Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 17 January 2018

Case Number: T 0305/16 - 3.3.05

Application Number: 00983888.9

Publication Number: 1240116

IPC: C03C17/32, B32B17/10

Language of the proceedings: EN

Title of invention:
MATCHABLE LOW-E I.G. UNITS AND LAMINATES

Patent Proprietor:
Guardian Glass, LLC

Opponent:
SAINT-GOBAIN GLASS FRANCE

Headword:
Matchable I.G. unit/GUARDIAN

Relevant legal provisions:
EPC Art. 54(1), 54(2), 56

Keyword:
Novelty - selection invention (yes)
Inventive step - unexpected improvement shown

Decisions cited:
T 0279/89, T 1233/05, T 0230/07, T 1130/09, T 1948/10, T 0378/12

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0305/16 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 17 January 2018

Appellant: (Opponent)	SAINT-GOBAIN GLASS FRANCE 18, avenue d'Alsace 92400 COURBEVOIE (FR)
Representative:	Saint-Gobain Recherche B.P. 135 39, quai Lucien Lefranc 93303 Aubervilliers Cedex (FR)
Respondent: (Patent Proprietor)	Guardian Glass, LLC 2300 Harmon Road Auburn Hills MI 48326 (US)
Representative:	Hess, Peter K. G. Bardehle Pagenberg Partnerschaft mbB Patentanwälte, Rechtsanwälte Postfach 86 06 20 81633 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 2 December 2015 rejecting the opposition filed against European patent No. 1240116 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	E. Bendl
Members:	J.-M. Schwaller
	R. Winkelhofer

Summary of Facts and Submissions

I. The present appeal lies from the decision of the opposition division to reject the opposition against European patent No. 1 240 116, independent claim 1 of which reads as follows:

"*1. A coated article comprising first and second spaced apart glass substrates; at least one of said first and second substrates including a coating system provided thereon, wherein said coating system includes the following 5-layer system consisting of:*
a) a first silicon nitride inclusive layer having a thickness of from 310-350 Å,
b) a first NiCr inclusive layer having a thickness of from 10-20 Å,
c) an Ag inclusive layer having a thickness of from 52-62 Å,
d) a second NiCr inclusive layer having a thickness of from 10-20 Å, and
e) a second silicon nitride inclusive layer having a thickness of from 390-440 Å in sequence."

II. With the grounds of appeal, the opponent ("the appellant") contested said decision and objected to the patent as granted under Articles 54 and 56 EPC. It argued in particular that above claim 1 lacked novelty and inventive step over each of documents D1 (EP 0 456 487 A2) and D3 (US 5 376 455 A). Further, it requested that D5 (EP 1 362 015 B1), not admitted by the opposition division, be admitted into the proceedings. In its view, D5 showed that the effect underlying the alleged invention was not achieved, with the consequence that the problem was to be reformulated as a mere alternative.

III. In its reply to the grounds of appeal, the proprietor ("the respondent") filed a set of observations and requested the board not to admit the late-filed document D5. It furthermore requested the board to uphold the decision of the department of first instance or, alternatively, to maintain the patent in amended form on the basis of one of the five auxiliary requests filed before the opposition division.

IV. Further observations were received from the appellant along with a new document D6 (EP 0 718 250 A2), which was intended to show that matchable glasses already existed at the priority date of the alleged invention.

V. At the oral proceedings, the discussion focused on novelty and inventive step over document D3, which the parties held to represent the closest state of the art. The appellant further maintained its objection of lack of novelty based on D1.

The appellant requested that the contested decision be set aside and that the patent be revoked.

The respondent requested to dismiss the appeal (main request) or, alternatively, to maintain the patent in amended form on the basis of one of the auxiliary requests 1 to 5 dated 15 October 2015.

Reasons for the Decision

1. Admissibility of documents D5 and D6

Even assuming, in favour of the appellant, that both documents were to be admitted into the proceedings, the appeal would still not succeed (see the reasoning

below). Therefore, there is no need to discuss admissibility of D5 and D6 further.

2. Main request - novelty

The subject-matter of claim 1 as granted is novel over the individual disclosures of D1 or D3 for the following reasons:

2.1 Document D1

2.1.1 The claims of this document disclose neither the currently claimed sequence of five layers nor their thickness. Nor do the examples, which disclose (see D1, pages 5 and 6) the claimed sequence Si_3N_4/NiCr/Ag/NiCr/Si_3N_4, however, with the thickness of the Si_3N_4 layers (490/491 Å and 720/715 Å respectively), which falls outside the claimed ranges (310 to 350 Å and 390 to 440 Å).

2.1.2 The description neither directly nor unambiguously discloses the claimed subject-matter. The passage at page 3, lines 5 to 35, defines Si_3N_4, NiCr and Ag as the preferred materials for the respective dielectric, precoat and reflective metal layers, but with preferred thicknesses for the first and second dielectric layers (400 to 600 Å and 575 to 860 Å), which also fall outside the currently claimed ranges of 310 to 350 Å and 390 to 440 Å, respectively.

