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**D E C I S I O N**  
**of 10 January 2003**

**Case Number:** T 0222/01 - 3.2.1

**Application Number:** 94105763.0

**Publication Number:** 0625383

**IPC:** B21B 1/46

**Language of the proceedings:** EN

**Title of invention:**  
Line to produce strip and/or sheet

**Patentee:**  
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**Opponent:**  
(01) SMS Schloemann-Siemag AG  
(02) VOEST ALPINE Industrieanlagen Ges.m.b.H.

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 56

**Keyword:**  
"Inventive step (no)"

**Decisions cited:**  
-

**Catchword:**  
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Case Number: T 0222/01 - 3.2.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.1  
of 10 January 2003

**Appellant:**  
(Opponent 01)

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**Respondent:**  
(Proprietor of the patent)

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**Other party:**  
(Opponent 02)

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**Decision under appeal:**

Decision of the Opposition Division of the  
European Patent Office posted 18 December 2000  
rejecting the opposition filed against European  
patent No. 0 625 383 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** S. Crane  
**Members:** F. Pröls  
G. Weiss

## Summary of Facts and Submissions

- I. European patent No. 0 625 383 was granted on 25 February 1998 on the basis of European patent application No. 94 105 763.0.

Claim 1 of the granted patent reads as follows:

"Line to produce strip and/or sheet or a combined line for strip/sheet, starting from at least one plant for the continuous casting of thin or medium slabs, the continuous casting plant comprising in sequence a continuous casting machine (12), at least one assembly (13) for shearing to size, a temperature restoration system, a rolling train (17, 117) and a possible assembly (19) for the cooling of strip/sheet, means to accelerate the speed of feed of the slabs being included downstream of the assembly (13) for shearing to size, in which line the temperature-restoration system comprises an induction furnace (14) with at least one working frequency to heat the surface and edges of the slabs, the induction furnace (14) being followed by first descaling means and by a tunnel furnace (16), an emergency shears (24) and second descaling means being included between the tunnel furnace (16) and the rolling train (17, 117), the line being characterised in that the first descaling means are low-speed descaling means (115), while the second descaling means are high-speed descaling means (15)."

- II. The granted patent was opposed by the present appellants (opponents 01) and the other party as of right to the proceedings (opponents 02) on the ground *inter alia* that its subject-matter lacked inventive step (Articles 100(a) and 56 EPC).

Of the numerous prior art documents relied upon in the opposition proceedings only the following have played any significant role on appeal:

(D1): US-A-4 658 882

(D3): JP-A-6 018 201

(D8): US-A-5 156 800

(D9): EP-A-0 107 991

(D10): Stahl und Eisen, vol. 113 (1993), No. 2, pages 37 to 46, Flemming et al "Die CSP-Anlagentechnik und ihre Anpassung an erweiterte Produktionsprogramme", publication date 15 February 1993.

With its decision posted on 18 December 2000 the Opposition Division rejected the oppositions.

III. A notice of appeal against that decision was filed on 19 February 2001 and the fee for appeal paid at the same time. The statement of grounds of appeal was received on 19 April 2001.

The appellants argued that starting from document D10 as the closest state of the art, the subject-matter of claim 1 was obvious having regard to the documents D1, D3, D8, and D9.

They requested that the decision under appeal be set aside and the patent revoked in its entirety.

IV. In a reply received on 12 October 2001 the respondents

(proprietors of the patent) contested the arguments put forward by the appellants. More particularly, they contended that the terms "low-speed descaling means" and "high-speed descaling means" had special meanings well-known in the art related to the quantities and pressures of coding water being used. Claim 1 of the contested patent clearly identified the two types of descaling means and located them at precise positions in a complex system so as to balance and optimize their effects with the requirements of the system. There was nothing comparable in the state of the art.

They therefore requested that the appeal be dismissed.

- V. In a communication pursuant to Article 11(2) RPBA posted on 6 March 2002, in preparation for oral proceedings set for 15 October 2002, the Board stated its provisional opinion that there was nothing in the file which backed up the contentions of the respondents concerning the meaning of the terms "low-speed descaling means" and "high-speed descaling means". As claim 1 stood the Board could therefore see no reason to attach to these terms any meaning going beyond that addressed by the appellants in their statement of grounds of appeal. The Board also indicated that it shared the opinion of the appellants that document D10 constituted the closest state of the art.

