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Datasheet for the decision of 19 December 2008

Case Number: T 1072/07 - 3.2.07

Application Number: 03711634.0

Publication Number: 1499565

IPC: C03B 7/06

Language of the proceedings: EN

Title of invention:
Oxygen-fired front end for glass forming operation

Applicant:
OWENS CORNING

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (no)"
"Obvious selection from two obvious alternatives"

Decisions cited:
-

Catchword:
Cf. sections 6.1-6.5.

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Case Number: T 1072/07 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 19 December 2008

Appellant: OWENS CORNING
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 12 January 2007 refusing European application No. 03711634.0 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: H. Meinders
Members: H.-P. Felgenhauer
E. Dufrasne

Summary of Facts and Submissions

I. The appeal lies from the decision of the examining division refusing European patent application 03 711 634.0 for lack of clarity and support in the description (Article 84 EPC) and lack of inventive step (Article 56 EPC).

II. Claim 1 of the set of claims filed as sole (main) request at the oral proceedings before the Board on 19 December 2008, replacing all previously filed requests, reads as follows:

"1. A front end for a glass forming operation, the front end comprising:
a channel (22) having at least one surface (40) defined by a top of said channel, said at least one surface having at least one hole (42A) therein; and
at least one burner (44) wherein each burner is an oxygen-fired burner and characterised in that each oxygen-fired burner is in said at least one hole (42A), each oxygen-fired burner being oriented at an acute angle of between 5° to 85° relative to said at least one surface; wherein a front end is defined as means for delivering molten glass to one or more production points.".

III. In the present decision the following documents, on which the impugned decision is based, are referred to

D1: US-A-5 169 424
D2: US-A-4 737 178
D3: US-A-4 604 123
D4: EP-A-0 789 191.

Insofar as relevant for the present decision, the impugned decision found that the front end according to the then valid claim 1 differed from the glass delivery means disclosed in D2 in that the burners generally mentioned in this document are chosen to be oxygen-fired burners. However, it was well known in the technical fields of glass melting and the transport of the molten glass to use oxygen-fired burners instead of the formerly used air-fuel burners, the oxygen-fired burners having the well known advantage that less emissions are formed. Reference was made to D3 and D4 in this respect, so that it was obvious to the person skilled in the art to choose such oxygen-fired burners in the front end disclosed in D2.

IV. The appellant (applicant) requests that the decision under appeal be set aside and the patent be granted based on the main request filed during the oral proceedings before the Board.

V. In the annex to the summons for oral proceedings according to Article 15(1) RPBA dated 30 September 2008 the Board gave its preliminary opinion indicating, that it did not see any reason for considering the assessment of the impugned decision with respect to lack of inventive step to be incorrect.

Oral proceedings were held on 19 December 2008

VI. The arguments of the appellant are essentially as follows:

(a) Considering D2 as the closest prior art it needs to be taken into account that this document not only does not specify the type of burner used for the disclosed front end but moreover does not contain any indication as to the choice of burner to be made.

(b) Starting from D2 the person skilled in the art having to make the necessary choice as to the type of burner to be employed thus has to do so without any guidance from D2.

(c) Considering the two types of burners known from documents D1, D3 and D4, namely the air-fired burner and the oxygen-fired burner the person skilled in the art would have considered the air-fired burner in the expectation that this would be the one requiring the least effort for its implementation at the lowest cost.

(d) Even considering the advantages oxygen-fired burners may have with respect to operational efficiency, the person skilled in the art would not have chosen this type of burner due to anticipated difficulties resulting from its implementation, e.g. considering that according to D3 such burners are provided at the top of a vaulted channel, and anticipated higher costs associated with the use of such burners.

(e) Consequently the person skilled in the art would have preferred the air-fired burners according to D1 for the front end according to D2 over the oxygen-fired burners proposed by D3 or D4. The result would thus not have been as claimed.

Thus the subject-matter of claim 1 involves inventive step.

Reasons for the decision

1. *Claim 1*

Claim 1 according to the sole (main) request filed during the oral proceedings before the Board differs from claim 1 underlying the impugned decision as can be derived from the following recitation of claim 1 (deletions are struck through and additions are in bold)

"1. A front end for a glass forming operation, the front end comprising:
a channel (22) having ~~a longitudinal axis and~~ at least one surface (40) **defined by a top of said channel**, said at least one surface having at least one hole (42A) therein; and
at least one ~~oxygen fired~~ burner (44) **wherein each burner is an oxygen-fired burner and** characterised in that each oxygen-fired burner is in said at least one hole (42A), ~~the at least one~~ **each** oxygen-fired burner being oriented at an acute angle of between 5° to 85° relative to said ~~longitudinal axis~~ **at least one surface**; **wherein a front end is defined as means for delivering molten glass to one or more production points**.".