2.1.3 The appellant argued that claim 1 as granted lacks novelty over D1 because the claimed thickness ranges for Si_3N_4 do not satisfy the three criteria required by the case law, as established for example in T 279/89, namely that a selection of a sub-range of numerical

values from a broader range is new if each of the following criteria is satisfied:
(a) the selected sub-range should be narrow;
(b) the selected sub-range should be sufficiently far removed from the known range illustrated by means of examples;
(c) the selected area should not provide an arbitrary specimen from the prior art, i.e. not a mere embodiment of the prior description, but another invention (purposive selection).

For the board, criteria a) and b) are satisfied because the claimed ranges (310 to 350 Å for the first Si_3N_4 layer, 390 to 440 Å for the second Si_3N_4 layer) have a breadth of 40 or 50 Å, and so they are narrow in comparison to the broad ranges of from about 300 to 900 Å known from D1.

The claimed ranges, in particular that of the second layer, are moreover sufficiently far removed (at the nearest 140 Å for the first layer and 275 Å for the second layer) from the ranges disclosed by the examples of D1 (490 to 491 Å and 715 to 720 Å, respectively) and from the end points of the broadest range, or the preferred ranges of the prior art document.

Concerning the third criterion, that of "purposive selection", there is no reason to depart from the conclusion in the more recent decisions of the boards T 1233/05 (Reasons, 4.4), T 230/07 (Reasons, 4.1.6), T 1130/09 (Reasons, 3.2), T 1948/10 (Reasons, 3.6) and T 378/12 (Reasons, 4.8 to 4.9) that this criterion is only relevant for the question of inventive step, not for novelty.

2.2 Document D3

2.2.1 Claim 1 of D3 discloses a heat-treatable glass coated with a layer system comprising from the glass outwardly:
a) a first layer of Si_3N_4 having a thickness of about 350 to 450 Å;
b) a first layer of nickel or nichrome having a thickness of greater than about 20 Å;
c) a layer of silver having a thickness of about 50 to 120 Å;
d) a second layer of nickel or nichrome having a thickness of at least about 7 Å;
e) a second layer of Si_3N_4 having a thickness of about 450 to 550 Å.

2.2.2 The second Si_3N_4 layer in the above coating being at least about 10 Å thicker than the one (390 to 440 Å) defined in claim 1 as granted, the subject-matter of claim 1 of the patent in suit is, for this reason at least, novel over D3.

2.2.3 In this respect, the board does not agree with the appellant's argument that the lower value of "about 450 Å" of the range defining above feature e) in D3 destroys the novelty of the upper value "440 Å" of the range currently defined in claim 1 as granted. Indeed, the accuracy of the thickness measurements and the fluctuations in the manufacturing process will imply some margin of error in the measured thicknesses, but there is currently no evidence on file in support of the appellant's allegations that this error would be 10Å. D6 even shows that these allegations are unfounded since at page 5, lines 10 to 13 of D6, a similar sputtered layer is defined as having a thickness in the order of from 0.5 to 1.5 nm (i.e. 5 to 15Å), which

means that the appellant itself (as the proprietor of D6) evaluated the margin of error in the measurement of the thickness to be less than 0.5 nm (i.e. less than 5Å). It follows that for this reason, too, claim 1 at issue is novel over D3.

2.3 Furthermore, the specific prior art example "STD" in column 20 of D3 differs at least in the thickness of the upper Si_3N_4 layer from present claim 1 (450 Å vs. at most 440 Å) and therefore does not destroy the novelty of the claimed subject-matter.

2.4 As none of the other documents cited in the appeal proceedings discloses the features of claim 1 at issue in combination, claim 1 and its dependent claims 2 to 4 meet the requirements of Article 54(1) and (2) EPC.

3. Main request - inventive step

Applying the problem-solution approach, the subject-matter of the claims as granted involves an inventive step for the following reasons:

3.1 Document D3, which the parties acknowledged as representing the closest state of the art, discloses - as explained in points 2.2 and 2.3 above - a heat-treatable glass coated with a 5-layer system similar to the one currently defined in claim 1 as granted, except that the upper Si_3N_4 layer is thicker (450 to 550 Å) than the one claimed.

3.2 The problem underlying the invention is described at paragraph [0014] of the patent as consisting in the provision of a layer coating system having a commercially acceptable colour and being heat treatable and matchable when used in articles employing two or

more transmitting glass substrates in light transmitting relationship one with the other.

3.3 As a solution to this problem, the contested patent proposes the coated article according to claim 1, which is in particular characterised in that it comprises two spaced apart glass substrates and in that the second silicon nitride layer of the 5-layer coating system has a thickness of from 390 to 440 Å.

