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Datasheet for the decision of 17 February 2017

Case Number: T 0523/14 - 3.2.03

Application Number: 08380058.1

Publication Number: 2096375

IPC: F24J2/14

Language of the proceedings: EN

Title of invention:
A reflector element for a solar heat reflector and the method for producing the same

Patent Proprietor:
Rioglass Solar, S.A.

Opponents:
Glasstech, Inc.
(an Ohio corporation)
SAINT-GOBAIN GLASS FRANCE
Flabeg GmbH

Headword:

Relevant legal provisions:
EPC Art. 100(a), 54, 56
RPBA Art. 13(1)

Keyword:
Late-filed evidence - admitted (yes)
Advertising newsletter - availability to the public (yes)
Novelty - main request (no)
Inventive step - auxiliary request (no)

Decisions cited:
T 1257/04, T 0412/91, T 0305/87

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

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Case Number: T 0523/14 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 17 February 2017

Appellant: (Patent Proprietor)	Rioglass Solar, S.A. Poligono Industrial de Sovilla, 4 33612 Santa Cruz de Mieres - Asturias (ES)
Representative:	ABG Patentes, S.L. Avenida de Burgos, 16D Edificio Euromor 036 Madrid (ES)
Respondent 1: (Opponent 1)	Glasstech, Inc. (an Ohio corporation) 995 Fourth Street Ampoint Industrial Park Perrysburg Ohio 43551 (US)
Representative:	Higgs, Jonathan Urquhart-Dykes & Lord LLP Altius House 1 North Fourth Street Milton Keynes, MK9 1NE (GB)
Respondent 2: (Opponent 2)	SAINT-GOBAIN GLASS FRANCE 18, avenue d'Alsace 92400 COURBEVOIE (FR)
Representative:	Saint-Gobain Recherche Département Propriété Industrielle 39 Quai Lucien Lefranc 93300 Aubervilliers (FR)

Respondent 3: (Opponent 3)	Flabeg GmbH Glaserstrasse 1 93437 Furth Im Wald (DE)
Representative:	Tergau & Walkenhorst Patentanwälte - Rechtsanwälte Eschersheimer Landstrasse 105-107 60322 Frankfurt/Main (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 20 December 2013 revoking European patent No. 2096375 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	G. Ashley
Members:	V. Bouyssy
	E. Kossonakou

Summary of Facts and Submissions

I. European patent No. 2 096 375 (in the following: "the patent") concerns a reflector element for a solar heat reflector.

II. The patent as a whole was opposed by opponents 1 to 3 on the ground of Article 100(b) EPC (insufficient disclosure) and on two grounds of Article 100(a) EPC (lack of novelty and lack of inventive step).

III. The opposition division decided to revoke the patent for lack of novelty of claim 1 as granted and lack of inventive step of claim 1 as amended according to the auxiliary request before it.

IV. This decision was appealed by the patent proprietor (in the following, appellant).

V. With the summons to oral proceedings, the Board sent a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating its preliminary opinion of the case.

VI. Oral proceedings before the Board were held on 17 February 2017, for the course of which reference is made to the minutes. As announced by telefax of 5 January 2017, duly summoned opponent 3 was not present at the oral proceedings.

VII. Requests

The appellant requested that the decision under appeal be set aside and the patent be maintained as granted (main request), alternatively, that the patent be maintained in amended form on the basis of the set of

claims filed as auxiliary request with the grounds of appeal (letter of 30 April 2014).

Opponents 1 to 3 (here respondents 1 to 3) requested that the appeal be dismissed.

VIII. Cited evidence

In the statement setting out the grounds of appeal and in the reply to it the parties relied, among others, on the following documents, which were filed in the opposition proceedings and are cited in the decision under appeal:

D11: Newsletter "Glasstech World - Fall 2007", Glasstech Inc., 2 pages;
D12: "CRB-P™ Engineers Glass Parts for Solar Power", USGlass Metal & Glazing, Volume 42, Issue 11, November 2007, front page and page 68;
D14: US 7,162,893 B2;
D15: Declaration of Mr Jay K. Molter, dated 26 July 2011;
D16: US 5,253,105 A;
D17: DE 38 21 997 C1;
D25: P. J. Doyle (Ed.), "Glass-Making Today", Portcullis Press, Redhill, 1979, pages 258 and 259;
D26: I. I. Kitaigorodski (Ed.), "Technologie des Glases", R. Oldenbourg Verlag, München, 1957, pages 664 to 669;
D27: P. Gilard et al, "Les Industries du Verre", Les Études Des Composés Siliceux S.A., Bruxelles et Eyrolles, Paris, 1960, pages 99 to 102;
D54: Results of a search for D11 in Glasstech's website with the Internet Archive Wayback Machine;
D55: Declaration of Mr Marc Maurer, dated

6 November 2013, confirming reception of an e-mail from Mr Jay K. Molter containing D11 as attachment.

In addition, the appellant has relied on the following documents filed with the grounds of appeal:

D56: Report on D11 from Ms Alicia Durán, research professor, Institute of Ceramics and Glass, Madrid, dated 29 April 2014, regarding the disclosure of D11;
D57: Declaration of Mr Shmuel Fledel, CEO of Siemens CSP, dated 22 April 2014;
D58: Declaration of Mr Shahid Sheikh, GM business development at Asahi India Glass Limited, dated 24 April 2014;
D59: Declaration of Mr Antonio Esteban Garmendia, GM of Abengoa Solar New Technologies, S.A., dated 20 April 2014;
D60: Declaration of Mr Pedro Valero, IT manager at Rioglass Solar, dated 29 April 2014.

