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Datasheet for the decision of 23 April 2018

Case Number: T 0338/15 - 3.2.08

Application Number: 07252936.5

Publication Number: 1887090

IPC: C21C1/10

Language of the proceedings: EN

Title of invention:
Improved method of producing ductile iron

Patent Proprietor:
FOSECO INTERNATIONAL LIMITED

Opponents:
Elkem AS
FERROPEM
ASK Chemicals Metallurgy GmbH

Headword:

Relevant legal provisions:
EPC Art. 56
RPBA Art. 12(2), 13(1), 13(3)

Keyword:

Decisions cited:

Catchword:

Europäisches Patentamt
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Beschwerdekammern

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D E C I S I O N
of Technical Board of Appeal 3.2.08
of 23 April 2018

Appellant: (Opponent 1)	Elkem AS Hoffsveien 65B 0377 Oslo (NO)
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Respondent: (Patent Proprietor)	FOSECO INTERNATIONAL LIMITED Barlborough Offices 2 Midland Way, Central Park Barlborough Links Derbyshire S43 4XA (GB)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted on 19 December 2014 concerning maintenance of the European Patent No. 1887090 in amended form.**

Composition of the Board:

Chairwoman P. Acton
Members: M. Foulger
Y. Podbielski

Summary of Facts and Submissions

I. With the decision posted on 19 December 2014, the opposition division decided that, taking into consideration the amendments made by the patent proprietor during opposition proceedings according to the then valid "replacement 1st auxiliary request", the patent and the invention to which it related met the requirements of the EPC.

II. The appellant (opponent 1) filed an appeal against this decision. The appeal was filed in due form and within the given time limits.

III. Oral proceedings took place before the Board on 23 April 2018.

IV. The appellant (opponent 1) requested that the decision under appeal be set aside and that the European patent No. 1 887 090 be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed. They also requested that the new line of argument concerning Annex 1 submitted with letter dated 23 March 2018 not be admitted into the proceedings. In the event that the Board were to admit the new line of argument, they requested that the proceedings be adjourned and a cost order be made against the appellant.

V. Claim 1 as found allowable by the opposition division reads:

"A process for the production of ductile iron comprising the sequential steps of:-
(i) treating liquid iron with an initialiser which is a

ferrosilicon alloy comprising an effective amount of a Group IIa metal other than magnesium, said Group IIa metal being barium, and said effective amount being sufficient to inactivate the oxygen activity of the liquid iron,
(ii) between 2 and 10 minutes after step (i), treating the liquid iron with a magnesium containing nodulariser,
(iii) treating the liquid iron with a eutectic graphite nucleation-inducing inoculant, and
(iv) casting the iron."

VI. The following documents are relevant for this decision:

E1: Fourmann J.: "Preconditioning Effect of Barium in Ductile Iron Production", Proceedings of the AFS Cast Iron Inoculation Conference, 29-30 September 2005.
E10: Patterson V.H.: Foote Foundry Facts, Number 6 "ONLY CONSISTENT MATERIALS AND PRACTICES CAN PRODUCE QUALITY CASTINGS", 1970.

VII. The appellant argued essentially as follows:

i) Arguments filed with letter dated 23 March 2018

The arguments filed relating to "Annex 1" were in reaction to the Board's communication dated 16 January 2018 and should therefore be admitted.

ii) Inventive step

E1 was the closest prior art and disclosed all features of claim 1 apart from the time delay of step (ii) of between 2 and 10 minutes.

The problem to be solved was to optimise the process of

E1 in order to provide an improved magnesium recovery.

The skilled person was already taught by E1 that the barium containing pre-conditioner could be added prior to the magnesium containing noduliser. Furthermore, the skilled person was taught by E10, p. 1, r.h. col., 2nd para., that "it takes 2 to 3 minutes ... to achieve complete uniformity of the alloy throughout the melt." This teaching would have led the skilled person to the subject-matter of claim 1.

The skilled person would also recognise that the iron would cool down during this time and this would result in a higher magnesium yield. The technical effect was thus predictable. Hence, it would have been obvious for the skilled person to have applied a delay to the process of E1 and thus arrived at the subject-matter of claim 1.

