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Datasheet for the decision of 25 November 2008

Case Number: T 1086/06 - 3.3.09

Application Number: 98923716.9

Publication Number: 1094939

IPC: B32B 17/10

Language of the proceedings: EN

Title of invention:
Eliminating adhesion difference due to glass orientation in laminated safety glass

Patentee:
E.I. DU PONT DE NEMOURS AND COMPANY

Opponents:
1. Kuraray Europe GmbH (withdrawn)
2. SOLUTIA Inc.

Headword:
-

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

Relevant legal provisions (EPC 1973):
-

Keyword:
"Main request: Novelty (no)"
"Auxiliary request: Novelty, Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1086/06 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 25 November 2008

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office orally announced 16 February 2006 and posted 16 May 2006 rejecting the opposition filed against European patent No. 1094939 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: P. Kitzmantel
Members: W. Ehrenreich
K. Garnett

Summary of Facts and Submissions

I. Mention of the grant of European patent No. 1 094 939 in respect of European patent application No. 98 923 716.9, filed on 22 May 1998 as International application No. PCT/US98/10580 (published as WO-A 99/061243) in the name of *E.I. Du Pont de Nemours and Company*, was announced on 27 November 2002 (Bulletin 2002/48).

The patent, entitled: *"Eliminating Adhesion Difference due to Glass Orientation in Laminated Safety Glass"* was granted with fourteen claims.

Claim 1 reads as follows:

"1. A glass/adhesive sheet laminate comprising at least two layers of glass and a sheet of plasticized polyvinylbutyral, said polyvinylbutyral having incorporated therein as an adhesion control additive an alkali metal salt to provide a preselected level of adhesion between said layers of glass and said sheet of polyvinylbutyral wherein asymmetric adhesion is present between the layers of glass and adjoining surfaces of the sheet of polyvinylbutyral, and as a level[l]ing agent a different metal salt in an amount to provide a concentration of cation from the different metal salt in the PVB interlayer of 0.03-1.35 meq/kg, said amount being sufficient to reduce asymmetric adhesion between the plasticized interlayer and the adjoining surfaces of glass."

Claims 2 to 8 were, either directly or indirectly, dependent on Claim 1. Independent Claims 9 and 12 were

directed to a process for minimizing asymmetric adhesion between a polyvinylbutyral interlayer and glass in a glass/adhesive sheet laminate. Claims 10 and 11 were dependent on Claim 9 and Claims 13, 14 were dependent on Claim 12.

II. Opposition to the patent was filed by

I *HT Troplast AG* - now *Kuraray Specialties Europe GmbH* - on 26 August 2003

and

II *Solutia Inc.* on 27 August 2003.

Both oppositions were based on the grounds according to Article 100(a) EPC, namely that the claimed subject-matter was not novel and was not based on an inventive step. In support of their objections the Opponents *inter alia* cited the following documents:

E3 EP-A 1 022 261 - document according to Article 54(3) EPC
E4 EP-A 0 161 583
E6 DE-A 43 09 638
E7 US-A 3 271 235

After the expiry of the opposition period Opponent I alleged, in its letter dated 21 January 2005, that a laminate embraced by Claim 1 was available to the public prior to the filing date. In support of this allegation of public prior use Opponent I referred to documents E13 to E17 and argued that the float glass/PVB-PET-PVB/float glass laminate "Siglasol®"

produced by the company "Pilkington Automotive GmbH" (formerly "Flachglas Automotive GmbH") was novelty destroying by virtue of its use of the polyvinylbutyral interlayer "Trosifol MV-F" delivered by "HT Troplast AG" to "Flachglas Automotive GmbH" in November 1997.

By its letter dated 17 January 2006 Opponent I withdrew its opposition.

III. With its decision orally announced on 16 February 2006 and issued in writing on 16 May 2006 the Opposition Division rejected the opposition of Opponent II.

Concerning novelty over E3, E4 and E6 the Opposition Division held that there was no unambiguous disclosure in the cited documents of a combination of two different metal salts in the PVB interlayer, one acting as adhesion control agent and the other as levelling agent.
Furthermore E7 lacked the feature that the PVB layer was interposed between float glass layers.

