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Datasheet for the decision of 14 February 2020

Case Number:	T 1969/17 - 3.3.05
Application Number:	11752998.2
Publication Number:	2546368
IPC:	C21D8/00, C21D6/00, C21D8/02, C21D9/46, C22C38/00, C22C38/02, C22C38/06, C21D1/22, C22C38/04
Language of the proceedings:	EN

Title of invention:
METHOD FOR PRODUCING HIGH-STRENGTH STEEL SHEET

Patent Proprietor:
JFE Steel Corporation

Opponent:
ArcelorMittal

Headword:
High-strength steel sheet/JFE

Relevant legal provisions:
EPC Art. 54(1), 54(2), 56, 100(a), 100(b), 100(c)
EPC R. 111(2)

Keyword:
Grounds for opposition - fresh ground for opposition (yes)
Novelty - (yes)
Sufficiency of disclosure - (yes)

Decisions cited:
G 0009/91, G 0010/91, T 0986/93, T 0448/03, T 0620/08, T 0022/15, T 0184/17

Catchword:

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Beschwerdekammern

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Case Number: T 1969/17 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 14 February 2020

Appellant: (Opponent)	ArcelorMittal 24-26, Boulevard d'Avranches 1160 Luxembourg (LU)
Representative:	Lavoix 2, place d'Estienne d'Orves 75441 Paris Cedex 09 (FR)
Respondent: (Patent Proprietor)	JFE Steel Corporation 2-3, Uchisaiwai-cho 2-chome Chiyoda-ku Tokyo, 100-0011 (JP)
Representative:	Grünecker Patent- und Rechtsanwälte PartG mbB Leopoldstraße 4 80802 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 7 July 2017 rejecting the opposition filed against European patent No. 2546368 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	G. Glod
Members:	A. Haderlein
	S. Fernández de Córdoba

Summary of Facts and Submissions

1.1 The appellant (opponent) lodged an appeal against the decision of the opposition division rejecting the opposition to European patent No. 2 546 368. The patent in suit concerns a method for producing a high-strength steel sheet.

I. Claim 1 as granted reads as follows:

"1. A method for manufacturing a high strength steel sheet, comprising the steps of: heating a steel sheet consisting of by mass %

C: 0.10% to 0.73%,
Si: 3.0% or less,
Mn 0.5% to 3.0%,
P: 0.1% or less,
S: 0.07% or less,
Al: 3.0% or less,
N: 0.010% or less, and

as remainder Fe and incidental impurities, and optionally at least one of the following elements:

Cr: 0.05% to 5.0%,
V: 0.005% to 1.0%,
Mo: 0.005% to 0.5%,
Ti: 0.01% to 0.1%,
Nb: 0.01% to 0.1%,
B: 0.0003% to 0.0050%,
Ni: 0.05% to 2.0%,
Cu: 0.05% to 2.0%,
Ca: 0.001% to 0.005%, and
REM: 0.001% to 0.005%

to either temperature in the austenite single phase region or temperature in the (austenite + ferrite) two-phase region with an annealing time of 15 to 600 seconds; cooling the steel sheet with an average cooling rate ≥ 3°C/s to cooling stop temperature as target temperature set within a cooling temperature region ranging from Ms to (Ms - 150°C) allow a portion of non-transformed austenite to proceed to martensitic transformation; and heating the sheet temperature to temper said martensite, wherein a retention time after raising the temperature is in the range of 5 to 1000 seconds, characterized in that the method further comprises retaining the coldest part in the sheet widthwise direction of the steel sheet at temperature in a temperature range from the cooling stop temperature as the target temperature to (the cooling stop temperature + 15°C) for a period ranging from 15 seconds to 100 seconds, wherein "Ms" represents martensitic transformation start temperature and said cooling temperature region is exclusive of Ms and inclusive of (Ms - 150°C)."

II. The opposition was filed based on the grounds of Article 100(b) (lack of sufficient disclosure) and 100(a) EPC in conjunction with Articles 52(1) and 54(1),(2) EPC (lack of novelty), and on the following sole document:

D1: EP 2 327 810 A1.

III. At the oral proceedings before the opposition division, the opponent raised the ground for opposition under Article 100(c) EPC, arguing that the feature "average cooling rate ≥ 3°C/s to cooling stop temperature" was not disclosed in the documents of the application as

originally filed.

