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**D E C I S I O N**  
**of 22 November 2001**

**Case Number:** T 0861/98 - 3.2.2

**Application Number:** 90116058.0

**Publication Number:** 0417512

**IPC:** C23C 16/26

**Language of the proceedings:** EN

**Title of invention:**

Transparent diamond films and method for making

**Patentee:**

GENERAL ELECTRIC COMPANY

**Opponent:**

Fraunhofer-Gesellschaft zur Förderung der angewandten  
Forschung e.V.

Minnesota Mining and Manufacturing Company

Sumitomo Electric Industries Ltd.

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 54, 113, 104(1)

EPC R. 67

**Keyword:**

"Novelty (no)"

**Decisions cited:**

G 0001/92, T 0952/92, T 0101/97, T 0951/91

**Catchword:**

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Case Number: T 0861/98 - 3.2.2

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.2**  
**of 22 November 2001**

**Appellant:**  
(Opponent I)

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**Appellant:**  
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**Respondent:**  
(Proprietor of the patent)

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- 2 -

**Decision under appeal:**

Interlocutory decision of the Opposition Division  
of the European Patent Office posted 17 July 1998  
concerning maintenance of European patent  
No. 0 417 512 in amended form.

**Composition of the Board:**

**Chairman:** W. D. Weiß  
**Members:** R. Ries  
R. Menapace

## Summary of Facts and Submissions

- I. European patent No. 0 417 512 was granted on 29 November 1995 on the basis of European patent application No. 90 116 058.0 claiming the priority of 14 September 1989.
- II. The granted patent was opposed by three opponents (OI: Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. - henceforth: "Fraunhofer"; OII: Minnesota Mining and Manufacturing Company; OIII: Sumitomo Electric Industries) on the grounds that its subject matter lacked novelty and did not involve an inventive step with respect to the state of the art (Article 100(a) EPC) and that it did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC).
- III. With its interlocutory decision posted 17 July 1998 the Opposition Division held that, taking into account the amendments made by the patent proprietor (General Electric Company, in the following called GE) during the opposition procedure, the patent and the invention to which it relates meet the requirements of the EPC. In the opposition proceedings, *inter alia* the following documents were considered:
- D1a: Wild, Herres, Wagner, Koidl and Anthony: Optical and Structural Characterization of CVD Diamond, in: Proceedings of the First International Symposium on Diamond and Diamond-like Films, 7 to 12 May 1989, edited by J. P. Dismukes, Proceedings volume 89-12, The Electrochemical Society, INC, 10 South Main St., Pennington, NY,

pages 283 to 295

- D1b: Wild, Herres, Wagner, Koidl and Anthony: Optical and Structural Characterization of CVD Diamond, in: Proceedings of the First International Symposium on Diamond and Diamond-like Films, Spring Meeting Los Angeles, 7 to 12 May 1989, Extended Abstracts, Volume 89-1, Abstract No. 96 page 140
- D2: Kobashi, Nishimura, Kawate, Horiuchi: Synthesis of Diamonds, by use of microwave plasma chemical-vapor deposition: Morphology and Growth of Diamond films, The American Physical Society, Physical Review B, 13 August 1988, volume 38, no. 6, pages 4067 to 4084
- D6: Singh, Arie, Levine, Mesker: Effects of filament and reactor wall materials in low pressure chemical vapor deposition synthesis of diamond; in: Applied Physics Lett. 52, (6), 8 February 1988, pages, 451 to 452
- D10: Butler and Calii: Vapor Phase Diagnostics in CVD Diamond Deposition, in: Proceedings of the First International Symposium on Diamond and Diamond-like Films, Spring Meeting Los Angeles, 7 to 12 May 1989, Extended Abstracts, Volume 89-1, Abstract No. 99, page 146
- D14: Declaration of Dr Wild regarding the transparencies 1 to 14 and the matter he disclosed orally at the 175 th meeting of the Electrochemical Society held at L.A. May 7 - 12, 1989,

IV. An appeal against this decision was filed by Opponents I and III and the appeal fee was paid in due time. In the appeal proceedings *inter alia* the following further documents were referred to:

D14a Declaration of Dr Koidl about the presentation of Mr Wild and the public availability of the Extended Abstract No. 96 (cited as D1b)