The Opposition Division also rejected the late-submitted prior public use allegation of Opponent I as irrelevant, holding that the three-layer structure PVB-PET-PVB in the safety glass "Siglasol®" was not embraced by the claims of the patent, which defined the interlayer as a single PVB layer. This objection was therefore not admitted into the opposition proceedings.

As to inventive step the Opposition Division held that a skilled person starting from E6 as the closest prior art would not be induced to reduce the adhesion asymmetry of a PVB interlayer to the two sides of float

glass by the combination of two different salts as required by the claims.

IV. On 10 July 2006 the Opponent II (hereafter "the Appellant") lodged an appeal against the decision of the Opposition Division. The Statement of the Grounds of Appeal was submitted on 26 September 2006.

As to the issue of novelty the Appellant reiterated its position that the disclosure in E3, E4, E6 and E7 and the public prior use alleged by Opponent I were novelty-destroying and sought to postpone any objections as to lack of inventive step in the light of these multiple novelty objections.

V. The Patent Proprietor (hereinafter: "the Respondent") defended, as its main request, the patent as granted, and filed, with the letter dated 21 October 2008, six sets of claims as bases for auxiliary requests 1 to 6.

In the course of a discussion of the issues of novelty and inventive step in the oral proceedings held on 25 November 2008, the Respondent withdrew auxiliary requests 1 to 6 and replaced them by a set of Claims 1 to 7 according to a new single auxiliary request. The claims according to the main request remained unchanged.

Claim 1 according to the auxiliary request reads as follows:

"1. A glass/adhesive sheet laminate comprising at least two layers of glass and a sheet of plasticized polyvinylbutyral, said polyvinylbutyral having incorporated therein as an adhesion control additive an

alkali metal salt to provide a preselected level of adhesion between said layers of glass and said sheet of polyvinylbutyral wherein asymmetric adhesion is present between the layers of glass and adjoining surfaces of the sheet of polyvinylbutyral, and as a level[l]ing agent a different metal salt in an amount to provide a concentration of cation from the different metal salt in the PVB interlayer of 0.03-1.35 meq/kg, said amount being sufficient to reduce asymmetric adhesion between the plasticized interlayer and the adjoining surfaces of glass, wherein said leve[l]ling agent is an alkaline earth metal salt, a transition metal salt or a tin salt of an inorganic acid, an alkaline earth metal, transition metal, or tin salt of a monobasic organic acid selected from linear carboxylic acids having 1-12 carbon atoms and branched carboxylic acids having 3-12 carbon atoms, and wherein said glass is float glass."

The limitations in Claim 1 were also introduced into independent Claims 4 and 6, which corresponded to Claims 9 and 12 of the main request.

VI. The arguments of the Appellant can be summarized as follows:

(a) Relevance of the alleged public prior use

The three-layer sequence PVB-PET-PVB of the interlayer in the float glass laminate Siglasol® according to E17 was not excluded by the wording of Claim 1 as granted. The phrase in line 4 of the Claim that *"asymmetric adhesion is present between the layers of glass and adjoining surfaces of the sheet of polyvinylbutyral"* included any multilayer

PVB sheet as long as each of the glass surfaces was directly attached to a PVB surface. This was the case with Siglasol®.
Furthermore, the feature at the end of the claim that the amount of the levelling agent was sufficient to reduce asymmetric adhesion *"between the plasticized interlayer and the adjoining surfaces of glass"* was without technical meaning. The technically relevant amount of the levelling agent was already defined in the claim by reference to a particular range. Therefore, the above feature merely expressed a result to be achieved.

The public prior use of Siglasol® therefore constituted prior art which was highly relevant for the assessment of novelty.

(b) Novelty over E3 - Main Request

In example 1 of E3 a float glass laminate with a PVB interlayer was described. A potassium and a sodium salt were incorporated into the interlayer and the elemental sodium content in the interlayer was 6 ppm, which amounted to a sodium cation concentration of 0.26 meq/kg. The presence of two different alkali metal salts in the laminate according to example 1 of E3 was embraced by the definition according to Claim 1 *"... an alkali metal salt ..."* and *"... a different metal salt ..."*.
E3 did not qualify the alkali metal salts as "adhesion control additive" and "levelling agent". This was, however, not decisive for the question

of novelty because these terms only expressed a result to be achieved and were technically meaningless in a product claim.

