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D E C I S I O N
of 6 June 2000

Case Number: T 0045/98 - 3.2.2

Application Number: 89309462.3

Publication Number: 0360535

IPC: C03B 5/00

Language of the proceedings: EN

Title of invention:

Glass melting furnace, and method of operating a furnace

Patentee:

TOLEDO ENGINEERING CO. KG

Opponent:

Beteiligungen Sorg GmbH & CO. KG

Headword:

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Relevant legal provisions:

EPC Art. 100(a), (c), 104(1)

Keyword:

"Extension of subject-matter (no)"
"Inventive step (no)"
"Apportionment of costs (yes)"

Decisions cited:

T 0117/86, T 0083/83

Catchword:

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Case Number: T 0045/98 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 6 June 2000

Appellant: Beteiligungen Sorg GmbH & Co. KG
(Opponent) Stoltestrasse 23
D-97816 Lohr (DE)

Representative: Zapfe, Hans, Dipl.-Ing.
Patentanwalt
Postfach 20 01 51
D-63136 Heusenstamm (DE)

Respondent: TOLEDO ENGINEERING CO. INC.
(Proprietor of the patent) 3400 Executive Parkway, P.O. Box 2927
Toledo, OH 43606 (US)

Representative: Lally, William
FORRESTER & BOEHMERT
Franz-Joseph-Strasse 38
D-80801 München (DE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 14 November 1997
rejecting the opposition filed against European
patent No. 0 360 535 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: W. D. Weiß
Members: D. Valle
R. T. Menapace

Summary of Facts and Submissions

I. The appellant (opponent) filed on 13 January 1998 an appeal against the decision of the opposition division of 14 November 1997 to reject the opposition. On the same day he filed the statement of grounds and paid the appeal fee.

II. The opposition division held that the grounds based on Article 100(a) EPC, namely lack of novelty having regard to the documents:

D1: DE-C-806 883

D2: GB-A-972 237

D4: EP-A-0 317 551 (intermediate document),

and lack of inventive step having regard to the combination of the documents D1 and D2,

and on Article 100(c) EPC (added subject-matter) did not prejudice the maintenance of the patent as granted.

III. The appellant did not directly challenge - either in the statement of grounds nor later - the reasoning set out in the decision under appeal. Rather, in support of his arguments concerning lack of novelty and inventive step and added subject-matter, he relied exclusively upon new documents submitted for the first time together with the statement of grounds, namely

D6: Cassel's dictionary, 1978, pages 1270, 1401,

D7: The American College Dictionary, 1948, pages 910,

1116,

- D8: Teisen, "Day tanks for the hand-made glass industry", Glass Technology, Vol. 20, No. 5, October 1979, pages 162, 163,
- D9: Hamilton, "Working end design", Glass Technology, vol. 23, No. 4, August 1982, pages 167 to 171,
- D10: Trier, "Glassschmelzöfen-Konstruktion und Betriebsverhalten", Springer Verlag, 1984, pages 240 to 243,
- D11: Warren, Stasiak, Davis, "First campaign of a lead crystal electric furnace in Poland", pages 1 to 12, October 29, 1987,
- D12: Warren, Stasiak, Davis, "First campaign of a lead crystal electric furnace in Poland", Glass, May 1998, pages 175 to 178 (=D11).

On 21 May 1998 the respondent (patent proprietor) filed the document:

- E1: an excerpt from the Oxford English Dictionary relating to the definition of the term "shift".

IV. Upon request by the appellant oral proceedings were held on 6 June 2000. At the end of the oral proceedings, in which both parties agreed to a final decision being taken by the Board without remittal to the first instance, the requests of the parties were as follows:

The appellant (opponent) requested that the decision

under appeal be set aside and the patent be revoked.

The respondent (patentee) requested that the appeal be dismissed and the patent be maintained as granted or be maintained in amended form according to one of the three alternative requests submitted with letter of 21 May 1988. He further requested that the costs in the appeal procedure be apportioned so that the appellant pay to the respondent 40 to 45% of the costs which were incurred by the respondent's representative and charged to the respondent in connection with the present appeal proceedings.