D15: Declaration of Mr Koidl, Müller-Seibert, Jehle, Wild, Wagner and Herres (dated 4 November 1998) relating to CVD experiments carried out at the Fraunhofer Institut für Angewandte Festkörperphysik within August - October 1998

D17: Declaration of Mr Kassing about receiving a preprint of document D1a in May 1989 (copy of D1a included)

D19: Denko and Obata: CVD Diamond Parts, NEW DIAMOND Japanese New Diamond Forum, vol. 3, No. 3, (1988), pages 50 to 51, in Japanese and English language

D20: Experimental Report Nov. 18, 1998; T. Imai,

D21: Expert Opinion of Mr Obata, Oct. 27, 1998,

D22: Sworn Statement of Mr Matsumoto Oct. 20, 1999

D22a: Letter of Mr Koidl to Mr Matsumoto dated 22 May 1989

D22b: Letter of Mr Matsumoto to Mr Koidl dated 14 June 1989

- D23: Declaration of Mr Kassing dated 5 Nov. 1999 about receiving a preprint document D1a from Mr Koidl in May 1989
- D30: E-mail by Ms. E. Brennfleck to Mr Koidl 3 September 1998 about the publication date of documents D1a and D1b
- D31a: Handwritten minutes by Mr Koidl of a telephone conversation of him with Mr Anthony
- D31b: Letter by Mr Koidl to Mr Anthony dated 24 November 1988
- D31c: Letter by Mr Anthony to Mr Koidl dated 16 December 1988
- D31d: Letter by Mr Anthony to Mr Koidl dated 1 March 1989

V. Oral proceedings were held before the Board on 22 November 2001.

The appellants (opponents OI and OIII) requested that the decision under appeal be set aside and that the European patent No. 0 417 512 be revoked. Opponent OI further requested reimbursement of the appeal fee.

The respondent (patentee) requested that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1 to 4 as filed during the oral proceedings.

The non-appealing opponent II (other party of the proceedings) was not represented at the oral



proceedings and did not file a written request either.

Claims 1 and 4 read as follows:

"1. A continuous free-standing, transparent polycrystalline diamond film having a thickness of at least 50  $\mu\text{m}$  comprising substantially vertical columnar diamond crystals having a  $\langle 110 \rangle$  orientation perpendicular to the base of the film, diamond crystal grain boundaries separating the diamond crystals and up to 10.000 parts per million of chemically combined hydrogen which is sufficient to substantially saturate dangling bonds at diamond crystal grain boundaries, carbon dislocations, and carbon valence vacancies, where the diamond crystal grain boundaries have a  $70^\circ$  to  $90^\circ$  orientation to the diamond crystal base."

"4. A method of growing a continuous free-standing, non-adherent transparent polycrystalline diamond film on the surface of a molybdenum substrate, which diamond film has a thickness of at least 50  $\mu\text{m}$  consisting of passing a hydrogen-methane mixture at a pressure of 0.4 to 3.2 kPa (3 to 24 torr) through a heated filament reaction zone which is sufficient to generate active carbon-hydrogen species and provide a temperature of  $600^\circ\text{C}$  to  $1000^\circ\text{C}$  on the surface of the substrate which is maintained at a distance of from 0.3 to 1 centimetre from the heated filament, where the hydrogen-methane mixture introduced into the heated filament reaction zone has from 1.5 to 2 volume % of methane based on the total volume of hydrogen and methane."

VI. The appellants (opponents I and III) argued as follows:

Prior to the priority date of the patent in suit

Mr Anthony, an employee of General Electric, sent samples of a free-standing diamond film for technical investigation to Fraunhofer which is a public company under German law. Given that there was no stipulated or implied obligation to secrecy concerning the research on the diamond films to be carried out by Fraunhofer forwarded by GE, the delivering of the samples and the technical information associated therewith was of public nature. This is confirmed by the intention of Mr Anthony to present the results of the scientific research performed at Fraunhofer together with Mr Koidl in a lecture on a conference which was held in May 1989. The technical details presented at this conference correspond to the contents of document D1a. Moreover before the priority date of the patent in suit, preprints of the lecture in the form of document D1a were sent without any restriction to at least to two different persons (i.e. Mr Kassing - see D17 and D23 - and Mr Matsumoto - see D22, D22a and D22b). Thus, document D1a represents a public document.

