, which, while stressing the importance of the control of the arc gap and the start-up parameters, do not provide any detail as to their specific values but rather leave it to the reader to obtain them on the basis of his common general knowledge.

Therefore, the Board is satisfied that the person skilled in the art was able, on the basis of the disclosure of the patent and his common general knowledge at the date of priority, to carry out the method of claim 1 and in particular its VAR step. Accordingly, the patent discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

4. Objections under Article 100(a) EPC

The objections under Article 100(a) EPC (lack of inventive step) raised in the opposition proceedings were not decided upon in the decision under appeal. In this kind of situation the Boards ordinarily remit the case for further prosecution to the Opposition Division, because the function of the appeal proceedings is mainly to review the appealed decision.

The respondent requested that in the present case these objections be nonetheless treated by the Board in the present decision because the same criteria are to be applied to judge the obviousness of the arc gap start-up parameters, relevant for sufficiency of disclosure, and the melt rate, relevant for inventive step.

However, the Board notes that arc gap start-up parameters and melt rate are different parameters. Moreover, the evidence to be considered, in addition to the common general knowledge of the person skilled in the art, for assessing the different legal requirements of sufficiency of disclosure and lack of inventive step is different: the prior art, which is to be taken into account for assessing the presence of inventive step, does not play any role for the question of sufficiency of disclosure.

Under these circumstances, the Board sees no reason to depart from its ordinary practice and decide itself on the question of inventive step which was not decided in the decision under appeal.

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.

The Registrar: The Chairman:

V. Commare T. Kriner

Decision electronically authenticated