V. Claim 1 as granted (main request) reads as follows:

"1. A method for melting glass in a furnace having a melting chamber (8), an intermediate chamber (10) and a working chamber (12) in which said solid material is fed into said melting chamber (8), to be continuously melted therein, and via said intermediate chamber continuously flowed into said working chamber (12), and melted material being withdrawn from said working chamber (12) during working periods at a rate greater than the rate at which fresh molten glass is produced, characterized in that molten material produced in the melting chamber is flowed over a weir (30) located in said intermediate chamber (10) between the melting chamber (8) and the working chamber (12) whereby the level of molten glass in the melting chamber is maintained at a constant level, whilst the level of glass in the working chamber falls during a working period and rises during a non-working period."

The first auxiliary request submitted on 21 May 1998 consists of substituting the word "period" with the

word "shift" in the claims.

The second auxiliary request submitted on 21 May 1998 distinguishes from the main request essentially in that at the end of claim 1 following feature is added:

"molten glass being overflowed from said working chamber through an outlet means below the level of the working outlet to prevent molten glass from rising in said working chamber above a predetermined level as the level of glass in the working chamber rises during said non-working period".

Claim 1 of the third auxiliary request submitted on 21 May 1998 distinguishes from the second one by the additional feature:

"molten glass flowing from the intermediate chamber into the working chamber at the lower portion thereof".

VI. The appellant argued essentially as follows:

Claim 1 of the main request does not meet the requirements of Article 100(c) EPC. The term "period" inserted in the main claim is much broader than the term "shift" found in the original disclosure and it can mean also an indefinite portion of time whereas the term "shift" has a much narrower meaning, being related to the portion of the day scheduled as a day's work. The meaning of the word "shift" is further variable being dependent on the working regulations of the different countries.

The subject-matter of claim 1 is not novel or at least does not involve an inventive step having regard to the

document (D11/D12), which discloses a furnace having a continuous supply of material and a discontinuous withdraw. That means that the level of the working chamber will inevitably sink every time material is withdrawn.

Alternatively, document (D1), together with the document (D10), deprives the subject-matter of claim 1 of an inventive step. Document (D10) discloses a so called "Tageswanne" (day tank) which is characterized by a melting zone separated from the working zone by a weir, and makes it possible to melt continuously and to work periodically, see paragraph bridging pages 240 and 241. The document discloses a day tank which works with a rhythm of 24 hours, see page 240, right column, that is continuously, as further specified in the paragraph bridging pages 240 and 241.

The first auxiliary request is subject to the same objections as the main request. The second auxiliary request contains in claim 1 the additional features of claim 3 of the main request (overflow) which is disclosed in document (D11), page 5, upper half, and document (D12), page 177, middle column, last six paragraphs. The third auxiliary request contains in claim 1 the added feature: " molten glass flowing from the intermediate chamber (19) into the working chamber (12) at a lower portion thereof". This is interpreted as meaning the outlet (32) in Figure 1, see column 4, lines 26 to 28 (throat). This is disclosed on page 4 of document (D11) and page 177 of document (D12).

Regarding the late filed documents, the filing of new documents had become necessary because the opposition division surprisingly refused to accept the arguments

regarding the words shift/period and the fluctuation of the glass level in the working chamber. In any case the patentee should have known documents (D11) and (D12) because they originated, in part, from him.

The respondent argued essentially as follows:

The term "period" complies with the requirements of Article 100(c) EPC. The meaning of the term "period" is clearly derivable from the original disclosure and it encompasses any duration of working time between two interruptions. Also working periods of few minutes are within the scope of the claims and have been originally disclosed because it is clear that when glass is withdrawn (working period) the level in the working chamber sinks whereas when glass is not withdrawn (at lunch, for rest, to go to the toilet or for whatever reason) the level of the working chamber rises.

All the documents of the cited prior art, including the document (D11/D12) disclose furnaces where the level of melt glass in the working chamber is the same as the respective level in the melting chamber. A withdrawal of melt glass results in an identical and simultaneous level reduction in both chambers. The weir of document (D11/D12) is designed to avoid return flow, see page 177 of document (D12). In contrast thereto, the weir of the invention is designed to maintain a constant level of glass in the melting chamber.