In the oral proceedings before the Board, respondent 2 filed the following document (number attributed at the hearing):

D61: Screenshot documenting the distribution within the respondent company of the e-mail from Mr Molter containing D11 as attachment, as attested in D55.

IX. Claims of the appellant's requests

(a) Main request

Independent product claim 1 as granted reads as follows:

"A reflector element (1) for a solar heat reflector comprising a self-supported curved not mechanically flexed monolithic heat-treated glass pane (2) and reflecting means deposited on the glass pane (1)."

(b) Auxiliary request

Independent method claim 1 reads as follows (compared with method claim 13 as granted, added features are indicated in bold, deleted passages in strike-through):

"Method for producing ~~the~~ **a** reflector element (1) ~~of any of the claims 1 to 12~~ **for a solar heat reflector comprising a self-supported curved not mechanically flexed monolithic heat-treated glass pane (2) and reflecting means deposited on the glass pane (1)** comprising the steps of

i) cutting off an annealed glass, grinding of the edges of the cut glass pane,
ii) washing the glass pane,
iii) loading the glass pane in a bending furnace for its bending until the desired curved shape,
iv) heat treatment of the glass pane by heating and rapid cooling in order to increase its strength,
v) cooling down the glass pane to normal handling temperature, and
vi) application of a reflective coating (10) and protective layers (11-14)."

X. The arguments of the parties, insofar as relevant for the present decision, can be summarised as follows:

(a) Consideration of D54 and D56 to D60 in the proceedings

Respondents' case:

The opposition division correctly decided that late-filed document D54 should not be admitted because it was not *prima facie* relevant.

Technical report D56 and declarations D57 to D60 also should be disregarded because they were late filed with the statement of grounds of appeal and lack any relevance. On the one hand, the author of report D56 is not an engineer having experience in the operation of glass processing equipment as described in D11 and thus D56 cannot prove that the disclosure of D11 is insufficient for a skilled person to put its teaching into practice. On the other hand, declarations D57 to D60 attempt to prove a negative fact, i.e. that an e-mail could not be found in a search, the rigorousness of which cannot be verified.

Appellant's case:

Technical report D56 and declarations D57 to D60 should not be disregarded because they were filed in direct reaction to the decision of the opposition division not to admit late-filed document D54 into the proceedings. All these documents are highly relevant because they cast doubts on the allegation that D11 became available to the public before 26 February 2008 by having been

sent by e-mail, and that it comprises an enabling disclosure.

(b) Admissibility of D61 in the proceedings

Appellant's case:

D61, filed in the oral proceedings before the Board on 17 February 2017, should not be admitted into the proceedings because it could already have been filed in the opposition proceedings and at the latest in response to the Board's communication dated 7 June 2016, well in advance of the oral proceedings. In the absence of the full headers of the e-mails reproduced in D61, this document cannot be relied upon to support the written statement of Mr Maurer (D55).

Respondent 2's case:

D61 has been filed in response to the Board's objection raised in its communication that it is not apparent from Mr Maurer's declaration (D55) who was the actual addressee of the e-mail from Mr Jay K. Molter received on 17 October 2007.

(c) Public prior availability of D11

Appellant's case:

Contrary to the opposition division's view, it has not been established to the requisite level of certainty that D11 was publicly available before 26 February 2008.

Respondent 1 alleges that D11 was made publicly available prior to the filing date of the patent

(26 February 2008) by being distributed to customers and potential customers at trade shows and by electronic mailing, by being issued to the editors of the USGlass Metal & Glazing magazine, and by being available on the Glasstech website. Since all the evidence in support of these allegations lies within the power and knowledge of respondent 1, the evidence must meet a strict standard of proof, namely "beyond all reasonable doubt". However, respondent 1 has not provided any conclusive evidence to prove its allegations, apart from written statement D15 by Mr Molter, an employee of respondent 1.

Neither the appellant nor three other existing/ potential customers of respondent 1 can confirm having ever received D11 by electronic mailing in Fall 2007, even though they have received, or might have received, news, promotions or offers from respondent 1 by electronic mailing from time to time (see declarations D57 to D60). This casts doubt on D11 being sent by e-mail on 16 October 2007 to 300 existing and potential customers, as alleged by respondent 1.

