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Bezeichnung der Erfindung: Oxidation catalysts

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : B01D 53/36, B01J 23/62, B01J 23/60,
B01J 23/89, A62B 19/02, A62D 9/00

ENTSCHEIDUNG / DECISION

vom / of / du 16 May 1988

Anmelder / Applicant / Demandeur : Universal Matthey Products Limited

Patentinhaber / Proprietor of the patent /

Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPO / EPC / CBE

Article 54

Kennwort / Keyword / Mot clé :

"Novelty (Yes); state of the art under
Article 54(3)EPC"

Leitsatz / Headnote / Sommaire

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Case Number : T 406/87 - 3.4.1

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 16 May 1988

Appellant : Universal Matthey Products Limited
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Representative : J.B. Lamb, Marks & Clerk
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Decision under appeal : Decision of Examining Division 031 of the
European Patent Office dated 7 July 1987
refusing European patent application
No. 83 306 312.6 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : K. Lederer
Members : E. Turrini
R. Schulte

Summary of Facts and Submissions

- I. European patent application 83 306 312.6 (publication number 0 107 471) was refused by decision of the Examining Division of the European patent office.
- II. The decision under appeal was based on Claims 1 to 8 as filed on 9 October 1986.
- III. The reason given for the refusal was that in view of document EP-A-0 089 183 (D1), whose content shall be considered as comprised in the state of the art under Article 54(3) EPC, the subject-matter of Claim 1 lacks novelty for all designated States (Article 54 EPC) and the claim is thus not allowable under Article 52(1) EPC.
- IV. An appeal was lodged against the decision.
- V. In the Grounds of Appeal the Appellant requests that the decision of the Examining Division be set aside and a European patent granted on the basis of Claims 1 to 8 filed on 9 October 1986 as main request, and in the alternative on the basis of three sets of claims, as first, second and third auxiliary requests respectively.
- VI. Main request.

Claim 1 of the main request reads as follows:

"A catalyst for catalysing the oxidation, in the presence of oxygen, of carbon monoxide to carbon dioxide which is made from substantially chloride-free material and comprises stannic oxide; palladium; one or more of the metals platinum, ruthenium, rhodium and iridium; and one or more of the metals, copper, nickel, cobalt, iron,

manganese, silver, lanthanum, cerium, praesodymium and neodymium".

Claims 2 to 7 are dependent on Claim 1.

Claim 8 reads as follows:

"A carbon dioxide laser containing a catalyst for catalysing the conversion of carbon monoxide to carbon dioxide characterized in that the catalyst is as claimed in any one of the preceding claims."

Claim 9 is dependent on Claim 8.

VII. The Appellant argues substantially as follows.

While it is accepted that the indication of the use of the catalyst is not a distinction over the prior art, document D1 does not mention how or from what starting materials the catalysts included in the metals of group VIII of the Periodic Table are prepared, i.e. the feature of Claim 1 that the catalyst "is made from substantially chloride-free material" is not present in said document. Moreover, document D1 describes a catalyst comprising a fourth component, which however is merely referred to as one or more metals from group VIII, i.e. the feature of Claim 1 "one or more of the metals ... nickel, cobalt, iron ..." is not unambiguously deducible from the disclosure of D1.

The subject-matter of Claim 1 is therefore novel in view of document D1.

The same reasoning applies "a fortiori" to Claim 1 of the auxiliary requests.

Reasons for the Decision

1. The appeal is admissible.
2. Main request.
 - 2.1 There is no objection to the present application on formal grounds, since it is, in agreement with Article 123(2) EPC, adequately supported by the specification as originally filed. The Board of Appeal deems it unnecessary to justify this statement, which has never been challenged.
 - 2.2 Novelty.
 - 2.2.1 Document D1 relates to a catalyst (page 2, paragraph 3) for catalysing an oxidation in the presence of oxygen (page 3, paragraph 3) comprising tin oxide, i.e. meta stannic acid (page 4, line 9), palladium, platinum and a fourth component group. Contrary to the subject-matter of Claim 1, document D1:
 - firstly refers to a hydrogen oxidation (page 3, line 14) instead of a carbon monoxide oxidation (Claim 1 of the application in suit). However, this is not a distinguishing feature, since it is merely an indication of the use of the catalyst, which does not change the catalyst constitution;
 - secondly, does not mention the feature that the catalyst "is made from substantially chloride-free material". The Board of Appeal cannot share the opinion of the Examining Division that said feature is implicitly present in document D1. Indeed, while the meta stannic acid, the palladium and the platinum mentioned in