In response to that communication the respondents stated in a letter received on 19 July 2002 that they would not be attending the appointed oral proceedings. These were therefore cancelled.

- VI. Opponents 02 have taken no active part in the appeal proceedings.

## Reasons for the Decision

1. The appeal meets the formal requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is therefore admissible.
  
2. It is apparent from the pre-grant examination file that document D1 was taken as the basis for forming the preamble of claim 1. However, as established in the decision of the Opposition Division, several features found in the preamble of the claim are not in fact disclosed in document D1. Most importantly, the production line of this state of the art does not start with a continuous casting machine for thin or medium slabs.

Having regard to this, the Board agrees with the appellants that the best starting point for the evaluation of the inventive step of the claimed subject-matter is to be found in a document D10. This article describes a newly opened production line for hot-rolled steel strip which comprises a continuous casting machine for thin slabs (50 mm thickness), an assembly for cutting the slabs into appropriately sized lengths, a heat restoration system in the form of a tunnel furnace through which the individual lengths of slab pass, means for accelerating the slab lengths up to rolling speed and descaling means located before entry into the rolling train (see general description on page 37). Further, emergency shears are provided between the tunnel furnace and the rolling train (see Table 2 on page 40).

Thus the subject-matter of claim 1 is distinguished

from this state of the art in that the heat restoration system comprises a two stage heating arrangement, with an induction furnace followed by a tunnel furnace and that additional descaling means are provided between these two furnaces, these descaling means being "low-speed" whereas the descaling means between the tunnel furnace and the rolling train are "high-speed".

According to the various statements of object and advantage found in column 2 of the present patent specification the general aim of the claimed invention is to provide a production line which is compact in size and which has reduced power requirements.

By providing an induction furnace in combination with a tunnel furnace the length of the latter can be reduced as well as the overall power requirement for heating the slab. The induction furnace can quickly bring the slab up to an overall average temperature required for the rolling operation, with the tunnel furnace serving merely to equalise the temperature across the whole cross-section of the slab. This principle is however clearly described in document D8, there also in the context of production line for producing hot rolled strip from a continuously cast thin slab. Document D1 also combines an induction furnace and a tunnel furnace in a production line for the direct rolling of continuously cast slab. The application of this principle to the production line disclosed in document D10 in order to achieve the known advantages associated with it was therefore obvious to person skilled in the art.

The patent specification does not contain any specific indication of the advantages of providing descaling



means between the induction furnace and the tunnel furnace. It is however evident that the degree of cooling of the slab in a descaling operation will be dependent on the amount of scale to be removed, so that the temperature drop caused by the descaling means located between the exit of the tunnel furnace and the rolling train can be reduced by the provision of the descaling means between the two furnaces. This consideration does not however go beyond the normal competence of the person skilled in the art. For example, document D1 also discloses first and second descaling means, the first located between an induction furnace and a tunnel furnace, and the second located between the tunnel furnace and a rolling train. Thus the provision of additional descaling means can also not be seen as involving an inventive step.

Lastly it is necessary to consider the requirement of claim 1 that the first and second descaling means are "low-speed" and "high-speed" respectively. As the Board already pointed out in its communication of 6 March 2002, the substance of which remained unanswered by the respondents, there is nothing in the file to suggest that these terms have a meaning going beyond a simple reference to the relative speed of the slab at the points in the production line where the respective descaling means are located. It is thus apparent that in the obvious modification of the production line of document D10 discussed above, ie with an induction furnace and a tunnel furnace and first and second descaling means, the first descaling means operate on the slab when it is moving relatively slowly after leaving the induction furnace and the second descaling means operate on the slab when it is moving relatively quickly after having been accelerated up to rolling

speed. In other words, these descaling means are respectively "low-speed" and "high-speed" as required by present claim 1.

Having regard to the above the Board comes to the conclusion that the subject-matter of claim 1 lacks inventive step (Article 56 EPC).

## **Order**

### **For these reasons it is decided that:**

1. The decision under appeal is set aside
2. The patent is revoked.

The Registrar:

The Chairman:

S. Fabiani

S. Crane