Datasheet for the decision
of 13 September 2007

Case Number: T 0522/05 - 3.2.06
Application Number: 99947706.0
Publication Number: 1117502
IPC: B23K 26/00
Language of the proceedings: EN
Title of invention: Welding Method
Patentee: THE WELDING INSTITUTE
Opponents:
FUJIFILM Imaging Colorants Limited
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BASF Aktiengesellschaft
Treffert GmbH & Co. KG
Merck Patent GmbH
Carl Baasel Lasertechnik GmbH
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JENOPTIK Automatisierungstechnik GmbH
Headword: 
Relevant legal provisions:
EPC Art. 123(2), 83, 54(2), 56
Keyword:
"Amendments (allowable)"
"Sufficiency of disclosure (yes)"
"Novelty (yes)"
"Inventive step (yes)"
Decisions cited:
T 0392/01

Catchword:
-
Case Number: T 0522/05 - 3.2.06

DECISION
of the Technical Board of Appeal 3.2.06
of 13 September 2007

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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 14 March 2005 revoking European Patent No. 1117502 pursuant to Article 102(1) EPC.

Composition of the Board:
Chairman: P. Alting Van Geusau
Members: G. Pricolo
K. Garnett
Summary of Facts and Submissions

I. The appeal is from the decision of the Opposition Division posted on 14 March 2005 revoking European patent No. 1 117 502, granted in respect of European patent application No. 99 947 706.0.

II. The amended independent claim 1 on which the decision under appeal is based reads as follows:

"1. A method of forming a weld between plastics workpieces (1,2) over a joint region (3), the method comprising: exposing the joint region (3) to incident radiation (4) having a wavelength outside the visible range so as to cause melting of the surface of one or both workpieces (1,2) at the joint region (3), and allowing the melted material to cool thereby welding the workpieces together, the method further comprising providing a radiation absorbing material at the joint region (3) in one of the workpieces or between the workpieces (1,2) which has an absorption band in the range 780 nm-1500 nm matched to the wavelength of the incident radiation so as to absorb the incident radiation and generate heat for the melting process, wherein the radiation absorbing material is visually transmissive so that the material does not substantially affect the appearance of the joint region or the workpieces in visible light."

III. The opposition division was satisfied as to compliance with Article 83 EPC (disclosure of the invention - sufficiency) and Article 123 EPC (amendments - added subject matter). The division was also satisfied as to
novelty of the claimed subject matter (Article 54 EPC) over the available prior art including:


M15 : EP-B-1 098 751;

M22 : DE-A-44 32 081;

However, the division reached a negative view as to inventive step. Starting from the closest prior art disclosed in particular by M5 or M22, the skilled person seeking a solution to the problem of avoiding a modification of the appearance of the joint region or the workpieces in visible light would consider the use of a radiation absorbing material which was visually transmissive, in view of the teaching of document:

M31 : "Iriodin LS for the laser marking of plastics", Merck brochure, June 1997,

thereby arriving at the claimed process without exercising any inventive activity.

IV. The appellant (patent proprietor) lodged an appeal on 14 April 2005. Payment of the appeal fee was recorded on 28 April 2005. With the statement setting out the grounds of appeal, received at the EPO on 14 July 2005, the appellant filed a main request comprising a set of claims identical with the set of claims refused by the opposition division.
In a communication accompanying the summons to oral proceedings pursuant to Article 11(1) of the Rules of Procedure of the Boards of Appeal, the Board expressed the preliminary opinion that the amendments made to claim 1 did not introduce subject-matter extending beyond the content of the application as filed, that the invention was sufficiently disclosed, and that the claimed subject-matter was novel because the cited documents M15 and M22 did not disclose a radiation absorbing material which was visually transmissive. As regards inventive step, the Board pointed out that M22 could be regarded as an appropriate starting point and that the teaching of documents:

M7  : US-A-4 606 859;
M8  : US-A-4 824 947;

appeared relevant.

Oral proceedings, at the end of which the decision of the Board was announced, took place on 13 September 2007.

The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1 to 24 according to the main request filed on 14 July 2005, the amended description filed during the oral proceedings, and Figures 1 to 3 of the patent as granted.
The respondents 1, 2 and 4 (opponents 1, 2 and 4), who were present at the oral proceedings, requested that the appeal be dismissed.