IV. The opposition division found that the grounds for opposition pursuant to Article 100(b) and 100(a) EPC in combination with Articles 52(1) and 54(1),(2) EPC did not prejudice the maintenance of the patent as granted. It did not admit the ground for opposition pursuant to Article 100(c) EPC.

V. With the grounds of appeal, the appellant filed further evidence in support of an alleged lack of inventive step.

VI. The appellant's arguments, as far as relevant to the present decision, may be summarised as follows.

The impugned decision did not contain any reasoning with respect to the *prima facie* relevance of the ground for opposition under Article 100(c) EPC. This ground, however, was *prima facie* relevant and should be admitted into the proceedings. There was also lack of sufficiency of disclosure because there was no disclosure of any means to retain the coldest part in the widthwise direction in the required narrow temperature range. The subject-matter of claim 1 lacked novelty in view of D1. It also lacked inventive step when taking into account the evidence filed with the grounds of appeal.

VII. The arguments of the proprietor (respondent), as far as relevant to the present decision, may be summarised as follows.

The grounds under Article 100(c) EPC and Article 100(a) in conjunction with Article 56 EPC were fresh grounds for opposition and should not be admitted into the

appeal proceedings. The requirement of sufficiency of disclosure was met and the subject-matter of claim 1 was novel over D1.

VIII. Requests

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

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. Ground for opposition pursuant to Article 100(c) EPC

1.1 This ground was raised for the first time at the oral proceedings before the opposition division. It was thus at the discretion of the opposition division to admit it. The standard to be applied in such a case is whether the fresh ground *prima facie* prejudices the maintenance of the patent (G 9/91 and G 10/91, Reasons 16). To the dismay of the board, and as correctly pointed out by the appellant, the decision's reasoning with respect to the non-admittance of this fresh ground (page 6, second paragraph of the decision) is rather short, to say the least.

However, as can be seen from the minutes of the oral proceedings before the opposition division, the appellant as well as the respondent were heard concerning this issue (see the minutes of the oral proceedings before the opposition division, item 1.4). Furthermore, it is clear from the written decision and the minutes that the appellant considered the feature "average cooling rate $\geq 3^{o}C/s$ to cooling stop temperature" not to be disclosed in the application

documents as originally filed, and that the respondent had pointed to paragraph [0029] for support of this feature. It is clear - at least on a *prima facie* level - that in paragraph [0029] of the application documents as published the "average cooling rate" to cool to the "cooling stop temperature" or "target temperature" is disclosed to be "at least ≥3°C/s". Thus, the opposition division concluded that the appellant's submissions with respect to the fresh ground for opposition pursuant to Article 100(c) EPC *prima facie* did not prejudice the maintenance of the patent as granted. Therefore, although it did not give an explicit explanation for not admitting this ground into the proceedings, it is evident that the opposition division applied the correct standard and, thus, correctly exercised its discretion.

1.2 Since the ground for opposition pursuant to Article 100(c) EPC was not admitted into the proceedings by the opposition division, it constitutes a fresh ground for opposition within the present appeal proceedings as well. Its introduction therefore requires the consent of the proprietor/respondent (see G 9/91 and G 10/91, Reasons 18). As the respondent does not consent, this ground is not admitted into the proceedings.

1.3 For the sake of completeness, it is noted that, according to T 986/93 (Reasons 2.4) and T 620/08 (Reasons 3.4), a board of appeal is at least not barred from considering a late-filed ground for opposition which has been disregarded by the opposition division if it is of the opinion that the opposition division exercised its discretion wrongly in this respect. Similarly, in T 22/15 (Reasons 3.2 to 3.5) it was held that, if the respective reasoning in the impugned decision does not comply with Rule 68(2) EPC 1973 (Rule

111(2) EPC), considering the late-filed ground for opposition in the appeal proceedings lies in the discretion of the board and depends on whether it is *prima facie* relevant for the maintenance of the patent.

But even when applying this standard, the board arrives at the same conclusion as the opposition division, namely that the ground for opposition pursuant to Article 100(c) EPC *prima facie* does not prejudice the maintenance of the patent as granted. The reasons are as follows.

Paragraph [0029] uncontestedly discloses the cooling rate to the first temperature region to be at least $3^{o}C/s$. Moreover, in this paragraph, like in claim 1 as originally filed, it is stated that the cooling stop temperature is the target temperature which is set within the first temperature region. From this passage, it is clear - at least on a *prima facie* basis - that the cooling stop temperature, i.e. the temperature to which cooling is performed, lies in the first temperature region and, thus, the cooling rate "to the first temperature region" is the cooling rate until the target temperature, i.e. the cooling stop temperature, is reached. Thus, the contentious feature is *prima facie* directly and unambiguously derivable from paragraph [0029] of the application documents as filed.