Respondent 2 has filed a declaration of Mr Maurer (D55), employee of respondent 2, that Mr Guénaël Bouillé, another employee of respondent 2, received an e-mail from Mr Molter containing D11 as attachment on 17 October 2007 and that Mr Bouillé forwarded it to Mr Maurer on the same day, without any obligation of confidentiality. The declaration D55 contains a printout of the alleged e-mail, but it cannot be derived from it who was its actual recipient(s). Respondent 2 has filed D61 to document how the e-mail was forwarded from Mr Bouillé to Mr Maurer. However, D61 is only a screenshot of Microsoft Outlook and, in

the absence of the full e-mail headers, it might be a forged document.

The written statements of Messrs Molter and Maurer (D15 and D55) cannot be regarded as sufficient evidence because they are employees of respondents 1 and 2 respectively (see e.g. T 1257/04).

Finally, a search carried out using the Internet Archive Wayback Machine revealed that the Glasstech web page including D11 was not archived before 28 March 2008 (see document D54). This casts doubt on D11 being accessible on the Glasstech website before 26 February 2008, as alleged by respondent 1.

Respondent 1's case:

D11 is an advertising newsletter from respondent 1 which was printed in Fall 2007. As explained in D15 by Mr Jay K. Molter, vice president marketing and sales of respondent 1, D11 was made publicly available prior to 26 February 2008 as follows:

- D11 was distributed to potential customers at the GlassBuild America trade show in Atlanta (USA), 10 September 2007 (D15, point 11);
- D11 was distributed to potential customers at the Vitrum Glass Show in Milan (Italy), from 3 to 6 October 2007 (D15, point 12);
- D11 was sent electronically by e-mail to the editors of the USGlass Metal & Glazing magazine on 10 October 2007 (D15, point 13);
- D11 was delivered electronically by e-mail on 16 October 2007 to approximately 300 existing and potential customers, including the appellant (D15, point 14);

- D11 was available on the Glasstech website ("Glasstech.com") in November 2007 or before (D15, point 15);
- D11 was translated into Mandarin Chinese and the translation was mailed in December 2007 to approximately 500 existing and potential customers throughout China (D15, points 16 and 17).

Even though these allegations were not supported by documentary evidence when filing the opposition, the appellant contested them for the first time in its submission dated 18 October 2013, i.e. more than 2 years after the opposition was filed and only one month before oral proceedings were held before the opposition division on 19 November 2013. Up and until then, there was no need to provide evidence to support the above allegations. In the meantime, it has proven impossible to find complete evidence. The administrator of the Glasstech web page cannot document the exact publication date of D11 because its records are fragmented or overwritten. The editors of the USGlass magazine cannot confirm receipt of D11 by e-mail. Locating third parties willing to positively declare e-mail receipt of D11 has not proven possible, due to the incompleteness of e-mail archive records.

In any event, respondent 2 provided conclusive evidence in the form of documents D55 and D61 that, on 17 October 2007, it received D11 by e-mail from respondent 1 in a public marketing context, without any obligation to keep it secret. D55 includes a printout of the e-mail which was sent by Ms Lore V. Warnke, employee of respondent 1, and signed by Mr Jay K. Molter. D11 is expressly referred to in the subject and text fields of the e-mail. Since the actual addressees of the e-mail were blind carbon-copied ("bcc"), they

indeed do not appear in the recipient field. D55 however also comprises a declaration of Mr Maurer, employee of respondent 2, stating that Mr Bouillé, another employee of respondent 2, received this e-mail on 17 October 2007 and forwarded it the same day to Mr Maurer and other colleagues internally. This statement is confirmed by D61, which is a screenshot documenting the forwarding of the e-mail from Mr Bouillé to Mr Maurer and two other colleagues. Thus, D55 and D61 document what was received, when and by whom. This evidence meets a high standard of proof because it does not leave any ambiguity that is open to interpretation. D55 and D61 are documented facts, not forged evidence.

Declarations D57 to D60 cannot cast any doubt on the fact that respondent 2 received D11 as a member of the public. In addition, such declarations cannot be relied upon because there can be many reasons why the e-mail could not be found. For instance, it might have been blocked as unwanted e-mail by a spam filter or, in the case of the declarations of Messrs Fledel, Sheikh and Garmendia (D57 to D59), it might have been stored in an e-mail inbox that has not been searched or, alternatively, it might have been received by a person who is no longer in the company.

Page 68 of the November 2007 issue of the USGlass Metal & Glazing magazine (D12) proves that Dl1 was received by the editors of this journal before it was prepared for publication, as stated in paragraph 14 of D15. Indeed, the text of the product information entitled "CRB-P™ Engineers Glass Parts for Solar Power" has been taken from the text of D11, albeit as an abridged article.

D54 shows that D11 was publicly available on 28 March 2008 on the Glasstech web page. However, due to the incomplete nature of the Internet archive, it cannot prove that D11 was not available on the Glasstech web page before that date.