The duly summoned respondents 6, 7 and 8 (opponents 6, 7 and 8) did not attend the oral proceedings, which were continued without them in accordance with the provisions of Rule 71(2) EPC. Respondent 8 requested in writing that the appeal be dismissed. Opponents 3 and 5 are not parties to these proceedings following the withdrawal of their oppositions (see point IX of the decision under appeal).

VII. The arguments of the appellant in support of its request can be summarized as follows:

Claim 1 related to a method in which a radiation absorbing material was used which was visually transmissive because its transmissivity and/or its concentration were such that it did not affect the appearance of the joint region and the workpieces in visible light.

The skilled person could find a suitable radiation absorbing material, and thus carry out the invention without undue burden, on the basis of the examples given in the patent in suit of various dye classes suitable for use in the invention. In this respect, the patentee filed during first instance proceedings a declaration of Professor John Griffith dated 3 February 2005 according to which the identification of these classes provided sufficient information for the ordinary skilled person to select a suitable material
from the classes to implement the invention. The patent
in suit also disclosed specific examples of
commercially available dyes.

M22 disclosed the addition of a colouring matter, in
particular carbon black or nigrosine, to plastics
materials for rendering them absorbent to Nd:YAG laser
radiation. M22 was silent about the appearance of the
joint or the workpieces when the colouring matter was
added and therefore there was no clear and unambiguous
disclosure in M22 of radiation absorbing material which
did not substantially affect the appearance of the
joint region or the workpieces in visible light. The
samples P1 to P3 filed by opponent III during first
instance proceedings were not representative of
products obtained in accordance with the disclosure of
M22 because they were made of a material, polycarbonate,
not mentioned in M22. M15, which disclosure formed part
of the state of the art under Article 54(3) EPC, relied
upon the intrinsic absorption properties of the
workpiece and did not provide radiation absorbing
material at the joint region. Accordingly, the claimed
subject-matter was novel.

The problem addressed by the claimed invention was how
to weld plastics workpieces without placing any
constraint on the appearance of the workpieces. While
the problem addressed by document M5 was different to
this, it was the only document which related to the
appearance of plastics workpieces after laser welding.
M5 cited as a problem associated with the prior art the
fact that welded workpieces produced by laser welding
were composed of parts of very different colour, which
resulted in a poor overall visual impression. Thus M5,
rather than M22, according to which the impact of the additive on the visual appearance was an accepted consequence of the use of the laser welding technique, represented the most pertinent starting point for consideration of inventive step. M5 sought to achieve a homogeneous overall visual impression by using parts which contained additives such that these parts were impermeable to light rays in the visible range, i.e. dark coloured. Accordingly, there was no motivation for a skilled person to use a visually transmissive radiation absorbing material in the method of M5, in particular one of the materials listed in documents M7 to M10. Moreover, the applications of the compounds known from M7 to M10 were far-removed from the technical field of laser welding of plastics, and very few of them actually relied upon the conversion of laser energy into heat energy. For the same reasons the skilled person would not consider the disclosures of M7 to M10, even if he would start from M22 as the closest prior art.

VIII. In response to these submissions, the respondents essentially argued as follows:

Claim 1 did not quantify the term "visually transmissive" and therefore this term did not mean that the radiation absorbing material had to be clear and transparent. In fact, the patent in suit disclosed the use of coloured dyes as suitable radiation absorbing materials. Furthermore, claim 1 included two alternatives, namely that there must be no substantial modification of the appearance of the joint region "or" of the workpieces.
The only concrete examples of radiation absorbing materials in the patent in suit were dyes identified by their trade names. In such a situation, which was analogous to that underlying decision T 392/01, the skilled person was presented with an undue burden in finding a suitable radiation absorbing material. The patent in suit also mentioned classes of dyes suitable for use in the claimed method. However, these classes comprised an enormous number of compounds and the patent in suit provided no guidance for the skilled person on how to select a specific compound which was suitable in that it absorbed the laser radiation, was visually transmissive, was compatible with the particular plastics material chosen, and could withstand the welding temperatures. Furthermore, the patent in suit disclosed that not only dyes could be used for carrying out the invention, but also pigments. There was however no disclosure of any suitable pigment.