Moreover, the term "transparency" or "transparent" to characterize the claimed diamond film is unclear in its meaning and does not allow a clear distinction of the diamond films claimed in the patent from films disclosed in the prior art, e.g. in particular from the sample dealt with in document D1a. The transparency of such a diamond film sample has been demonstrated during the oral proceedings before the Board. Even if the diamond films are frequently found to be brown, grey or even dark, they nevertheless are at least in part transparent for light in the visible or in the UV or infrared region, as is disclosed for instance in Figure 2 of document D1a. Hence, "transparency" as such cannot be a distinguishing technical feature.

It is clear from the statement given in the description of the patent, column 4, lines 45 to 53, that the diamond film samples which GE made available to Fraunhofer actually had been produced by the method disclosed on page 284 of document D1a. This is confirmed by the fact that Mr Anthony did not raise any objections to this finding during the preparations of the lecture to be presented at the conference and when checking the extended abstracts. Only during the opposition proceedings, the patentee surprisingly and for the first time put in doubt that the microwave plasma assisted CVD technique according to D1a actually resulted in a free-standing transparent diamond film as claimed in the patent, but the opponents were not given an opportunity to present counter-evidence (D15 and D20) in the appeal proceedings. The comparative experiments submitted by OI and described in D15 were performed under strict adherence to the process parameters disclosed in document D1a, page 284 and resulted in free-standing transparent diamond films exhibiting a thickness of 55  $\mu\text{m}$  or 150  $\mu\text{m}$  (see D15, Figure 3). Also the experimental reproduction work submitted by OIII and described in D20 was done in order to show that the inevitable result of the process according to document D19 was a transparent diamond film exhibiting all the properties of the diamond film claimed in the patent. The fact that the surface of the film produced according to D20 was polished for achieving transparency has no bearing on the matter since the opposed patent does not exclude such a polishing step.

Consequently, the free-standing diamond film forming the subject matter of claim 1 lacks novelty.

VII. The respondent (patentee) argued as follows:

As regards the correspondence between Mr Anthony and Mr Koidl (documents D31, D31b, D31c) it is evident that the technical information exchanged between these two scientists had private character and, therefore, was confidential rather than public even if there was no explicit agreement on confidentiality. It is, therefore, contested that by providing Mr Koidl of Fraunhofer with several free-standing diamond film samples of GE these examples became available to the public.

The term "transparent" and its contrary "opaque" used in said correspondence are unambiguous as Mr Anthony and Mr Koidl, both being experts, made a distinction without any difficulty between a "transparent film" and "semi-transparent" or even "opaque" films. This is also confirmed by the meaning of "transparent" that is found in conventional dictionaries of the English language and the explanations given in document D2, right hand column second paragraph, lines 6 to 8, according to which transparent films let the light through from the infrared to the visible region.

Document D1a was published on 29 September 1989 (see D30), i.e. after the priority date of the patent in suit, and no indication whatsoever is found anywhere in this document that the samples were transparent in the visible range as are the diamond films claimed in the patent. On the contrary, the microwave assisted CVD technique disclosed in document D1a merely results in an "opaque" or at most in a "semi-transparent" film, rather than in a diamond film exhibiting transparency as claimed. With respect to the process parameters,

document D1a is silent about the distance between the heated filament and the substrate. It was, however, found out by the patent proprietor that a strong interdependency exists between the various process parameters i.e. the selected pressure and concentration of methane in the gas mixture, the temperature of the substrate and the filament and the distance between the substrate and the filament. These parameters may be varied only within narrow limits. The properties of the final diamond film are further influenced by the deposition rate and also depend on whether the substrate is arranged vertically or horizontally in the apparatus. Finally, an appropriate substrate material must be selected in order to provide non-adherence of the film to the substrate, i.e. to get a "non-adherent" free-standing diamond film. To this end, molybdenum was found to be a suitable substrate material from which the diamond film separated during the cooling period, whereas silicon was unsuitable since the coefficient of thermal expansion of silicon is close to that of diamond. Thus, a free-standing non-adhering diamond film exhibiting all the properties claimed in the patent is not obtained by the method disclosed in document D1a.