Moreover, although the examples of E1 did concern the sandwich method of alloy additions, the skilled person would have been aware of other processes which would have allowed such a delay to be introduced.

Hence, the subject-matter of claim 1 did not involve an inventive step.

VIII. The respondent argued essentially as follows:

i) Arguments filed with letter dated 23 March 2018

These arguments were late-filed. Annex 1 had been filed during the examination proceedings, i.e. seven years ago. It was not apparent how these newly filed arguments were a reaction to the Board's communication because this did not mention the annex at all. The

respondent was unable to react at such short notice as all of the people responsible for drawing up the annex had left the company. These arguments should therefore be disregarded.

ii) Inventive step

E1 could be seen as the closest prior art and disclosed all features of claim apart from the time delay of step (ii) of between 2 and 10 minutes. The problem to be solved was to further improve magnesium recovery.

Introducing a delay of 2-10 minutes would run counter to the skilled person's desire to maximise the throughput of the foundry. Moreover, such a delay was not possible using the sandwich process disclosed in the examples of E1 because in this process the iron was added on top of the initialiser and the noduliser. Using a process other than the sandwich process would effectively mean starting from another prior art.

Thus, the skilled person would not have introduced a delay as claimed.

The subject-matter of claim 1 therefore involves an inventive step.

Reasons for the Decision

1. Late filed line of argument

The line of argument filed with the letter dated 23 March 2018 cast in doubt the reliability of the data presented in "Annex 1". This annex had been filed on 7 October 2011 in proceedings before the examining

division as evidence of the technical effect achieved by the invention.

According to Article 12(2) RPBA, the statement of the grounds of appeal shall contain the appellant's complete case. Any amendment to their case may be admitted and considered at the Board's discretion (Article 13(1) RPBA).

In the statement setting out the grounds of appeal, no mention is made of Annex 1 or its content. This new line of argument thus amounts to an amendment of the party's case.

Given the age of Annex 1 - it was first filed over 6 years before the oral proceedings before the Board - it was reasonable to expect that the appellant could and should have included these arguments in the statement setting out the grounds of appeal. Moreover, there was nothing in the Board's communication of 16 January 2018 that would have given rise to this new line of argument. The amendment to the appellant's case would also have necessitated a delay in the proceedings in order to give the respondent time to prepare a response. The Board did not therefore admit these arguments into the proceedings (Article 13(3) RPBA).

2. Inventive step

2.1 It is common ground that E1 is closest prior art and discloses all features of claim 1 with the exception of the time delay of between 2 and 10 minutes after step (i).

It is correct that E1 discloses the addition of a barium containing initialiser "prior" to the magnesium

containing nodulariser (p.77, 3rd para., 1st sentence).

2.2 The specific examples however have the barium containing initialiser and the magnesium containing noduliser added at the same time according to the sandwich method (Example 1 on p. 78, final para. and example 2 on p. 79, final para.). The sandwich method is a method whereby one alloying component is placed on top of another and then the iron is poured on top, i.e. the iron comes into contact with both the initialiser and the noduliser at the same time. Thus, even if the skilled person wished to introduce a delay to allow for iron to cool before adding the noduliser, it would not be possible to introduce a delay of two to ten minutes in this process.

2.3 The teaching of E10 relates to the addition of alloys to the ladle, see title in the r.h.col. on p. 1, i.e. when the iron is already in the ladle. This teaching is not therefore directly applicable to the sandwich method of E1 where the molten iron is added on top of the initialiser and noduliser. Thus, the skilled person would not see any reason to apply the teaching of E10 to that of E1.

2.4 It is correct, as argued by the appellant, that the skilled person would be familiar with other processes that allow additions to be made to the ladle with such a delay being incorporated. This implies that the skilled person would start from another state of the art rather than E1 and thus cannot support an inventive step attack based on E1 as closest prior art. This argument is therefore not persuasive.

2.5 Moreover, introducing a delay of at least two minutes would slow the production and would run counter to the

wish to move the molten metal through the process as quickly as possible. Hence, the skilled person would be dissuaded from doing so.

2.6 The subject-matter of claim 1 therefore involves an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairwoman:

C. Moser P. Acton

Decision electronically authenticated