Decision T 1257/04 is not applicable to the present case. It was concerned with the statement of an employee of a party to the proceedings relating to an event that took place over eleven years earlier; this statement was a mere recollection and no justification was given as to why such a precise memory could be recalled. Instead, in the present case, the written statements by Messrs Molter (D15) and Maurer (D55) do not rely only on a mere recollection, but are supported by documentary evidence, see e.g. D12 and D61.

(d) Enabling disclosure in D11

Appellant's case:

The technical information given in D11 cannot be regarded as having been made available to the public because it is insufficient to enable a skilled person to practise its technical teaching, even taking into account common general knowledge. In fact, D11 lacks technical precision and contains a number of ambiguous, inaccurate or insufficient statements, as shown in report D56. Thus, D11 does not form part of the state of the art.

Firstly, it is stated in paragraphs 3 and 4 of D11 that "Glasstech's Cylindrical Radius Bender technology is the right technology at the right time to produce the glass substrates that form the parabolic mirrors used in CSP" and that "Glasstech has engineered the Constant

Radius Bender – Parabolic (CRB-P™)". However, it is impossible to produce parabolic parts with a cylindrical or constant radius bender, since per definition a parabolic shape is formed by infinite radiuses of curvature (see D56, point 2.1).

Secondly, it is stated in paragraph 11 of D11 that "most CSP panels currently are being laminated for strength, once the reflective coating has been applied" and that "glass produced on the CRB-P can be surface strengthened so additional rigidity is not needed, once the reflective coating has been applied, eliminating the need (and cost) for lamination". However, when D11 was printed, most CSP panels were not laminated, but annealed (point 2.4.1 of D56). In addition, CSP panels are not "laminated for strength", as stated in D11, but to keep the desired curved shape, to provide rigidity and to improve safety (point 2.4.2 of D56). In addition, the above statement of D11 is ambiguous, since it is not clear whether the glass part is surface strengthened after or before applying the reflective coating. In the first case, the reflective coating would not survive the surface-strengthening treatment. In the second case, the statement would be incorrect since there is no relation between surface-strengthening and rigidity (point 2.5 of D56).

Thirdly, it is stated in paragraph 13 of D11 that "CRB-P systems maintain the same characteristics as other CRB systems and are able to quickly form pure cylinders, shapes with two radii that have a point of tangency, J-bends and V-bends" and that "with slight modifications, the CRB-P can form an even wider range of sophisticated bends". However, the CRB-P system can produce only curved glass with one or two constant radii of curvature, while other shapes require

modifications that are not disclosed in D11 (point 2.6 of D56).

Respondent 1's case:

The skilled person can reproduce the teaching of D11 using the information contained explicitly or implicitly therein, interpreted in the light of general knowledge in the field of the invention. D56 itself confirms that a skilled person would readily identify and correct the inaccuracies in the teaching of D11.

The statements in paragraphs 3, 4 and 13 of D11 provide a technically sound teaching. D11 describes the "Constant Radius Bender — Parabolic" (short "CRB-P"), as defined in paragraph 4. It uses a roll-form bender to bend heated glass sheets and thus obtain curved glass parts with one or two radii of curvature, for instance substantially parabolic glass parts, as follows from paragraphs 3, 4, 6 and 13. The term "Cylindrical Radius Bender" as used in paragraph 3 is only an alternative name for the roll-form bender.

Paragraph 11 of D11 simply teaches that, after the reflective coating is applied on the curved glass part, there is no need to provide any additional treatment such as lamination to enhance its rigidity. This paragraph must be read in context, in combination with paragraph 10, where it is stated that "glass produced on the CRB-P can be annealed for lamination or tempered or heat strengthened". As in the claimed invention (see paragraphs 19 and 49 of the patent specification), when the glass part is tempered or heat-strengthened, it does not require lamination to maintain its shape at the normal utilisation temperatures.

Decision T 412/91 supports the exclusion of prior art that is so implausible in the eyes of a skilled reader that he would reject it as erroneous. This is not comparable to the present case.

(e) Main request – Novelty

Appellant's case:

Contrary to the opposition division's view, the teaching of D11 does not anticipate the subject-matter of claim 1.

D11 discloses separate embodiments for different applications that allegedly can be produced with the CRB-P system (see e.g. paragraphs 9, 10 and 13). However, a reflector element with the combination of features of claim 1 cannot be directly and unambiguously derived from D11. It is not permissible to combine separate items belonging to different embodiments described in one and the same document, unless such combination has specifically been suggested (see e.g. T 305/87).

Moreover, it cannot be derived from D11 that the curved glass parts are "not mechanically flexed", as required in claim 1. This feature must be understood as meaning that the glass is "not flexible in a static situation and cannot be cold-bent", as taught in paragraph 17 of the patent specification. D11 does not mention that the glass is hot bent and thus it cannot be derived from D11 that it is "not mechanically flexed" in the sense of claim 1. Paragraph 6 as cited by the opposition division only mentions that "glass produced on the CRB-P achieves strict tolerances and a high degree of shape repeatability"; this does not imply that the glass is

able to maintain its shape without the need of additional means.