Turning to the experimental work reported on by opponent I in the form of document D15, Mr Koidl et al did not actually put into practice the process described in D1a, since they used an specifically designed advanced microwave generator which was not available in 1989. Moreover, document D1a fails to mention the distance between the substrate and the filament which in the experiments according to D15 was selected freely to vary between 3 to 8 mm.

The experiments submitted by opponent III in the form of document D20 do not prove the reproducibility of the claimed transparent diamond film either, because the apparatus used in D20 and described in D19 was modified by omitting the rotation mechanism and by arranging the filament horizontally rather than vertically. Moreover, opponent III, in his attempt to show that the films produced according to D19 were transparent, selected several parameters from the broad ranges mentioned in D19 with the knowledge of hindsight provided by the opposed patent, since all the selected parameters fall within the claimed ranges. Hence, the experiments described in D20 do not correctly reflect the real teaching of document D19 as it was understood by a skilled person in 1988. It is also mentioned in this context that if by the process described in document D19 self-standing diamond films that were transparent in visible light actually had been produced in 1988, this important property certainly would have been mentioned in this document. However, document D19 is silent on this point.

Consequently, the comparative experiments presented by the opponents according to documents D15 and D20 cannot prove beyond any reasonable doubt that a freestanding and, even more important, a transparent diamond film having a thickness of more than 50  $\mu\text{m}$  could be produced in 1988. Hence, the claimed transparent free-standing diamond claimed in the patent is not anticipated by the cited prior art.

## **Reasons for the Decision**

1. The appeals are admissible.

2. *Public availability and state of the art*

2.1 As the public availability of certain relevant pieces of information is in dispute in the present case, it is appropriate to start from the principles pointed out e.g. in decision G 1/92 of the Enlarged Board of Appeal, wherein it is stated (Headnote):

*"The chemical composition of a product is state of the art when the product as such*  
*- is available to the public and*  
*- can be analysed and reproduced by a skilled person, irrespective of whether or not particular reasons can be identified for analysing the composition."*

2.2 In the present case, the product in question is a transparent free-standing polycrystalline diamond film as defined in claim 1 and 4 (see point VI, above) and the point in time is the priority date of the patent in suit (14 September 1989).

2.3 In accordance with established jurisprudence, information becomes "available" to the public within the meaning of Article 54(2) EPC and thus state of the art, when only a single member of the public, i.e. a person which is under no (express or implied) obligation to secrecy regarding that information, is in a position to gain access to it in any way - e.g. by analysing a product made available to such a person.

2.4 It is evident from the correspondence and not in dispute between the parties that before the priority date of the patent in suit Mr Anthony of GE sent several samples of free-standing diamond films to Prof. Koidl of Fraunhofer for scientific analysis. A first

sample was received by Prof. Koidl in 1988 (see D14a, first page, last paragraph; letter of Mr Anthony to Prof. Koidl, dated December 16, 1988 = enclosure 2 to D14a, second paragraph, last line); from its examination at Fraunhofer the basic physical data were obtained that then were disclosed orally in April 1989 in a lecture at a public conference (see D14, D14a). This first sample was characterized in Mr Anthony's aforementioned letter of 16 December 1988 as being an "unpolished opaque piece" (see D14a enclosure 2; D31c). Enclosed with this letter, Mr Antony forwarded several slices of a second "unpolished semi-transparent" sample to Fraunhofer for investigation and asked to compare these data with those obtained from the previously sent "opaque film". A further diamond strip which, when holding it against the light, exhibited a semi-transparent center between opaque opposing ends was sent to Fraunhofer enclosed with Mr Anthony's letter dated 1 March 1989 (D31d). In response to this letter, Prof. Koidl - after Raman spectroscopy, X-ray diffraction and grain size measurements - held that "transparency (of that last sample) was enhanced by the waveguide-effect of the 110-fibres" (D26 = letter dated 2 April 1989, last two paragraphs).