Document (D1) relates to a continuous production. Document (D10) discloses a day tank in which the material is typically melted for 16 hours to provide a supply of material for eight hours work, and, therefore, has nothing to do with the invention. The

purpose of the invention is not only to reduce the waste of material but also to reduce the dimensions of the melting chamber.

The requested apportionment of costs according to Article 104(1) and Rule 63 EPC is justified because the submission of new documents at such late stage caused additional unnecessary expenses (see decision T 323/89). Decisions T 117/86 and T 83/93 ordered in similar circumstances 50% of the additional costs to be apportioned. In this case, considering that the argument: "added subject-matter" was properly raised and that dealing with it required about 10-20% of the time spent for dealing with the case, an apportionment of 40 to 45% of the patent attorney's costs was adequate; see also decisions T 416/87 and T 847/93.

Reasons for the Decision

1. The appeal is admissible
2. *Article 100(c) EPC*
 - 2.1 The wording: "melted material being withdrawn from said working chamber during working periods at a rate greater than the rate at which fresh molten glass is produced" and: "the level of glass in the working chamber falls during a working period and rises during a non-working period" are allowable as far as the use of the term: "period" instead of: "shift" is concerned.
 - 2.2 This finding is supported in the patent application as published under EP-A-360 535, column 1, line 1, to column 2, line 17, where it is mentioned that the

invention is particularly concerned with the melting of glass for use in the production of hand made articles, molten glass being withdrawn from the working chamber from time to time as it is required for use by one artisan for production of an article (column 1, lines 5 to 11). That means that the withdrawal of material is discontinuous: The worker will each time withdraw from the working chamber only the quantity of melt glass which he needs to produce an article.

Consequently, when with "working period" is intended the time period taken to withdraw a single batch of molten material, during such period the level of the working chamber will necessarily sink, otherwise there would be a continuous waste of overflowed melted material. When, on the other hand, with "working period" is intended a single shift of eight hours, then the application states that the average withdrawal rate during the shift is higher than the melting rate (column 2, lines 1 to 11) which also implies that the level of the melted material in the working chamber will sink. From the above it also follows that the level in the working chamber will sink for every intermediate periods of time, such as those delimited by a coffee break, lunch or similar. In conclusion the original disclosure contains sufficient information to cover the use in the claims of the word "period" of time in the broader meaning as stated above.

2.3 Therefore, claim 1 of the main request does not extend beyond the original disclosure and complies with the requirements of Article 100(c) EPC.

3. *Novelty and inventive step*

3.1 Document (D1) represents the nearest state of the art and discloses a method for melting glass in a furnace having a melting chamber (12), an intermediate chamber (1) and a working chamber (4) in which said solid material is fed into said melting chamber to be continuously melted therein, and via said intermediate chamber, continuously flowed into said working chamber, whereby melted material produced in the melting chamber is flowed over a weir (6) located in said intermediate chamber between the melting chamber and the working chamber and whereby the level of melted glass in the melting chamber is maintained at a constant level.

3.2 The subject-matter of claim 1 differs from the method of document (D1) in that melted material is withdrawn from said working chamber during working periods at a rate greater than the rate at which fresh molten glass is produced, and in that the level of glass in the working chamber falls during a working period and rises during a non-working period.

Document (D1) describes a furnace designed for continuous operations, where the molten glass is continuously withdrawn from the opening (11) in the working chamber, see page 1, first two lines. The invention on the other hand addresses in particular the operations in relatively small furnaces designed to work intermittently.

3.3 The problem of the invention is therefore to reduce the waste of material in furnaces designed to work intermittently but still to enable the glass to be melted in the melting chamber at optimal unchanging conditions, similar to those obtainable in furnaces which are designed for continuous operation, see also

column 2, lines 12 to 16 of the description of the patent specification.