Respondents' case:

The CRB-P system disclosed in D11 is configured to produce a curved mirror consisting of a curved monolithic glass pane with a reflective coating, wherein the glass pane preferably is fully-tempered glass pane as thin as 4 mm. Such a glass pane is inevitably "self-supported" and "not mechanically flexed" as required in claim 1. The term "not flexible" as used in paragraph 17 of the patent has a different meaning than the term "not mechanically flexed" used in claim 1. When reading D11, there is no need to combine separate items belonging to different embodiments to arrive at this novelty-destroying subject-matter.

(f) Auxiliary request – Inventive step

Appellant's case:

Contrary to the opposition division's view, the subject-matter of method claim 1 involves an inventive step.

Since D11 contains ambiguous, inaccurate and insufficient statements, it cannot be considered a relevant starting point for the invention, let alone the most promising starting point.

In any event, D11 fails to disclose "a reflector element for a solar heat reflector comprising a self-supported curved not mechanically flexed monolithic heat-treated glass pane and reflecting means deposited on the glass pane" and thus it does not disclose a

method for producing such a reflector element. The opposition division already acknowledged that D11 fails to disclose method steps (i), (ii) and (vi) of claim 1. In addition, D11 neither discloses the step of "loading the glass pane in a bending furnace for its bending until the desired curved shape" (step (iii) of claim 1), nor the specific sequence of steps (i) to (vi) required in claim 1. In practice, as explained in paragraph 39 of the patent specification, the "bending furnace" of the invention comprises a furnace and a bending station which is located downstream of the furnace. Thus, the method for producing a reflector element as defined in claim 1 differs from that disclosed in D11 at least in that it comprises steps (i) to (iii) and (vi), in the required sequence, and in that the produced reflector element comprises a self-supported curved not mechanically flexed monolithic heat-treated glass pane.

The problem to be solved can be seen as how to provide for heating and/or bending of the glass pane. The claimed solution to this problem is not obvious for the skilled person.

Respondents' case:

As ruled by the opposition division, the subject-matter of method claim 1 differs from the manufacturing method disclosed in D11 only by steps (i), (ii) and (iv).

Claim 1 is not restricted to a specific sequence of steps (i) to (vi). In particular, claim 1 does not expressly require that step (vi) be carried out after steps (i) to (v). Even if it did, this measure is implicitly disclosed in D11 since otherwise the

reflective coating would be damaged while heating, bending and heat-treating the glass pane.

Distinguishing features (i), (ii) and (vi) are obvious measures in light of common general knowledge, as documented in D17 (column 2, line 16), D25 (page 259, lines 7 to 11), D26 (page 667, paragraph 1 underneath the figures) and D27 (page 101, paragraph 8) for steps (i) and (ii), and in D16 (column 6, lines 35 and 36) and D17 (column 1, lines 6 to 9, column 2, line 65 to column 3, line 3) for step (vi).

Thus, claim 1 lacks an inventive step when starting from D11, as ruled by the opposition division.

Reasons for the Decision

1. Consideration of D54 in the proceedings

1.1 D54 had been submitted by the appellant (then patent proprietor) shortly before the oral proceedings before the opposition division. The opposition division decided not to admit D54 into the proceedings, using its discretionary power under Article 114(2) EPC, because it was late-filed and it lacked prima facie relevance for establishing the publication date of D11. Nevertheless, the decision contains a detailed analysis and evaluation of the evidence contained therein.

1.2 It is not the function of the Board to review all the facts and circumstances of the case as if it were in the place of the opposition division, in order to decide whether or not it would have exercised such discretion in the same way. Rather, the Board must confine its review to whether the opposition division has exercised its discretion according to the wrong

principles, without taking into account the right principles, or in an unreasonable way.

1.3 In the present case, only a few days before the oral proceedings before the opposition division, respondent 2 filed D55 to substantiate its allegation that it received D11 as an e-mail attachment on 17 October 2007, while two days later the appellant submitted D54 to prove its contention that D11 was not available on the Glasstech website in November 2007.

1.4 These pieces of evidence were not submitted in time, at least from a formal point of view, since the deadline set in accordance with Rule 116(1) EPC for submissions in preparation for the oral proceedings had not been respected.

The Board considers that it was contrary to the principles of procedural fairness and of equal treatment of the parties to admit D55 while disregarding D54. In the Board's opinion, D54 could serve to cast reasonable doubt on respondent 1's allegation that D11 was available on the Glasstech website in November 2007 or before (D15, point 15) and could thus have been admitted. However, in light of the opposition division's detailed consideration of D54 both in itself and together with the rest of the evidence relating to the issue at hand, the Board tends to conclude that its admission would not have altered the outcome.

1.5 Nevertheless, in view of its potential impact on the most contentious issue in the proceedings, namely the public availability of D11, the Board decided to consider D54.