- 2.5 There is no submission nor any objective indication of an explicit agreement on confidentiality regarding the properties of or any other information related to the diamond film samples made available by GE/Mr Anthony to Fraunhofer/Prof. Koidl. Equally, construing an implicit obligation to secrecy on the part of Fraunhofer/Prof. Koidl would be in evident conflict with the prevailing circumstances and the behaviour of the persons involved, in particular the content of the correspondence exchanged between Prof. Koidl and



Mr Anthony and the fact, that Mr Anthony never objected to the presentation of the results of the scientific investigation, which he had asked Prof. Koidl to carry out on the samples sent to him, at the Electrochemical Society conference to be held in May 1989. Even if Mr Anthony had not the same intention to publish from the beginning, he would have become aware thereof at the latest from Prof. Koidl's letter (fax) to him dated 24 November 1988 (D31b), to which a draft extended abstract of the planned contribution for the ECS conference was attached (D14a, enclosure 1). Mr Anthony stated in response to this letter that he "could not have improved" that abstract (D31c). Moreover he was also - certainly not without his knowledge and consent - indicated as co-author on the Extended Abstract of the lecture delivered at the ESC conference 1989, and on its complete version (D1b) "Optical and Structural Characterization of CVD Diamond". According to document D30 the abstract and the extended version were published on 29 September 1989. It fits into the picture that (before the priority date of the patent) at least two other persons who qualify as members of the public (D17, D23: Prof. Kassing; D22, D22a, D22b: Mr Matsumoto) obtained preprints of D1b from Prof. Koidl. The above circumstances including the comprehensive oral disclosure (see D1a and D1b) which had taken place in the meanwhile at the ECS conference, demonstrate that Professor Koidl obviously did not consider himself or his colleagues from Fraunhofer to be constrained by an obligation to confidentiality in any matter concerning the GE diamond film samples.

2.6 In view of the strength of the evidence submitted and considering all the relevant circumstances, the following has to be concluded: In the absence of any

obligation to secrecy vis-à-vis GE/Anthony, Professor Koidl qualified as a(n expert) member of the public. This means that the GE diamond films, their physical properties including those actually established by the analysis at Fraunhofer and those which could have been extracted by means of known analytical techniques which were available to a skilled person like Prof. Koidl before the relevant filing date (decision T 952/92), as well as all the technical information Mr Anthony gave to Prof. Koidl was made available to the public and thereby became state of the art in the sense of Article 54(2) EPC before the relevant priority date 14 September 1989. The same is true for the content of documents D1a and D1b for the reason that they merely exhibit a part of that state of the art.

3. *The term "transparent"*

3.1 The central plank on which the patentee has chosen to construct its case on novelty is the interpretation that the diamond film is "transparent in the visible spectrum of the light" and that transparency for other parts of electromagnetic spectrum such as infrared and ultraviolet is neither meant nor addressed by the patent. In support of its argument, the patentee has further referred to various dictionaries in order to determine the meaning of "transparent". As opposed to "opaque" and usually distinguished from "translucent", the meaning of "transparent" is explained as having the property of transmitting rays of light so that bodies situated beyond or behind can be distinctly seen (cf. e.g. The Random House College Dictionary, 1982, page 1397).

3.2 Such everyday definitions of transparency are, however, not appropriate to enable in patent claims a clear and unambiguous distinction between the claimed diamond films and those of the prior art. This is even more valid in the present case, since the term "transparency" turns out to be the fundamental key feature. According to the prior art, free-standing diamond films are described as being opaque, brown, greyish, translucent, semi-transparent, or like frosted glass which changes after polishing into "clear". Diamond films can also be in part transparent, namely in the center, whereas the outer ends are opaque. Thus, all grades of transition between the extremes "opaque" on the one hand and "glass-clear" on the other hand do exist. Moreover in its technical definition, the term "transparency" is not confined to the visible part of the electromagnetic wave spectrum, as alleged by the patentee, but also encompasses at least its infrared and ultraviolet regions.

3.3 In the absence of any discrete physical parameter or of a method which allows to define the "transparency" of a diamond film more precisely and in an objective manner, it is impossible to define clear limits for a transparent diamond film in the sense of the claims and for a film which is not "transparent". Consequently transparency is not suitable to distinguish a diamond film falling within the scope of claim 1 from free-standing diamond films of the state of the art, in particular from those forwarded to Prof. Koidl/Fraunhofer by Mr Anthony and/or described in documents D1a and D1b.