E3 therefore anticipated the subject-matter of Claim 1 as granted.

(c) Novelty over E7 - Main Request

Example XIV of E7 described a glass/PVB/glass laminate with a PVB interlayer containing potassium acetate, and as a second metal salt cadmium acetate with a salt titer of 9, corresponding to a Cd^{2+} concentration of 0.31 meq/kg plasticized PVB.

It was not indicated in E7 that float glass having a tin side and an air side surface was used and that therefore asymmetric adhesion was present between the glass layers and the attached surfaces of the PVB sheet.
However, Claim 1 as granted did not define the extent of the asymmetry of adhesion which occurred between the glass surfaces and the adjoining surfaces of the PVB layer. Consequently, glass/PVB/glass laminates with very small differences in adhesion strength between the glass surfaces and the PVB layer, which occurred due to surface irregularities, were embraced by the claim. Because according to paragraph [0002] of the patent specification the invention was also applicable to glass/adhesive sheet laminates other than float glass laminates and in view of the fact that adhesion asymmetry was no longer detectable

in the final glass laminate, E7 also anticipated the subject-matter of Claim 1 as granted.

(d) Inventive step - Auxiliary Request

E6 represented the closest prior art. It was known from this document to use as adhesion-reducing agents in the PVB layer for float glass/PVB/float glass laminates salts of group Ia, IIa, IIb, IIIa metals with resinic acids or derivatives. In example 7 (Table 1) a laminate with a calcium-magnesium salt of colophonium in the PVB layer in an amount of 0.05 wt.-%, corresponding to a metal cation content of 1.5 meq/kg, was described. The laminate met the minimum requirement for the "falling ball" test of at least 5.5 m, and the difference in adhesion of the fire side and the tin side of the glass surfaces to PVB was only 20%, expressed by the "Pummel" values. This laminate therefore met the prerequisite of reduced asymmetric adhesion as required by Claim 1, although the amount of the metal cation in the resinate was slightly above the claimed upper limit of 1.35 meq/kg.

While the subject-matter of Claim 1 was different from the disclosure of E6 by the different anions of the salts used, this distinguishing feature could not be considered essential because of the breadth of the definition of the anion-forming acid according to present Claim 1, which embraced a great number of inorganic and organic acids, whereas the examples in the patent specification only showed the desired reduction of asymmetric

adhesion for very few acid anions. Consequently, it was not credible that the desired technical effect was achieved over the whole scope of the claim.

It was therefore *prima facie* obvious to replace the metal resinates used in the examples of E6 by other adhesive-reducing agents of the type alkaline earth metal salts of monobasic acids, such as formic acid or acetic acid, which were described on page 2 of E6 as common anti-adhesive additives in the PVB layer of safety glass laminates.

VII. The Respondent provided the following arguments:

(a) Relevance of the alleged prior public use

The feature in lines 3 and 4 of Claim 1 as granted that asymmetric adhesion is present *"between the layers of glass and adjoining surfaces of the sheet of polyvinylbutyral"* unambiguously implied that the glass surfaces were attached to the opposite surfaces of a single PVB sheet. This excluded the three-layer structure PVB-PET-PVB in Siglasol®, where the glass surfaces are attached to the surfaces of two different PVB sheets. The alleged public prior use could not anticipate the claimed glass laminate and was therefore not relevant.

For this reason and because this objection was raised well after the expiry of the opposition period, it should not be admitted into the proceedings.

(b) Novelty over E3 - Main Request

The definition in Claim 1 of the adhesion control agent as an *"alkali metal salt"* and the levelling agent as *"a different metal salt"* implied that the levelling agent was a non-alkali metal salt.
Example 1 of E3 could therefore not anticipate the claimed glass laminate.

(c) Novelty over E7 - Main Request

The feature that asymmetric adhesion is present between the layers of glass and adjoining surfaces of the PVB sheet required that glass surfaces with different surface properties were attached to the PVB sheet. This feature was of important technical relevance, for instance for float glass laminates where the tin and the air side of the glass sheet are attached to the PVB surfaces. Such an asymmetric adhesion was detectable in the final glass laminate with a standard test by determining the "Pummel"-values.