M22 disclosed the use of nigrosine as a radiation absorbing material in a concentration of 0.01%. The use of nigrosine at such low concentration did not substantially affect the appearance of the joint region or the workpieces in visible light, as shown by the samples filed during the first instance proceedings. Accordingly, M22 disclosed all the features of claim 1.

Assuming that M22 did not disclose a visually transmissive material in the meaning of claim 1, then the subject-matter of claim 1 lacked an inventive step. M22 represented the closest prior art because it corresponded to a similar use and required the minimum of structural and functional modifications to arrive at the claimed invention. Since the appearance of the
plastics was not substantially affected by the inclusion of nigrosine at the concentration levels described in M22, there was no technical advantage of the claimed method over the method disclosed in M22. Accordingly, the objective technical problem solved was simply the provision of further methods of forming a weld between plastics workpieces. In that case, it would be obvious for the person skilled in the art to employ substantially colourless radiation materials such as those disclosed in M7 to M10, or M31. Even assuming that the technical problem were as stated by the appellant, the skilled person would arrive at the claimed subject-matter without exercising inventive activity. The skilled person would recognize that nigrosine affected the visual appearance of the welded workpieces and would therefore consider the use of colourless radiation absorbing material such as those disclosed in M7 to M10.

Reasons for the Decision

1. The appeal is admissible.

2. Amendments (Articles 100(c) and 123(2) EPC)

2.1 The question of the subject-matter of the European patent extending beyond the content of the application as filed was raised in the written phase of these appeal proceedings by respondents 1 and 2, who objected to the presence of the term "substantially" in claim 1 as granted (and in amended claim 1 under consideration). Respondents 1 and 2 no longer maintained this objection during the oral proceedings. The Board is therefore justified in basing its decision on the provisional
opinion expressed in the communication accompanying the summons to oral proceedings, according to which the passages on page 3, lines 5 to 9 and 15, and page 7, lines 25 to 29, of the application as filed form a basis for including the term "substantially" in the wording of original claim 1 without contravening Article 123(2) EPC. These passages disclose that the radiation absorbing material might absorb little visible radiation, and thus justify amending the wording of original claim 1 ("the material does not affect the appearance of the joint region or the workpieces in visible light") to recite that the material does not "substantially affect" the appearance of the joint region or the workpieces in visible light.

2.2 The amendments made to claim 1 under consideration, which is identical to claim 1 on which the decision under appeal was based, provide the limitations that the workpieces are made of plastics and that the absorption band is in the range of 780-1500 nm. These features can be directly and unambiguously derived from the application as filed (see page 3, lines 24, 25, and page 6, lines 6 to 13).

Dependent claims 2 to 24 correspond to granted claims 2 to 8, 10, 12, 13, 15, 17 to 26.

The description has been amended to be in conformity with the new claims, and to acknowledge the prior art according to M5 and M22. The Figures are the same as those of the patent as granted.
Accordingly, the amendments do not give rise to objections under Article 123(2) and (3) EPC.

2.3 Respondent 1 objected to the claim not being in the two-part form in accordance with Rule 29(1) EPC. In the present case, however, the Board takes the view that the two-part form which should be based on document M5 (see point 6 below) is not appropriate as it would artificially divide into two parts the feature according to which the radiation absorbing material is visually transmissive so that the material does not substantially affect the appearance of the joint region or the workpieces in visible light.

3. **Interpretation of claim 1**

The interpretation of claim 1 was an object of dispute between the parties. Since it has an impact on the remaining issues to be decided upon, the Board considers it appropriate to first explain how claim 1 should be read.

In the Board's judgment claim 1 requires that the radiation absorbing material *in use*, i.e. in the state in which it is present at the joint region, does not substantially affect the appearance of the joint or the workpieces in visible light. This implies that the material is either substantially clear as such or is provided in such a manner (i.e. at a concentration such) that it does not substantially affect the appearance of the workpiece as compared to its appearance in the absence of the material. This interpretation is consistent with the description of the patent in suit.
According to which the radiation absorbing material should have no or only little absorption in visible light, such as a residual colour that is visible when viewed through thick sections or with high concentrations of the material present.

Moreover, in the Board's judgment claim 1 must be read to mean that the radiation absorbing material substantially affects the appearance of neither the joint region nor the workpieces in visible light, i.e. the term "or" in the last phrase of claim 1 is to be construed in its conjunctive form. This is in accordance with the normal understanding of the English language of the claim, and further follows from the fact that if the radiation absorbing material is visually transmissive as explained above, the appearance of neither the joint region nor the workpieces are substantially affected.