1.4 For the above reasons, the ground for opposition pursuant to Article 100(c) EPC is not admitted.

2. Sufficiency of disclosure

2.1 With respect to the ground for opposition pursuant to Article 100(b) EPC, the appellant essentially argued that the patent did not disclose any means of how to

retain and control the coldest part in the sheet widthwise direction of the steel sheet at a temperature in a temperature range from the cooling stop temperature as the target temperature to the cooling stop temperature + 15°C; it only disclosed how to measure this temperature.

2.2 This argument is not persuasive. Firstly, the patent contains quite extensive explanations on how to measure that temperature (see paragraph [0024]). Secondly, the appellant has not provided any evidence that would cast doubt as to whether the skilled person, by applying the teaching of that paragraph, would be able to maintain the coldest part of the steel sheet within the claimed, allegedly narrow, temperature range. Thus, there is no doubt that the skilled person, using such measurement techniques and having at their disposal the common general knowledge, can keep that temperature within the required range.

2.3 For these reasons, the requirement of sufficiency of disclosure is met and the ground for opposition according to Article 100(b) EPC does not prejudice the maintenance of the patent.

3. Novelty

3.1 It is uncontested that the feature "retaining the coldest part in the sheet widthwise direction of the steel sheet at a temperature in a temperature range from the cooling stop temperature as the target temperature to (the cooling stop temperature + 15°C)" is not explicitly disclosed in D1. The appellant, however, argues that this feature was implicitly disclosed in D1 because in Table 2, Example 18, column 11, the keeping time is said to be 100 seconds,

and after such a long period of time, the temperature of the sheet is homogeneous throughout the width of it. Thus, the contentious feature was implicitly disclosed in D1.

This is not persuasive. Whether a homogeneous temperature distribution is obtained after 100 seconds will depend on the circumstances, such as the dimensions of the sheet, the thermal properties of it and the cooling process used. Since these features are not disclosed for Example 18 of D1 (see in particular paragraphs [0061] to [0063]), there is no direct and unambiguous disclosure of the contentious feature in combination with the other features disclosed for Example 18 of D1.

3.2 Likewise, D1 does not disclose the step of heating the sheet temperature to temper the martensite, wherein a retention time after raising the temperature is in the range of 5 to 1000 seconds, in combination with the features of Example 18 of D1.

While in paragraph [0062] of D1 it is mentioned that in the examples a galvannealing treatment was applied "after cooling ... to T^{o}C shown in Table 2" (see last sentence of paragraph [0062]), the latter temperature is clearly the "[c]ooling termination temperature (^{o}C)" indicated in column 8 of Table 2, which is 450^{o}C for Example 18. This is also supported by claim 9 of D1 which states that galvannealing is applied during cooling to the cooling termination temperature or in the first temperature range. Thus, in Example 18 of D1, galvannealing is performed before the steel sheet is cooled down to the keeping temperature of the second temperature range of 280^{o}C, i.e. before cooling to the cooling stop temperature as defined in claim 1 of the

patent. As claim 1 requires heating to temper martensite to be carried out after cooling to the cooling stop temperature in the cooling temperature region, the claimed combination of features is not directly and unambiguously derivable from D1.

3.3 For the above reasons, the subject-matter of claim 1 is new. The ground for opposition pursuant to Article 100(a) in combination with Articles 52(1) and 54(1), (2) EPC does not prejudice the maintenance of the patent.

4. Inventive step

4.1 The appellant submits that there was lack of inventive step when considering the evidence filed with the grounds of appeal.

The ground for opposition concerning inventive step was never raised in the proceedings before the opposition division. It is also to be noted that the alleged lack of inventive step is not based on D1 as the closest prior art, the sole document relied upon in the proceedings before the opposition division. Therefore, this ground of opposition is a fresh one in the appeal proceedings (see also T 448/03, Reasons 5.1 and 5.2). Moreover, the lack of inventive step was not argued within the same factual and evidentiary framework as the novelty objection (see also T 184/17, Reasons 4). The respondent does not agree to its introduction into the appeal proceedings (see G 9/91 and G 10/91, Reasons 18).

4.2 Thus, this ground is not admitted into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Chavinier-Tomsic G. Glod

Decision electronically authenticated