There was no information in E7 that the surfaces of the PVB interlayer adjoined glass surfaces with different surface structure. It had therefore to be assumed that the glass surfaces were equal and did not asymmetrically adhere to the PVB surfaces in the sense of the invention.
The Appellant's speculation that an asymmetric adhesion was implicitly present in the layers according to E7 because adhesion asymmetry was caused by very small differences in the surfaces

of the glass sheets could therefore not establish a novelty-anticipating character of E7.

(d) Inventive Step - Auxiliary Request

The problem to be solved by the claimed invention was the provision of a safety-glass laminate with reduced asymmetric adhesion to the PVB interlayer of glass surfaces having a different surface structure on each side. The solution to the problem was the incorporation into the PVB interlayer of a combination of two different salts, the alkali metal salt acting as an adhesion control agent and the alkaline earth metal, transition metal or tin salt acting as levelling agent.

A skilled person starting from E6 as the closest prior art would learn from this document that the salts of alkali metals, alkaline earth metals or transition metals with monobasic organic acids, such as formic acid, acetic acid, neodecanoic acid or 2-ethyl butyric acid as common anti-adhesive components in plasticized PVB sheets have certain disadvantages and should therefore be replaced by salts derived from natural resinic acids or their derivatives.
It should also be noted that only a few of the examples 1 to 8 depicted in Table 1 of E6 solved the problem posed, i.e. led to a reduction in adhesion symmetry of the air (fire) side and the tin side of the float glass sheets.

A skilled person would not be induced by the disclosure in E6 to replace the strongly recommended resinate anions by other more "common" acid anions and to use them in the form of their alkaline earth or transition metal salts in combination with an alkali metal salt in order to solve the problem posed.

VIII. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

IX. The Respondent requested that the appeal be dismissed, alternatively that the patent be maintained on the basis of the auxiliary request filed during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. *Admission of the new auxiliary request into the proceedings*

Admissibility of the auxiliary request submitted in the oral proceedings was contested by the Appellant on the grounds that the limitations in the claims were not foreseeable and therefore took it by surprise.

The Board does not find this argument convincing. The limitations in independent Claims 1, 4 and 6 of the auxiliary request were made in response to objections of the Appellant as to lack of inventive step which were raised for the first time in the oral proceedings.

Thus, the Board exercising its discretion according to Article 13(1) of the Rules of Procedure of the Boards of Appeal (OJ 11/2007 pages 536 to 547) admitted the auxiliary request into the proceedings.

3. *Novelty*

3.1 Admission of the alleged prior public use into the proceedings

As already stated in the Board's communication dated 21 April 2008, Claim 1 is directed to a glass/adhesive sheet laminate comprising at least two layers of glass and a sheet of plasticized polyvinylbutyral. It is further indicated in the claim that the asymmetric adhesion is present between the layers of glass and adjoining surfaces of the sheet of polyvinylbutyral. In the Board's judgment, the underlined features clearly imply the limitation to the presence of a single PVB sheet with two opposite outer surfaces which adjoin the respective surfaces of the layers of glass. This is fully consistent with the description of the patent in suit. It is therefore not correct to interpret the claim such that it embraces a PVB-PET-PVB three-layer structure, as used in the safety glass Siglasol® of the alleged public prior use, wherein the outer PVB surfaces belong to different PVB sheets and not to a single PVB interlayer.

The alleged prior public use is therefore of no relevance for the assessment of the novelty and inventive step of the claimed invention and is not admitted into the proceedings.

3.2 Novelty of the subject-matter according to the claims as granted (main request)

Document E3 discloses in example 1 a float glass/PVB/float glass laminate having incorporated into the PVB layer a sodium salt and a potassium salt. The elemental sodium content is 6 ppm which amounts to 0.261 meq Na^+ per kg PVB, an amount which lies within the claimed range of from 0.03-1.35 meq/kg for the levelling agent. Because, due to their manufacture in a molten tin bath, float glass sheets have a tin side and an air side surface, i.e. surfaces with a different surface structure, E3 implicitly describes laminates in which the PVB layer surfaces adjoin glass surfaces with different surface properties and in which therefore an asymmetric adhesion exists between the glass layers and the adjoining surfaces of the PVB sheet.
The Respondent argued that the laminate described in example 1 of E3 contained two alkali metal salts in the PVB interlayer, a situation not embraced by the terms in Claim 1: "an alkali metal salt" and "a different metal salt". Rather, the latter wording indicated that the levelling agent was a non-alkali metal salt.