4. *Analysis and reproducibility of diamond films*

4.1 The first condition set out in G 1/92 (cf. point 2.1 above) being met, it has to be considered whether the diamond films could be (i) analysed and (ii) reproduced by the skilled practitioner before the priority date of the patent.

4.2 As to question one, there can be no doubt that in 1988 a skilled expert was able to analyse the physical properties of free-standing polycrystalline diamond films: According to documents D1a and D1b a 400 µm thick sample prepared by hot filament microwave plasma assisted CVD (labelled GE) was investigated at Fraunhofer. The absorption spectrum showed a two-phonon absorption band of diamond together with C-H stretching bands, and an average hydrogen concentration of below 1 at% (= <10000 ppm) is inferred. X-ray measurements to examine the distribution of the crystal orientation revealed a pronounced fibre texture with columnar structures with a preferential alignment of the {110} planes perpendicular to the growth direction (cf. D1a, page 283, page 289, 2nd paragraph, last sentence; page 289, last paragraph, line 4 to page 290, first line; Figures 1, 2, 6, 7). These physical parameters of the sample labelled GE in D1a are identical with those in claim 1 of the patent in suit.

4.3 As to the second question, namely of whether the claimed diamond film was reproducible before the priority date of the patent, the patentee contended for the first time at the oral proceedings before the Opposition Division that the microwave plasma assisted CVD method set out on page 284 of document D1a was not the same as the one applied in the patent in suit and did not lead to transparent diamond films as claimed (see minutes of the oral proceedings before the

Opposition Division on 11 May 1998, page 7) 5th full paragraph). In order to disprove this allegation, the opponents OI and OIII submitted comparative tests (documents D15 and D20) in the appeal proceedings. In particular the process parameters selected for performing the experiments HF-MW-1 and 2 described on page 2 of document D15 strictly adhere to those disclosed in document D1a: 1.5 vol% CH<sub>4</sub> in H<sub>2</sub>, 13 mbar = 9.75 torr; tungsten filament temperature 1950 ± 50°C; temperature of the substrate 890 ± 100°C; microwave power 780/750 W, 2.45 GHz; distance between substrate and filament 3 to 8 mm. After removal of the Si-substrate by etching, a 55 µm or 150 µm thick free-standing diamond film was obtained. Due to the polycrystalline structure the diamond films exhibited a rough surface structure but were "transparent to visible light" since a written text could be read through the films (see D15, page 3, paragraph 5.1, Figure 3). The physical parameters obtained from these films comply with those set out in claim 1 of the patent. Based on this evidence it has to be concluded that free-standing polycrystalline diamond films showing a thickness of at least 50 µm and a "transparency" within the meaning encircled in point 3 above could be produced by an expert in the field of CVD.

- 4.4 The patentee's argument that according to D15 a modern microwave apparatus was used rather than a conventional device that was available in 1988 is not convincing, because the essential parameters, i.e. the frequency (2.45 GHz) and the power of 750 to 780 W, are the same as in the method according to document D1a. Also the free selection of a distance of 3 to 8 mm between the substrate and the hot tungsten filament, which is not

expressly indicated D1a and for this reason was objected to by the patentee as *ex-post facto* knowledge, has no bearing on the matter, because the selected distances are common in this field (cf. e.g. D2, page 4070, lines 1/2; D6, page 451, left hand column, lines 13/14 from the bottom; D10 second paragraph; D19 (translation), page 2, second paragraph, line 4). The same is true in respect of the selection of the substrate which can be silicon or molybdenum. As to the product defined in claim 1 it is irrelevant whether the free standing diamond film is obtained by separation from the substrate (Mo) by cooling or later by etching away the (Si) substrate.

- 4.5 In view of these considerations, the subject matter of claim 1 lacks novelty with respect to the teaching given in document D1a. Consequently, there is no need to deal with the comparative tests submitted by opponent III or any further state of the art.