2. In view of the fact that, as can be derived from the following, the subject-matter of claim 1 does not involve inventive step, such that the requirement of Article 56 EPC is not fulfilled, other requirements of the EPC, such as those of Articles 84 and 123 (2) EPC, need not be addressed in the present decision.

3. *Closest prior art*

For the examination of inventive step it is no longer in dispute that, corresponding to the impugned decision, D2 constitutes the closest prior art. It further has not been disputed that, as in the impugned decision, the front end according to present claim 1 is essentially distinguished from the one according to D2 by the feature of each burner being an oxygen-fired burner.

According to D2 burners 48 can be provided, "for maintaining the molten mineral material at the proper process temperature" (column 3, lines 56 - 59). With respect to the operation of the burners it is indicated that "the controller can provide a signal to the gas supplied to the forehearth burners which will increase the heat input into the forehearth" (column 3, lines 59 - 64). The type of burners is not specified.

4. *Problem*

From the above it follows that the objective technical problem to be solved with respect to the front end according to D2 can be formulated as: how to select a suitable type of burner.

As indicated in the annex to the summons dated 30 September 2008, such a problem occurs likewise when reducing the teaching of D2 into practice, since then the person skilled in the art is required to select an appropriate type of burner for the burners as provided in the front end according to D2.

5. *Solution*

This problem is solved by the subject-matter of claim 1 in that the burner(s) is an (are) oxygen-fired burner(s).

6. *Obviousness*

Concerning obviousness of the subject-matter of claim 1 the Board considers, as pointed out in the annex to the summons, that the prior art documents D1, D3 and D4, referred to in the decision under appeal, propose to the skilled person two possibilities for solving the problem of choosing the fuel for the burners and thus **two types of burners**.

6.1 Document **D1** discloses the arrangement of burners 60, each producing a high-intensity flame feeding a gas-air mixture through the burner (column 6, lines 26 - 31) and thus **air-gas fired burners**.

6.2 Documents **D3 and D4** each disclose a front end for a glass forming operation having at least one **oxygen-gas fired burner** (cf. D3, claim 1 and column 3, lines 13 - 16; D4, page 2, lines 3, 4).

6.3 The Board is of the opinion that both types are obvious since these two types of burners are well known and either type of burner can be provided for the front end according to D2.

6.4 For completeness sake the Board wishes to note that due to the advantages oxygen-gas fired burners have in terms of thermal efficiency as referred to in D3 (column 2, lines 1 - 20 and 56 - 58) or D4 (cf. page 2, line 54 - page 3, line 57), the skilled person will be more inclined to use this type of burner when reducing the front end according to D2 into practice. In doing so the person skilled in the art will not have any technical difficulties. This can in particular be derived from the disclosure of the application in suit which does not mention any particular technical measures required for the use of oxygen-gas fired burners.

6.5 The above answers already to a large extent the argument of the appellant that, in making its design choice with respect to the type of burner to be used in the front end according to D2, the person skilled in the art would have refrained from using oxygen-gas fired burners as known from documents D3 and D4, because he would expect substantial technical difficulties, e.g. in view of the vaulted channel as proposed by D3 as well as the high costs incurred with such burners.

6.6 Concerning the argument that the person skilled in the art would have refrained from using oxygen-gas fired burners in the non-vaulted channel according to D2, since D3 proposes them in combination with a vaulted

channel, the Board establishes that no evidence is given for the assumption that the shape of the channel, e.g. vaulted or non-vaulted, bears any significance as to the type of burner being provided. Indeed, as it is the case for the oxygen-gas fired burners according to D3, a vaulted channel is also used with air-gas fired burners as proposed by D1 (cf. figures 5, 6). Consequently the question of whether the channel is vaulted or not in not decisive for the selection of the type of burner.

Neither did the appellant provide further evidence concerning other substantial technical difficulties having to be overcome or of an existing prejudice against the use of oxygen-gas fired burners.

6.7 To summarise, the Board can thus only conclude that in order to reduce the teaching of D2 into practice or, correspondingly, to solve the problem underlying the application in suit (cf. point 4) when starting from D2 as closest prior art, the person skilled in the art had to make a choice between two well known possibilities, namely employing burners of the air-gas type as disclosed in D1 or burners of the oxygen-gas type as disclosed in D3 or D4. As indicated above (cf. points 6.3 - 6.6) either choice, which in a particular situation will be based on balancing the advantages of the specific type of burner being selected, such as efficiency in its operation, with its disadvantages, such as technical adaptations required and costs involved, is obvious, since the types of burner to be chosen from are well known.

6.8 Consequently the subject-matter of claim 1 does not involve an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Nachtigall H. Meinders