The Board does not agree with this argument. The above features merely express that the second metal salt has to be different from the first alkali metal salt but does not indicate that the metal has to belong to a different group in the periodic table of elements. In the Board's judgment, different metals within the same group, for instance Na^+/K^+, or even differences in the acid anion, the metal cation being the same, for instance $NaOAc/Na_2SO_4$, are included by this definition.

E3 does not indicate that the first alkali metal salt acts as "adhesion control agent" and the second as "levelling agent". This, however, is not decisive for the consideration of novelty of the claimed subject-matter because the only criterion in Claim 1 which qualifies the "different metal salt" as levelling agent is the amount of 0.03-1.35 meq/kg, which is fulfilled by the sodium content in example 1 of E3.

The subject-matter of Claim 1 according to the main request is therefore not novel over E3.

The main request is not allowable.

3.3 Novelty of the subject-matter according to the auxiliary request

3.3.1 Novelty over E3

There is no disclosure in E3 that the different metal salt, i.e. the levelling agent, may be an alkaline earth metal salt, a transition metal salt or a tin salt in an amount of 0.03-1.35 meq/kg. The laminate according to Claim 1 and the process according to independent Claim 4 are therefore novel.
The process according to independent Claim 6 is novel in that the process step of coating a glass plate with the levelling agent, which is dissolved in a solution containing 2 ppm of metal ions, is not disclosed in E3.

3.3.2 Novelty over E7

According to all independent claims of the auxiliary request the glass of the laminate is float glass. Because float glass is not disclosed in E7, the claimed subject-matter is novel over this document as well.

3.3.3 Novelty over the other cited documents

None of the other documents discloses float glass/PVB/float glass laminates with a combination of an alkali metal salt and a second salt in an amount, based on the metal cation, of 0.03-1.35 meq/kg, wherein the metal is selected from an alkaline earth metal, a transition metal or tin and the anion is derived from inorganic or monobasic organic acids as specified in the independent claims.

4. Inventive step of the subject-matter of the auxiliary request.

4.1 The subject-matter claimed in the claims according to the auxiliary request is concerned with a glass/adhesive/glass laminate wherein the layers of glass are float glass. It is known in the prior art that float glass layers have a tin side surface and an air side surface which have a different surface structure. Due to this fact asymmetric adhesion occurs when a PVB layer is sandwiched between such differently structured surfaces. When using the laminate as safety glass, the need exists to reduce the asymmetric adhesion because it interferes with the efficient manufacture of eg windshield panes having reliable impact resistance properties.

According to Claim 1 of the auxiliary request this reduction in asymmetric adhesion is achieved by a PVB interlayer in which a combination of an alkali metal salt and a second salt derived from alkaline earth metal, transition metal or tin cation and an acid anion selected from inorganic acids and monobasic linear C_{1-12} or branched C_{3-12} carboxylic acids, the second salt providing a metal cation concentration of 0.03-1.35 meq/kg of the PVB layer, are incorporated into the PVB sheet.

The experimental results listed in Table 1 of the patent specification show a reduction in asymmetric adhesion for float glass/PVB/float glass structures with Mg, Ca or Zn salts of sulfuric, neodecanoic or acetic acid as levelling agent in the PVB layer (examples 1 to 3, 5 to 10) vis-à-vis laminates wherein the PVB layer contains no levelling agent (comparative examples C1 to C3) or a levelling agent in an amount above the claimed range (C4, C5). Similarly, the laminates according to the invention have a reduced haze.

4.2 The closest prior art

The Board agrees with the parties that E6 is representative of the closest prior art.