4. **Sufficiency of disclosure (Article 83 EPC)**

4.1 The patent in suit discloses (see par. [0009]) that the radiation absorbing materials for use in the invention are typically in the form of additives and may comprise dyes or pigments. The patent in suit further gives examples (see par. [0012] and [0032]) of suitable dye types, namely cyanine dyes, squarilium dies, croconium dyes, metal phthalocyanine dyes, metalated azo dyes and metalated indoaniline dyes. It is true that the patent in suit only provides specific examples (see Table 1) of suitable dyes by means of their commercial names ("Gentex dyes"). However, in the absence of any evidence to the contrary, the Board accepts the view of
the appellant that the reference to the types of dyes constitutes information which enables a skilled person to find specific suitable dyes without undue burden, e.g. by reference to general textbooks in the technical field of colouring matters. In this respect it is noted that even if such general textbooks do not form part of the common general knowledge of a person skilled in the art in laser welding of plastics, the information given by the patent immediately prompts the latter to consult common general knowledge, or an expert, in the technical field of colouring substances.

Similar considerations apply in respect of pigments: in the absence of any evidence to the contrary, the information given in the patent in suit as regards the desired properties of pigments (an absorption band in a specific range, visually transmissive in use) must be regarded as sufficient for a skilled person to find suitable pigments on the basis of e.g. textbooks and general technical literature available in the technical field of colouring matters.

4.2 According to the established case law of the Boards of Appeal, in order to establish insufficiency, the burden is upon an opponent to establish on the balance of probabilities that a skilled reader of the patent, using common general knowledge, would be unable to carry out the invention (see e.g. T 182/89). The respondents' submissions according to which the disclosure of general classes of dyes and the mere reference to pigments would not enable a skilled person to find a specific radiation absorbing material without undue burden, submissions which were contested by the
appellant, have not been supported by evidence and must therefore be regarded as unsubstantiated allegations.

4.3 Finally, the Board observes that in the case underlying decision T 392/01 referred to by respondent 1, the patent was considered lacking any sufficient disclosure because the only example of a suitable adhesive necessary for carrying out the invention was given by means of a trade name which did not clearly identify the characteristics of the adhesive, and because adhesives satisfying the parameters of claim 1 could only be found by a random process of trial and error, there being no information in the patent in suit which would enable the person skilled in the art to evaluate failures in such a manner as to lead towards success in subsequent trials. The situation in the present case is different, because, as explained above, the information given in the patent in suit is sufficient for a person skilled in the art to find a suitable radiation absorbing material independently of the specific examples of suitable dyes identified by their commercial names.

5. Novelty

5.1 Using the wording of claim 1 of the patent in suit, M22 discloses a method of forming a weld between plastics workpieces (col. 1, first lines) over a joint region, the method comprising (see Figs. 1, 2): exposing the joint region (4) to incident radiation (3) having a wavelength outside the visible range (Nd:YAG laser, col. 2, line 54) so as to cause melting of the surface of one or both workpieces at the joint region, and allowing the melted material to cool thereby welding
the workpieces together (see claim 1), the method further comprising providing a radiation absorbing material (col. 2, lines 60 to 65) at the joint region in one of the workpieces (1; see col. 1, line 60-63) which has an absorption band in the range 780 nm-1500 nm matched to the wavelength of the incident radiation so as to absorb the incident radiation and generate heat for the melting process.

The material which absorbs the incident radiation and generates heat for the melting process in the method of M22 is generally a colouring matter, in particular carbon black or nigrosine (see col. 2, lines 60 to 65), but can also consist of glass fibres, glass spheres, and other filler materials (col. 2, lines 66, 67). M22 is silent about the effect of the radiation absorbing material on the visual appearance of the joint region or the workpieces. The only specific examples of colouring matters given in M22, namely carbon black or nigrosine, are dark and can therefore be expected to substantially affect the visual appearance of the joint region and the workpieces. The respondents submitted that nigrosine provided in the lowest concentration of 0.01% disclosed by M22 would not visually affect the visual appearance of the joint region or the workpieces. The respondents however failed to submit evidence in respect of this allegation; in particular they failed to submit any sample of a material specifically disclosed by M22 including nigrosine in an amount of 0.01%. Moreover, there is no disclosure in M22 of the specific welding parameters to be used when welding a plastics workpiece including 0.01% nigrosine and therefore no significant prediction of the visual
appearance of the joint region of such workpiece can be made.

