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D E C I S I O N
of 16 December 1998

Case Number: T 0954/95 - 3.2.5

Application Number: 90113656.4

Publication Number: 0410273

IPC: B22D 11/10

Language of the proceedings: EN

Title of invention:
Liquid metal processing

Patentee:
British Steel Plc

Opponent:
Mannesmann AG

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 114(2)

Keyword:
"Novelty (yes)"
"Inventive step (yes)"
"Late-filed document disregarded"

Decisions cited:
-

Catchword:
-

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Case Number: T 0954/95 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 16 December 1998

Appellant: (Opponent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 2 October 1995 rejecting the opposition filed against European patent No. 0 410 273 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: A. Burkhart
Members: P. E. Michel
V. Di Cerbo

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the opposition division rejecting the opposition against the patent No. 0 410 273.

Opposition was filed against the patent as a whole and based on Article 100(a) EPC (lack of inventive step).

The opposition division held that the grounds for opposition mentioned in Article 100(a) EPC did not prejudice the maintenance of the patent unamended, having regard to the following documents

E1: DE-C-1 136 452 and

E2: DE-C-1 197 591.

II. Claim 1 according to the patent in suit reads as follows:

"1. A vessel having a first chamber (1) open to atmospheric pressure for receiving liquid metal and a second chamber (2) from which the metal is dispensed interconnected via an apertured wall with the first chamber, the second chamber (2) being sealed and coupled to means (4-7) for reducing the pressure therein to sub-atmospheric whereby to create a higher level of metal in said second (2) than said first (1) chamber."

III. During the appeal proceedings the appellant invoked the further prior art documents

E3: EP-A-0 334 802, which document represents a state of the art in the sense of Article 54(3) EPC, and

E4: JP-A-58-34051.

In particular the appellant contended that the subject-matter of claim 1 of the patent in suit was not novel over the subject-matter disclosed in E3.

IV. In a communication, annexed to the summons for oral proceedings, the Board informed the parties that, according to the decisions G 1/95 and G 7/95 the late invoked ground "lack of novelty" could not be introduced into the proceedings.

Furthermore, the Board notified that it considered the late-filed document E4 not to be relevant, and that therefore, it intended to disregard E4 under Article 114(2) EPC.

V. With its letter of 16 November 1998 the respondent notified that it did not agree with the introduction into the appeal proceedings of the late invoked ground "lack of novelty" and that he requested that the late filed document E4 be disregarded.

With its letter of 2 December 1998 the respondent informed the Board that it would not attend the oral proceedings scheduled for 16 December 1998.

VI. Oral proceedings before the Board of Appeal took place on 16 December 1998.

(i) The appellant withdrew the late invoked ground of lack of novelty.

(ii) The appellant argued essentially as follows:

The late filed document E4 should be introduced into the proceedings, since this document was more relevant than the previous cited documents E1 and E2.

The subject-matter of claim 1 of the patent in suit did not involve an inventive step having regard to the teachings of documents E1 and E2.

E2 disclosed a casting system comprising a first chamber opened to atmospheric pressure for receiving liquid metal and a second chamber from which the metal was dispensed and which was interconnected to the first chamber, wherein the second chamber was sealed and coupled to means for reducing the pressure therein to sub-atmospheric whereby to create a higher level of metal in said second than said first chamber.

It was an obvious alternative option for the person skilled in the art to use such a pressure reducing means instead of a pressure increasing means in a system according to E1 having the first and second chambers side-by-side and interconnected via an apertured wall.

(iii) The appellant requested that the decision under appeal be set aside and the patent be revoked.

VII. The respondent argued essentially as follows:

The teaching of E1 was entirely contrary to the invention claimed in the patent in suit. An important objective of the invention of the patent in suit was to reduce the velocity of liquid metal leaving the second chamber by creating a sub-atmospheric pressure within this chamber and above the surface of the liquid metal present in this chamber. Contrariwise, in E1 the velocity of liquid metal leaving the casting chamber was controlled by creating a super-atmospheric pressure above the surface of the liquid metal within the casting vessel. The apparatus of E1 could not operate to effect a reduction in liquid metal velocity since the pressure of the gas applied to the liquid metal surface was super-atmospheric. For a given head of liquid metal, E1 merely enabled the velocity of the liquid metal to be increased. It would not be obvious to a person skilled in the art from the mere reading of E1 that low velocity, turbulence free flow of liquid metal could be achieved by adopting a sub-atmospheric system instead of the super-atmospheric system of E1.