2. Consideration of D56 to D60 in the proceedings

2.1 The appellant has filed D56 to D60 in direct reaction to the decision of the opposition division not to admit D54 into the proceedings as late-filed.

2.2 The respondents have not indicated, and the Board cannot find, any convincing reason why these pieces of evidence should be disregarded. Hence, these documents are taken into consideration, notwithstanding their relevance.

3. Admission of D61 in the proceedings

3.1 Respondent 2 filed document D61 during the oral proceedings before the Board, although it could arguably have been filed earlier in the opposition or appeal proceedings.

3.2 D61 is prima facie extremely relevant in that it seemingly provides the missing evidentiary link in proving D11's public availability before the filing date of the patent. It does not introduce a fresh case but simply confirms that a Glasstech e-mail comprising D11 as attachment was received by Mr Bouillé and forwarded to Mr Maurer, as alleged in the written statement of Mr Maurer (document D55). The appellant was in a position to react to this new piece of evidence, without adjournment of the oral proceedings.

3.3 Despite its clearly extremely late filing (Article 114(2) EPC and Article 13(1) RPBA), which could only meet with the Board's disapproval, the evidentiary value of this document is such that the Board decided to admit D61 in the proceedings.

4. Prior public availability of D11

4.1 D11 is the Fall-2007-issue of the advertising newsletter "Glasstech World" from Glasstech Inc., i.e. from respondent 1. It is disputed among the parties whether it had been made available to the public before the filing date of the patent (26 February 2008).

4.2 In the present case, practically all the evidence in support of the alleged prior publication of D11 lies within the power and knowledge of in particular respondent 1, with the appellant having no ready access to it. For such a situation, it is established case law that the allegations must be proven "beyond all reasonable doubt", namely that the allegations need to be proven in such a manner that the Board, on the basis of a free evaluation of the evidence on file, is persuaded that the alleged facts have actually occurred (see e.g. Case Law of the Boards of Appeal, 8th edition, 2016, in the following "CL", III.G.4.3.2).

4.3 After reviewing the evidence on file, the Board is persuaded that D11 has indeed been made available to the public before 26 February 2008, in particular for the following reasons.

4.4 When D11 was printed, respondent 1 was a leading manufacturer of glass bending and tempering equipment used by glass fabricators supplying the worldwide automotive and architectural safety-glass markets (see e.g. page 2 of D11, bottom paragraph).

4.5 It was the very purpose of D11 to inform interested customers that respondent 1 had engineered new equipment - the Constant Radius Bender Parabolic (short "CRB-P™") - as a cost-effective and efficient means of

providing the essential glass parts that were needed by the burgeoning concentrated solar power industry (see page 1 of D11, title and paragraph 4). It is highly probable that respondent 1 distributed D11 in Fall 2007, given its strong interest in attracting as many customers as possible for this new equipment in the emerging and highly competitive field of solar power.

4.6 Respondent 2 provided conclusive evidence in the form of D55 and D61 that Mr Jay K. Molter sent D11 by e-mail to customers on 16 October 2007, as stated in paragraph 14 of D15, and that respondent 2 received this e-mail on 17 October 2007, without any obligation to keep it secret.

D55 includes a printout of an e-mail received on 17 October 2007 which was signed by Mr Jay K. Molter as "Vice President Marketing & Sales" of respondent 1 and was sent by Ms Lore V. Warnke, an employee of respondent 1. The text field of the e-mail reads "Attached for your review is the Fall 2007 issue of Glasstech World" and the subject field reads "FALL 2007 GLASSTECH WORLD". From this it follows that D11 was attached to the e-mail, in a public advertising context.

The addressees of the e-mail cannot be seen in the printout because they were entered in the bcc (blind carbon copy) field, as is common practice when using a mailing list.

D55 also comprises the written statement of Mr Maurer that Mr Bouillé received the said e-mail on 17 October 2007, without a confidentiality obligation, and that he forwarded it the same day internally, to Mr Maurer and other colleagues. This statement is

confirmed by D61, which is a screenshot of Microsoft Outlook documenting the forwarding of the e-mail from Mr Bouillé to Mr Maurer and two other colleagues, and showing that D11 was attached to the e-mail as a PDF-file.

4.7 The appellant argued that D61 might be a forged document. However, the appellant did not indicate, and the Board cannot find, any inconsistency or discrepancy in D61 which could suggest that this document is a forgery. The mere fact that it is a screenshot of Microsoft Outlook is insufficient to warrant the conclusion that it has been forged. The appellant only complained that D61 does not comprise the full headers of the e-mails. However, the e-mail headers are normally hidden and not revealed by default and, as explained by respondent 2, they contain sensitive information that must be kept confidential.

4.8 Finally, the November 2007 issue of the USGlass Metal & Glazing magazine (D12) supports the submission of respondent 1 that the editors of this magazine received D11 in or before November 2007, without any obligation to keep it secret. Indeed, the section of the magazine giving information about latest new products comprises an article entitled "CRB-P™ Engineers Glass Parts for Solar Power" which reproduces the statements in paragraphs 4, 6 and 10 of D11 and refers to the Glasstech web page (see D12).