The respondents referred to sample P3 filed by Opponent 3 before the Opposition Division as an example of a plastics workpiece containing 0.01% nigrosine welded to another plastics workpiece. This sample P3 in fact consists of two polycarbonate plates welded to each other, one of the plates comprising 0.01% nigrosine. Polycarbonate is not one of the materials disclosed by M22 and therefore the sample P3 does not allow direct conclusions to be drawn as to the visual aspect of the plastics materials of M22 when nigrosine is added in that amount. Furthermore, although the plate of P3 containing nigrosine is visually transmissive, it is substantially darker than the other plate, which is clear. Therefore, the inclusion of nigrosine in the polycarbonate plate substantially affects the appearance of the joint region and the workpieces and cannot be seen as only leaving a residual colour. Accordingly, if the respondents' argument that the addition of nigrosine in an amount of 0.01% to one of the plastics materials disclosed by M22 provides the same visual effect as in the material of P3 were accepted, then it could only be concluded that nigrosine in that amount substantially affects the appearance of the joint region and the workpieces in visible light.

It follows that there is no basis to conclude that M22 discloses the feature of claim 1 of the patent in suit that the radiation absorbing material is visually transmissive so that the material does not
substantially affect the appearance of the joint region or the workpieces in visible light.

5.2 Respondent 2 referred to document M15 in respect of novelty solely in the course of the written proceedings. The content of document M15, which is a European patent publication published on 2 January 2003, based on an International patent application published on 27.1.00 and claiming priority of 17.7.98, forms part of the state of the art according to Art. 54(3) EPC insofar it corresponds to the content of the original application, which is said to be the case.

Paragraph [0005] of M15, referred to by opponent 2 (see the letter dated 2 November 2005), describes the prior art as known from DE 44 32 081 A1, which is document M22. Accordingly, the relevant disclosure of M22 referred to by respondent 2 does not go beyond the teaching of M22.

5.3 Therefore, the subject-matter of claim 1 is novel over the disclosure of M22 and M15. Novelty was not contested in these appeal proceedings on the basis of other prior art.

6. Inventive step

6.1 The problem underlying the patent in suit is to provide a method for welding workpieces which can produce a visually transmissive weld (see par. [0005] of the patent in suit).
6.2 The question as to which of the documents M5 and M22 represented the closest prior art was a point of dispute between the parties.

Using the wording of claim 1 of the patent in suit, M5 discloses (see Fig. 1) a method of forming a weld between plastics workpieces (7,8) over a joint region, the method comprising: exposing the joint region to incident radiation having a wavelength outside the visible range so as to cause melting of the surface of one or both workpieces at the joint region, and allowing the melted material to cool thereby welding the workpieces together (see claim 22), the method further comprising providing a radiation absorbing material at the joint region in one of the workpieces or between the workpieces which has an absorption band in the range 780 nm-1500 nm matched to the wavelength of the incident radiation (see claim 22, step (b) and col. 7, lines 57 to col. 8, line 2) so as to absorb the incident radiation and generate heat for the melting process.

M5 explicitly discloses that the radiation absorbing material can be a pigment, glass fibres or the like, (see col. 7, lines 36, 37), in particular black dye pigments (see col. 7, line 44). There is no disclosure in M5 of a radiation absorbing material which, in use, is visually transmissive. However, the radiation absorbing material does not substantially affect the appearance of the joint region or the workpieces in visible light (see col. 7, lines 50 to 56), because the workpieces themselves are opaque.
In the Board's judgement, M5 constitutes a more appropriate starting point (closest prior art) than M22, because it is concerned with the visual appearance of the joint and workpieces in visible light (see also col. 7, lines 53 to 56: "a visually homogeneous impression"), and thus is related to the problem underlying the patent in suit. In contrast thereto, in M22 there is no mention whatsoever of the effect of the radiation absorbing material on the appearance of the welded parts.