E2 was even less relevant than E1. A person skilled in the art would not conclude from the disclosure of E2 that effective control of the casting speed of liquid metal could be achieved by modifying the apparatus disclosed in E1 to incorporate a vacuum system as taught by E2. E2 contained no implicit or explicit disclosure of the patentee's recognition that the

presence of sub-atmospheric pressure above the surface of the liquid metal present in the second chamber enables the velocity of metal leaving this chamber to be effectively controlled. In E2 the pressure was raised to force liquid metal through the discharge pipe.

In both E1 and E2 the level of the liquid metal in the discharge chamber was intended to be and was greater than that in the chamber that feeds the discharge chamber. This was clearly contrary to the invention as claimed in the patent in suit.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. *Late invoked document E4*

There is no indication in the drawings (Figures 1 and 2) or in the English abstract of E4 that the vacuum pump, which appears to be used to evacuate the casting vessel before it is filled with liquid metal, is able to produce during the casting operation such a high vacuum as to create a higher level of metal in the casting vessel than in the first liquid metal receiving chamber.

Therefore, the Board considers the late invoked document E4 not to be more relevant than documents E1 or E2, and consequently, disregards document E4 with respect to Article 114(2) EPC.

2. *Novelty*

The Board concurs with the finding of the opposition division that the subject-matter of claim 1 of the patent in suit is novel having regard to the disclosure of documents E1 and E2 (see decision of the opposition division, Chapter 1 on pages 3 and 4).

3. *Inventive step*

The Board also concurs with the finding of the opposition division and the submission of the respondent that neither E1 nor E2 suggests to provide in a system according to E1 a pressure reducing means coupled to the second sealed casting chamber which is capable of reducing the pressure therein to sub-atmospheric, whereby to create a higher level of metal in the second than in the first chamber during the casting process.

The Board fully supports the reasoning in the decision of the opposition division in Chapter 3 on pages 4 to 6 and the conclusion that the person skilled in the art, starting from the prior art according to E1 and being confronted with the problem of preventing the flow of non-metallic contaminants into the mould, was not guided by the teachings of E1 or E2 to the subject-matter of claim 1 of the patent in suit.

The Board cannot agree with the view of the appellant that changing the pressure within the second chamber of the system according to E1 from super-atmospheric to

sub-atmospheric pressure was an obvious alternative option for the person skilled in the art.

It is true that according to E2 sub-atmospheric pressure is used to fill the dosage chamber, however, there is no indication at all in E2 to maintain such a low pressure in the dosage chamber during dispensing of the metal or to reduce the velocity of the out-flowing metal. On the contrary, in order to start the dispensing and casting process, the pressure is raised within the dosage chamber in order to press the metal through the discharge pipe in the direction of the mould (see column 3, lines 30 to 46 of E2).

Therefore, both E1 and E2 teach that during the casting operation a super-atmospheric pressure should be exerted on the liquid metal in the second casting chamber, and that neither E1 nor E2 gives any hint that the problem of preventing flow of non-metallic contaminants into the mould could be solved by the provision of pressure reducing means which creates a sub-atmospheric pressure within the second casting chamber during the casting operation. The teachings of E1 and E2 are silent about the option "sub-atmospheric pressure" and clearly guide the person skilled in the art to the sole option "super-atmospheric pressure".

With respect to this teaching and guidance of documents E1 and E2, the person skilled in the art does not recognise the use of sub-atmospheric pressure as an "alternative" - let alone as an "obvious alternative" - to the use of super-atmospheric pressure.

4. Therefore, the subject-matter of claim 1 of the patent in suit constitutes a patentable invention in the sense of Article 52(1) EPC.

The same applies to the subject-matter of the dependent claims 2 to 6 concerning special embodiments of the subject-matter of claim 1.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Townend A. Burkhart