4.9 The appellant objected to the credibility of statements D15 and D55 as they were written by two employees of respondents 1 and 2, Mr Molter and Mr Maurer respectively. While the written statements of independent persons would tend to carry more weight, the statements of employees of parties to the

proceedings are not objectionable per se. In the present case, the content of written statements D15 and D55 is considered sufficiently credible because it is corroborated on its crucial points by documents D12 and D61. In this respect, the present case is not comparable with T 1257/04, wherein an employee statement was the sole piece of evidence filed to prove the public availability of a brochure.

5. Enabling disclosure in D11

5.1 It is common ground that D11, being an advertising newsletter, it is not drafted in a manner as rigorous as a scientific publication.

5.2 Nevertheless, the information given in D11 is sufficient to enable a skilled reader, at the relevant date of D11, to practise the technical teaching which is the subject of the document, taking into account also common general knowledge at that time in the field of glass processing.

5.3 The appellant argues that paragraphs 2, 4, 11 and 13 of D11 comprise ambiguous, inaccurate and imprecise statements. When reading these paragraphs in context, however, a skilled reader will arrive at a technically sound teaching which can be put into practice, as follows.

5.4 D11 describes the "CRB-P™ Engineered for Burgeoning Concentrated Solar Power Industry - System" which "Efficiently Produces Parts for Parabolic Reflectors" (see title). Paragraph 3 and 4 of D11 define the acronym "CRB-P" as follows:

> "Glasstech's Cylindrical Radius Bender technology is the right technology at the right time to

produce the glass substrates that form the parabolic mirrors used in CSP"

and

"Glasstech has engineered the Constant Radius Bender – Parabolic (CRB-P™) as a cost-effective and efficient means of providing the essential glass parts that are needed by the burgeoning CSP market".

5.5 Further, it follows from paragraphs 6 and 9 of D11 that the CRB-P system uses the generally known technique of roller bending to create curved glass parts. In particular, "it bends glass using patented, computer-controlled, roll-forming technology" (paragraph 6).

5.6 In light of this and of the statements in paragraphs 3, 4, 7 and 13, the skilled person understands readily that the CRB-P system comprises a roll-form bender which is adapted to produce curved glass parts with a cylindrical or substantially parabolic shape, which are needed to form parabolic troughs for CSP (see e.g. paragraphs 2 and 7 to 9 and photograph on page 1 of D11).

5.7 It is stated in paragraph 11 that "most CSP panels currently are being laminated for strength, once the reflective coating has been applied" and that "glass produced on the CRB-P can be surface-strengthened so additional rigidity is not needed, once the reflective coating has been applied, eliminating the need (and cost) for lamination". These statements must be read in context, in particular in combination with paragraphs 10 and 12. Paragraph 10 teaches that "glass produced on the CRB-P can be annealed for lamination or tempered or heat strengthened", while paragraph 12 teaches that "the CRB-P ... will be able to process glass of varying

thicknesses, depending of the surface-strengthening treatment required". Thus, paragraph 11 simply confirms common general knowledge that, even though lamination is usually used for increasing glass strength, when the curved glass parts are "surface strengthened" by tempering or heat-strengthening, neither lamination nor mechanical means are needed for the glass pane to hold its curved shape.

5.8 Paragraph 13 teaches that "CRB-P systems ... are able to quickly form pure cylinders, shapes with two radii that have a point of tangency, J-bends and V-bends" and "with slight modifications, ... an even wider range of sophisticated bends". Even though D11 is silent as to how J-bends, V-bends or even more sophisticated bends could be achieved, the skilled person knows that the CRB-P roll-form bender is configured to produce curved glass parts with a cylindrical or substantially parabolic shape and he is able to put this into practice.

5.9 The present case is thus not comparable with T 412/91, cited by the appellant, wherein the board decided that in assessing novelty a prior-art disclosure had to be read giving the information it contained the meaning that a skilled person would have given it at its publication date and disregarding information which would be understood by a skilled person to be plainly wrong.

6. Claim 1 of main request - Novelty

6.1 As set out above, D11 discloses an equipment - the CRB-P system - and a method for producing curved glass-based mirrors for CSP reflectors. The CRB-P system uses the generally known technique of roller-bending to

create curved glass. The skilled person knows that this bending technique requires heating the glass above the transition temperature. Thus, the CRB-P system implicitly comprises means for heating a glass pane to be bent, the roll-form bender being used to bend the heated glass pane and thus obtain curved glass parts. Finally, since the aim of the production method according to D11 is to obtain "glass-based parabolic mirrors", it is implicit that the CRB-P system comprises means for applying a reflective coating on the curved glass parts, as confirmed in paragraph 11 of D11.