6.3 The feature which distinguishes the method according to claim 1 of the patent in suit from the method according to M5, namely that the radiation absorbing material is visually transmissive, enables plastics workpieces to be welded without constraints on the appearance of the workpieces.

The objective technical problem solved starting from M5 can therefore be seen in avoiding constraints on the appearance of the workpieces.

6.4 M5 goes in a different direction than the patent in suit because it teaches the use of additives in the workpieces which render the workpieces impermeable by light rays in the visible range, i.e. render them opaque (see col. 3, lines 4, 5), thereby making the otherwise visible-radiation absorbing material invisible to the human eye.

As already stated above, there is no mention whatsoever in M22 of the affect of the radiation absorbing material on the appearance of the welded parts. On the basis of the disclosure of M22, the skilled reader
would assume that the impairment of the visual appearance of plastics materials is an inevitable consequence of the use of usual additives for absorbing the laser radiation.

Documents M7 (see col. 6, lines 28-36), M8 (see col. 3, lines 7 to 20), M9 (see col. 3, lines 55 to 65) and M10 (see col. 4, lines 59 to 65) relate to phthalocyanine compounds for absorbing energy from an infra-red source. These documents are primarily concerned with the chemical description of particular compounds. They mention suitable applications of the compounds in various technical fields, such as electronics, video disks, welding goggles, liquid crystal displays, inks for printing, electro-reprography, washing powders (D7, col. 6, lines 30 to 35; D8, col. 3, lines 11-19; D9, col. 5, lines 6 to 11; D10, col. 4, lines 59 to 65). None of these documents is specifically related to the use of the compounds as a radiation absorbing material suitable for welding plastics workpieces. The knowledge of these compounds does not make up part of the common general knowledge of the skilled reader, who is an expert in the field of laser welding of plastics. As described in the introductory portion of M5 ("Background of the invention", see in particular col. 2, lines 12 to 22), and confirmed by M22 (see col. 2, line 64), the radiation absorbing materials commonly used in the art for laser welding plastics (in particular carbon black, black dyes, nigrosine) are not visually transmissive and substantially affect the appearance of the joint region and the workpieces when these are visually transmissive. On the basis of the available evidence, the Board can only conclude that the skilled person in question cannot be considered to
have been aware of the existence of particular compounds which act as radiation absorbing materials even though being visually transmissive. Therefore, there would have been no reason for a skilled person to turn to any of documents M7 to M10 in order to solve the technical problem posed. Nor is any specific indication in this respect found in M5 or in M22 which is also related to the laser welding of plastics.

6.5 The Opposition Division in the decision under appeal, and also respondent 1 in the course of these appeal proceedings, referred to document M31. This document relates to a pigment, Iriodin, which permits intensive dark or light markings in many plastics under laser treatment (see page 4). The plastic usually has a too-low absorption for the laser light (see page 3, last paragraph), and the addition of the pigment allows the plastic material to be receptive to the laser light (see e.g. page 5, first paragraph). Marking is achieved under laser treatment by a reaction of the polymer and partly also by a reaction in the pigment itself. Some of these pigments are transparent and recommended for Nd:YAG laser light (see page 5 to 7). However, although the provision of such transparent pigments according to M31 in the workpieces to be welded according to the method of M5 (or M22) does not substantially affect their appearance in visible light, it would certainly affect the appearance of the joint region, as the laser radiation would then visibly mark the latter.

6.6 Finally, it is noted that in the above reasoning for inventive step the same level of skill is applied as for sufficiency of disclosure. However, the starting points differ substantially: for inventive step
purposes, the skilled person knows only the prior art; for sufficiency of disclosure he knows the prior art and the disclosed invention (thus including the information concerning the existence of visually transmissive radiation absorbing material).

6.7 For these reasons, the claimed solution to the technical problem is not obvious in the light of the available prior art. The subject-matter of claim 1 therefore involves an inventive step.

7. It follows that claim 1, together with dependent claims 2 to 24, the amended description filed at the oral proceedings, and the drawings as granted, form a suitable basis for maintenance of the patent in amended form.
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 European patent on the basis of (a) claims 1 to 24 according to the main request filed on 14 July 2005; (b) the amended description filed during the oral proceedings; and (c) Figures 1 to 3 of the patent as granted.

The Registrar:  

M. Patin

The Chairman:

P. Alting van Geusau