- 3.4 The skilled person in the art looking around for a solution to such problem will come across to document (D10) which relates to day tanks. Document (D10) states that such day tanks have been developed in order to produce small quantities of glass possibly without introduction of working shifts (page 240, left column, first paragraph) and that recently day tanks have been introduced which have a working chamber separate from the melting and cleaning chamber by a weir. In this way it is possible to melt continuously and to work periodically (page 240, right column).

The working conditions described by document (D10) necessarily imply that melted material be withdrawn from the working chamber during working periods at a rate greater than the rate at which fresh molten glass is produced, and in that the level of glass in the working chamber falls during a working period and rises during a non-working period, like the distinguishing features of the claimed invention.

- 3.5 It was therefore obvious to use the teaching of document D10 in order to modify the construction of furnaces working continuously as disclosed in document D1 by the addition of a weir and therefore allow intermittent withdrawal without losing the advantages of continuous operation on the melting chamber.

Therefore, the subject-matter of claim 1 of the main request does not involve an inventive step.

- 3.6 No other conclusion can be drawn in respect of the first auxiliary request which has the same wording of the main request except the word "period" being replaced by "shift".
- 3.7 The feature which distinguishes claim 1 of the second auxiliary request from the first one is common in the field, see for example document (D11), page 5 and figure. The outlet means (overflow) must necessarily be below the level of the working outlets. Consequently, the conclusions in respect of the second auxiliary request are the same as above.
- 3.8 The third auxiliary request distinguishes from the second one by the added phrase:

"molten glass flowing from the intermediate chamber into the working chamber at the lower portion thereof".

This feature is known from document (D1), see reference number 5 in the figures. Thus the same considerations as above apply.

4. *Apportionment of costs*

- 4.1 The Board is empowered by Article 104(1) EPC to order an apportionment of costs incurred during taking of evidence, including costs caused by the production of new documents (decisions T 117/86, OJ 1989, 401; T 83/93, unpublished).
- 4.2 As a general rule an opponent's case should be set out fully and completely in the notice of opposition. Irrespective of whether or not facts or evidence presented after expiry of the nine-month period are

admitted into the proceedings, such late-filed facts and evidence may justify an order for apportionment of costs (see decisions cited above and Case Law of the Boards of Appeal, third edition 1998, pages 450 ff.).

4.3 In the present case the documents D8 to D12 filed together with the appeal show new facts, i.e. additional and specific state of the art which has not been brought forward before by the appellant and which forms a new line of attack as regards novelty and inventive step. The appellant has not maintained that he was prevented from submitting these documents at an early stage of the opposition proceedings. The Board is not aware of impediments whatsoever to the early filing either. On the other hand the respondent could not have been expected to introduce in the proceeding such documents - in particular either the documents (11) and (12). Even if one assumed that he was aware of them because one of the co-authors of documents D11 and D12, Mr. R. E. Davis, was employed by the respondent, he was not obliged to introduce them in the procedure because they were not relevant in his eyes (see declaration of G. A. Warren - another co-author - which was filed by the respondent in response to the introduction of these documents in the appeal proceedings).

4.4 It is clear that the late filing of these documents has caused additional costs to the respondent.

4.5 In the Board's view the above circumstances justify an apportionment of costs in the respondent's favour. The costs to be apportioned will include the remuneration of the representative of the respondent (see Rule 63(1) EPC). Considering that - as the respondent acknowledges - the appeal was properly raised in relation to the

objection of "added subject matter" (Article 123(2) EPC) and that therefore there are no reasons for the appellant to pay a portion of the patentee's costs on that issue, the Board, having carefully considered all the relevant circumstances of the case and in particular the fact that an earlier presentation of the documents in question would in any case have caused some costs to the respondent, comes to the conclusion that an apportionment of costs of 45% as set out in the order below, is in this case equitable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside;
2. The patent is revoked;
3. The costs in the present appeal proceedings shall be apportioned so that the appellant shall pay to the respondent 45% of the costs which were incurred by the respondent's representative and charged to the respondent in connection with the present appeal proceedings.

The Registrar:

The Chairman

V. Commare

W. D. Weiß