3.4 To the question whether the above solution effectively solves the problem identified in point 3.2 above, paragraph [0086] of the patent discloses the characteristics of an I.G. (isolating glass) unit falling within the terms of claim 1 at issue, with in particular the ΔE^*_{ab} (glass side) characteristic having a value of 1.76 for the heat-treated I.G. unit. As described in paragraphs [0049] and [0085] of the patent, this characteristic is important for the matchability, as this is usually achieved when ΔE^*_{ab} - when viewed from the glass side - is preferably less than 4.0 and Δa^* is preferably less than 0.5.

In the present case, the required ΔE^*_{ab} is well below the above value of 4.0 and Δa^* is equal to -.04, which is also well below the preferred value of 0.5. It follows that the above embodiment described at paragraph [0086] of the patent is matchable in the sense of the contested patent.

3.4.1 The appellant contested this conclusion, arguing in particular that paragraph [0084] of the patent taught the contrary. Further, it referred to document D5 and asserted that Table 8 demonstrated that the technical effect underlying the patent was not surprising.

3.4.2 The board does not concur with these arguments because paragraph [0084], which the appellant quoted, describes the properties of a monolithic glass coated with a 5-layer system as defined in claim 1 at issue, i.e. an embodiment which is outside the scope of protection of the invention, which requires at least two spaced apart glass substrates. Paragraph [0085]) of the patent moreover discloses explicitly that a monolithic coated glass sheet is not matchable, whereas, when associated with a clear float glass sheet so as to form an I.G. unit or a laminate, a matchable glass article is surprisingly obtained, as demonstrated in paragraph [0085].

3.4.3 Concerning D5, since this document was published well after the filing date of the contested patent, any conclusion which might be "extracted" - and therefore indirectly derived from Table 8 - was not publicly available at the effective date of the disputed patent.

3.4.4 Concerning appellant's remark that the problem underlying the contested patent was not solved for the I.G unit either, even if D5 could be held as a kind of "comparative test", this document in fact discloses the contrary since it defines the matchability of a glass article to be "good" when ΔE^* is no greater than 2.5 (D5, paragraph [0042]), which is the case for the I.G. unit of the contested patent, which value is 1.76. The problem as described in the patent is therefore manifestly solved.

3.4.5 The appellant further argued that the problem underlying the claimed invention was to be reformulated as an alternative, because the heat-treatable coated glass article disclosed in D3 solved the same problem as the one currently claimed. The board cannot agree

with this reformulation of the problem, because D3 indeed discloses a heat-treatable and matchable coated glass article. However, this is matchable with a glass having a different layering system and which is non-heat-treatable (D3; column 23, lines 56 to 63 and column 24, lines 30 to 34), whereas the coated glass according to the contested patent, when heat-treated and incorporated in an I.G. Unit, is matchable with the non-heat-treated I.G. unit containing the same coated glass. This type of matchability has the further advantage of requiring only a single stock of the same coated glass, whereas in D3, two stocks of different glasses were needed to achieve "matchability".

With respect to this argument, the appellant contended that this advantage was known from D6. This is correct, but D6 discloses coated glasses in which the layer system is different, namely the layer below the silver layer is constituted of either Nb (D6: page 6, lines 37 to 39) or ZnO (D6: examples), i.e. a different material from that in D3 (wherein the underlayer material is Ni or NiCr).

It follows from the above that there is no need to reformulate the technical problem.

3.5 As regards the obviousness of the claimed subject-matter over the closest prior art, it has to be determined whether the proposed solution was obvious in the light of the state of the art.

3.5.1 In this respect, the appellant argued that the solution was obvious from D3 itself, which discloses at column 15, lines 5 to 10 that "the thicknesses of the silicon nitride undercoat and overcoat layers [...] may be the same as those in the prior art Airco product (see FIG.

2), [...]". The Airco product is described in the paragraph bridging columns 19 and 20 of D3 as having a Si_3N_4 undercoat layer about 325 Å thick and a Si_3N_4 overcoat layer about 450 Å thick.

For the board, this disclosure does not lead to the subject-matter of claim 1 at issue, since the Si_3N_4 overlayer of the Airco product is still "about 10 Å" thicker than the layer e) defined in claim 1 as granted. So, this additional information in D3 cannot be seen as a hint for the skilled person to further diminish the thickness of this layer, let alone with the expectation of arriving at a coated glass article, which when inserted into an I.G. Unit, would be matchable with its non-heated counterpart.

3.5.2 Document D6 does not lead either to the claimed subject-matter, since as explained in point 3.4.5 the layer below the silver layer is constituted of either Nb or ZnO.

3.5.3 It follows that the solution to the above problem would not be obvious to the person skilled in the art from the known prior art, so that the subject-matter of claim 1, and by the same token that of dependent claims 2 to 4, which include all the features of claim 1, involves an inventive step within the meaning of Article 56 EPC.

4. Since the claims as granted meet the requirements of the EPC, there is no need to consider the lower-ranking requests.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar: The Chairman:

C. Vodz E. Bendl

Decision electronically authenticated