5. *Reimbursement of fees*

The question of reproducibility of the claimed diamond films with the method disclosed in D1a and D1b arose for the first time during the oral proceedings before the opposition division, when Mr Anthony, co-author of D1a and D1b, stated that D1b gives an incorrect method (paragraph bridging page 4 and 5 of the minutes) and the method presented in D1b a and D1b is not the GE method (page 7, on top, of the minutes); however, he refused, as he had been instructed by the proprietor, to divulge the method by which the samples forwarded to Prof. Koidl were made, or to say anything about the alleged incorrectness in D1b (top of page 5, bottom of page 6 and fifth full paragraph on page 7 of the

minutes). Opponent III reacted to these submissions by referring to Article 113 EPC and asking for an adjournment so that further tests could be made, because he understood that the proprietor's argument which was being heard for the first time is, that the CVD method (presented in D1a and D1b) does not work, in particular leads to non-transparency (page 6, fourth paragraph of the minutes). The proprietor then explicitly contested that there was an enabling prior art disclosure with a hot filament CVD method (page 7, second full paragraph, of the minutes).

In point 3 of the reasons for the decision under appeal, which was given orally at the end of the oral proceedings, it is set out under the Heading "Novelty" that none of the prior art documents disclosed experiments in which "substantially transparent" diamond films were manufactured and that, in view of the conflicting arguments submitted by the parties, it could not be concluded beyond reasonable doubt that the specimens of diamond films provided by the Proprietor (GE/Mr Anthony) to a member of the public (Fraunhofer/Prof. Koidl) could be manufactured by a skilled person, referring to an enabling disclosure. Therefore, the Opposition Division did not consider these samples as an anticipation of diamond films defined in claim 1 of the patent in suit and, since it took the same view with respect to the other state of the art considered, in particular D1b, eventually it held that the claimed subject-matter was novel.

Having in mind the reasons of the Opposition Division and the considerations of the present decision (see in particular points 3 and 4 above), the decision under appeal probably would have been different, namely

revoking the patent in suit, if the opponents had been given an opportunity to refute the proprietor's (Mr Anthony's) late contention, that D1a and D1b were not enabling. Until this contention and the related submissions of the proprietor were made during the oral proceedings, the opponents had, in view of Mr Anthony's behaviour vis-à-vis Fraunhofer/Prof. Koidl and his co-authorship of D1a and D1b, objectively no reason to assume that the enabling nature of the production method described in those documents would be put into question. Rather they, as well as the Opposition Division, were taken by surprise by those new contentions, which not only constitute *agere contra factum proprium* but are also reproachable because they were brought forward only during the oral proceedings which - for good reasons and as the proprietor must know - aim at a discussion of all relevant aspects of the case so that the decision can be given at the conclusion. However, this is matter of procedural economy which in case of conflict with procedural principles and rights may not override the latter. In the circumstances of the present case, it is the proprietor who is to be blamed for having acted so late, and not the opponents for not having made the tests which were necessary and suitable for refuting the late and portentous contention of the proprietor (cf. experiments shown in D 15 and D 20 submitted during the appeal proceedings). Thus, the refusal to allow such experiments before the decision, which held in favour of the proprietor in respect of the fact in question, was taken, was contrary to Article 113(1) EPC; it was also inappropriate, in that it punished the wrong side by forcing the opponents to appeal against the decision in order to obtain the opportunity to test and to prove the enabling nature of the specific prior



art, which is a most relevant issue, as both the decision und appeal and the present decision show. If that had been done before the decision under appeal was taken or if the proprietor's (Mr Anthony's) late contention had been rejected as abusive and/or made in bad faith (see e.g. decisions T 101/97 and T 951/91, the duties of the parties to act at the earliest possible juncture as set out therein being equally applicable to the proprietor), then the patent would already have been revoked by the first instance and the opponents could have saved the fee for appeal at the very least. As regards the costs of possible further oral proceedings before the Opposition Division an equitable apportionment of the costs to the debit of the responsible party (and not of the Office) could then have been achieved on the basis of Article 104(1) EPC.

For these reasons and in view of the outcome of the present appeal proceedings, the reimbursement of the appeal fee to the appellants is both legally possible and equitable by reason of a substantial procedural violation (Rule 67 EPC).

## **Order**

### **For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.
3. The fee for appeal is to be reimbursed to both

Appellants.

The Registrar:

The Chairman:

E. Commare

W. D. Weiß