document D1 shall be considered as substantially chloride-free (according to document D1, page 4, commercial stannic oxide and aqueous solutions of tetrammine platinous hydroxide and tetrammine palladous nitrate are used, which correspond to the respective chloride-free compounds according to the application in suit, pages 6 and 7), D1 does not mention how and from what starting materials the fourth component group is prepared, i.e. there is no indication that this fourth component group is chloride-free;

- thirdly, mentions as fourth component group the VIII group of the Periodic Table (page 3, paragraph 2). It is true that said VIII group comprises nickel, cobalt and iron mentioned in Claim 1. However, in document D1 neither nickel nor cobalt, nor iron are explicitly mentioned, so that said feature of Claim 1 in view of the Board cannot be unambiguously deduced from the teaching of document D1.

The Examining Division argued that the expression "or more other metals from group VIII of the Periodic Table" referred to in document D1 in connection with the fact that iron, cobalt and nickel are the most common of the group VIII elements implicitly discloses at least one of said three elements.

The Board, however, is of the opinion that an argumentation based on the choice of one or more elements belonging to a predetermined group merely because said elements are more common than others, can be used in raising an objection of lack of inventive step rather than of novelty, in spite of the limited number of the group elements.

- 2.2.2 None of the other cited prior art documents, in particular document FR-A-2 460 388 (D2) mentioned in the examination procedure, refers to a catalyst having the feature of being made from substantially chloride-free material.
- 2.2.3 For the above reasons the subject-matter of Claim 1 is deemed to be novel within the meaning of Article 54 EPC. The same applies to independent Claim 8, whose subject-matter refers to a carbon dioxide laser comprising a catalyst including all the features of Claim 1.
- 2.3 Inventive step.
- 2.3.1 Starting from the disclosure of document D2, which is in the Board's opinion the nearest prior art (document D1 is not usable in judging the inventive step, this document being prior art under Article 54(3) EPC) and which describes a catalyst for catalysing the oxidation, in the presence of oxygen, of carbon monoxide (page 2, lines 7 to 9 and page 4, lines 20 to 24), said catalyst comprising stannic oxide (page 22, lines 1 to 6), palladium (page 22, line 31), one or more of the metals platinum, ruthenium, rhodium, iridium and iron, the objective problem to be solved is to enhance the combination of carbon monoxide and oxygen and simultaneously reduce the deactivation proneness of the catalyst.

The problem is solved by the feature that the catalyst is made from substantially chloride-free material.

This solution is considered by the Board of Appeal as being not obvious, due to the fact that none of the prior art documents does mention or even hint at such a solution.

Moreover, there is no reason to think that the skilled man would see any advantage in making the catalyst from substantially chloride-free material. Indeed, also the Examining Division did not raise any objections of lack of inventive step in view of document D2, once the claim had been amended by adding the feature concerning the absence of chlorides.

Thus, the subject-matter of Claim 1 is considered to involve an inventive step within the meaning of Article 56 EPC and Claim 1 is, therefore, admissible under Article 52(1) EPC.

- 2.3.2 The subject-matter of Claim 8 is also considered to involve an inventive step, in as much as said claim refers to a carbon dioxide laser including all the features of Claim 1.
- 2.4 The introductory part of the description needs correction of a clerical error on page 4 and clarification of the kind of prior art considered.
3. Auxiliary requests.

The auxiliary sets of claims need not be examined, since the main set of claims has been considered patentable by the Board of Appeal.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to grant a European patent on the basis of the following documents:

- 2.1 Description, pages 1 to 3 and 7 as originally filed;
pages 6 and 8 to 11 filed on 5 December 1983;
page 5 filed on 8 January 1986;
pages 4 and 4a filed on 9 October 1986 with the following
amendment on page 4, line 16: "EP-A-0 089 103" is replaced
by "EP-A-0 089 183, which is prior art under Article
54(3) EPC".
- 2.2 Claims 1 to 8 filed on 9 October 1986.

The Registrar:

The Chairman:

F.Klein

K.Lederer