E6 describes float glass/PVB/float glass laminates in which the PVB layer contains an adhesion-reducing agent in an amount of 0.01 to 0.2 wt.-%, based on the plasticized PVB, selected from salts of metals of the groups Ia, IIa, IIb or IIIa of the periodic table with resinic acids or derivatives, in particular metal salts derived from colophonium (Claims 1, 3 to 6 and 14 in

conjunction with page 2, line 49 to page 3, line 16 and page 5, lines 6 to 15).
The "Pummel"-values listed in Table 1, which are a measure for the adhesion strength between the glass and the PVB surface, show the magnitude of the adhesion asymmetry between PVB sheet and the fire (air) and the tin side of the float glass sheet. In particular the laminates according to examples 6 (Ca-Mg salt of a colophonium/formaldehyde condensation product as adhesion-reducing agent) and 7 (Ca-Mg salt of colophonium as adhesion-reducing agent) show a reduced adhesion asymmetry, expressed by a calculated percentage-wise difference of the "Pummel"-values, of 15% and 20%. Furthermore acceptable values in edge haze are shown in the last column of the Table.

4.3 The problem to be solved

The subject-matter according to Claim 1 differs from the laminates described in E6 essentially in that the adhesion-reducing agent is a combination of an alkali metal salt and a group IIa, IIb or tin salt, wherein the acid anion is derived from inorganic acids or monobasic linear C_1-C_{12} or branched C_3-C_{12} carboxylic acids.

Therefore, the problem to be solved by the present invention is seen in the provision of an alternative float glass/PVB/float glass laminate with a reduced asymmetric adhesion of the glass layers and the adjoining PVB sheet and with low haze values.

4.4 Obviousness

E6 points to the disadvantages of the common adhesion-reducing agents, like metal salts of the groups Ia, IIa, and IIIa with carboxylic acids like formic acid, acetic acid, neodecanoic acid or 2-ethyl butyric acid, when they are used in glass/PVB/glass laminates. In particular, the poor solubility in PVB, leading to an unequal distribution in the PVB sheet, and the ability to increase the sensitivity to hydrolysis of the plasticized PVB and to an increased haze or loss of adhesion in the laminate, are mentioned (page 2, lines 35 to 48).

In order to overcome these disadvantages and to arrive at an optimum adhesion between glass and PVB, E6 teaches the replacement of the common acid anions by those derived from natural resins (page 2, lines 53 to 65).

A skilled person starting from E6 would therefore unquestionably follow this teaching and would not act to the contrary, namely revert to the common adhesion-reducing additives from which he would expect the above mentioned disadvantages.
He would therefore not be induced to combine, out of the group of the common adhesion-reducing agents, an alkali metal salt with second salt different from an alkali metal salt in order to solve the problem posed.

The Appellant argued that it was not credible that the invention could be carried out over the whole scope of the claims because the examples in the patent specification exemplified only a small number of the

levelling agents embraced by Claim 1. In view thereof, a skilled person would routinely replace the metal resinates according to E6 by those common additives mentioned at page 2 of the document. This all the more so as it was disclosed on page 4, lines 40 to 44 that usual additives, such as small amounts of alkali, could be added to the extrudable PVB composition.

This argument is not convincing in the absence of any evidence in support of the allegation that the invention cannot be carried out over the whole claimed range. Furthermore, in the Board's judgment it is *prima facie* plausible to assume that the effects demonstrated with regard to the levelling agents exemplified in the specification are in principle obtainable across the entire claimed scope.

The Appellant's reference to the disclosure in E6 that "common alkaline additives" can be added to PVB, does not alter the Board's view because these compounds belong to a list of common optional additives, also embracing light stabilizers or antioxidants, which may or may not be used. In the absence of any link establishing the effectiveness of these "common alkaline additives" to alter the adhesion asymmetry, a skilled person would have no reason to use these alkaline additives in order to solve the problem posed.

The subject-matter of Claim 1 is therefore not rendered obvious by the disclosure in E6. This situation is not changed when combining E6 with one or more of the other documents of the prior art.

Because the laminate according to Claim 1 is based on an inventive step the processes according to independent Claims 4 and 6, which lead to laminates with minimized asymmetric adhesion as claimed in Claim 1, are inventive too.

5. For the reasons given in points 3.3 to 4.4 the auxiliary request is allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of:

   (a) Claims 1 to 7 of the auxiliary request filed during the oral proceedings;

   (b) Figure 1 as granted; and

   (c) an accordingly adapted description.

The Registrar The Chairman

C. Moser P. Kitzmantel