6.2 Paragraphs 10 and 12 teach that "glass produced on the CRB-P can be ... tempered" and that the CRB-P is able to "fully temper glass as thin as 4.0 mm". Thus, in a preferred embodiment, the CRB-P system further comprises tempering means for heating and rapidly cooling the curved glass parts.

6.3 To sum up, D11 discloses a CRB-P system adapted to produce a curved glass-based mirror consisting of a one-piece 4 mm fully-tempered glass part covered with a reflective coating.

6.4 Such a mirror forms a reflector element for a solar heat reflector, comprising a self-supported curved monolithic heat-treated glass pane and reflecting means, in the terms of claim 1.

6.5 The parties dispute whether or not D11 discloses the feature of claim 1 that this glass pane is "not mechanically flexed".

6.6 The Board does not share the appellant's view that this feature must be understood as meaning that the glass

pane is "not flexible in a static situation and cannot be cold-bent", as taught in paragraph 17 of the patent specification. In the context of claim 1, the wording "not mechanically flexed" is clear: it means that the glass pane is maintained in its curved shape without the need of mechanical flexing, i.e. without the use of a frame, rigid member or any other external force. Since claim 1 imparts a clear and technically sound teaching to the skilled reader, there appears to be no reason for him to use the description to interpret the disputed feature in a different manner. In this respect, the Board agrees with respondent 2 that the term "not flexible" as used in paragraph 17 has a different meaning than the term "not mechanically flexed" used in claim 1.

6.7 For a skilled person, it is implicit that no mechanical means is needed for the curved, fully-tempered glass pane with 4 mm thickness disclosed in D11 to hold its curved shape. Thus, it is "not mechanically flexed" in the broad sense of claim 1.

6.8 In conclusion, the subject-matter of claim 1 lacks novelty over D11.

7. Claim 1 of auxiliary request – Inventive step

7.1 The opposition division considered that the manufacturing method disclosed in D11 forms a relevant starting point for the assessment of inventive step. The Board shares this view.

7.2 As explained under points 5 and 6 above, D11 discloses, in the terms of claim 1, a method for producing a reflector element for a solar heat reflector comprising a self-supported curved not mechanically flexed

monolithic fully-tempered glass pane and reflecting means deposited on the glass pane, comprising the steps of: heating a glass pane and then roller-bending it until the desired curved shape is achieved; tempering the glass pane by heating and rapid cooling in order to increase its strength; cooling down the glass pane to normal handling temperature; and applying a reflective coating.

7.3 As acknowledged by the opposition division, D11 fails to disclose the following steps of claim 1:

i) cutting off an annealed glass, grinding of the edges of the cut glass pane,

ii) washing the glass pane, and

vi) application of protective layers.

7.4 The parties dispute whether or not D11 discloses the following step of claim 1:

iii) loading the glass pane in a bending furnace for its bending until the desired curved shape.

7.5 The Board shares the appellant's view that this step cannot be derived from D11. In the context of the patent, the term "bending furnace" must be construed as defining a furnace and a separate downstream bending station (see paragraph 39 of the patent specification). Such a bending furnace is not disclosed in D11, even though it is implicit that the CRB-P roll-form bender bends heated glass.

7.6 The appellant also argued that D11 does not disclose that step (vi) of applying the respective coating is performed at the end of the manufacturing process, after steps (i) to (v). However, the claimed method is not restricted to a specific sequence of steps (i) to

(vi) and D11 discloses the application of a reflective coating.

7.7 In conclusion, the method of claim 1 differs from that disclosed in D11 only by the provision of steps (i) to (iii) and (vi) as defined here above.

7.8 Since these distinguishing features do not interact to achieve a synergistic effect, they can be treated independently when assessing their obviousness.

7.9 The opposition division decided that each of distinguishing features (i), (ii) and (vi) is a well-known measure which the skilled person would employ, if required, on the basis of his common general knowledge, as documented in D16, D17, D25, D26 and D27 (see points 71 and 72 of the reasons of the decision under appeal). The appellant has not indicated, and the Board cannot find, any reason why the provision of these features would involve an inventive step.

7.10 The provision of a furnace upstream of the bending station of D11 is an obvious design option for the skilled person for heating the glass pane before bending it in the CRB-P roll-form bender. For instance, D14 discloses a similar roll-form bender for bending heated glass sheets and teaches that it receives a heated glass sheet to be bent "from an unshown furnace which may be of any conventional construction" (see column 5, lines 39 to 41). The skilled person would see the advantages of this teaching and would have no practical difficulties to provide a conventional furnace upstream of the CRB-P roll-form bender disclosed in D11. By doing so he would arrive at distinguishing feature (iii) in an obvious manner.

7.11 Thus, the subject-matter of claim 1 lacks an inventive step in the sense of Article 56 EPC when starting from D11.

8. In conclusion, the opposition grounds of lack of novelty and lack of inventive step prejudice the maintenance of the patent as granted, and as amended according to the auxiliary request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Spira G. Ashley

Decision electronically authenticated