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D E C I S I O N
of 6 December 2000

Case Number: T 1032/97 - 3.4.1

Application Number: 92901743.2

Publication Number: 0561967

IPC: G21B 1/00

Language of the proceedings: EN

Title of invention:
Energy/matter conversion methods and structures

Applicant:
MILLS, Randell Lee

Opponent:
-

Headword:
Energy/MATTER CONVERSION-ELECTROLYTIC CELL-MILLS

Relevant legal provisions:
EPC Art. 123(2), 84, 83, 111(1)

Keyword:
"Sufficient disclosure and clarity (yes - after amendments)"
"Remittal"

Decisions cited:
-

Catchword:
-

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Case Number: T 1032/97 - 3.4.1

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 6 December 2000

Appellant: MILLS, Randell Lee
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 28 April 1997 refusing European patent application No. 92 901 743.2 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: U. G. O. Himmler
Members: M. G. L. Rognoni
C. Rennie-Smith

Summary of Facts and Submissions

I. European patent application No. 92 901 743.2 relating to "*Energy/Matter Conversion Methods and Structures*" was refused in a decision of the Examining Division on the grounds that the claims did not comply with the requirement of clarity pursuant to Article 84 EPC.

Furthermore the Examining Division noted that large parts of the description were not clear since they tried to explain subject-matter in terms which had no clear relation to commonly known objects or concepts and which were not properly defined in the originally filed application documents. These obscure terms included "*energy hole*", "*electro catalytic couple*", "*counterion*" and "*resonance shrinkage energy*", which were theoretical concepts not capable of being understood without recourse to the controversial theory developed by the inventor. Therefore, these parts of the description did not provide sufficiently clear and complete information to enable the skilled person to carry out the claimed invention.

II. The applicant lodged an appeal against the decision of the Examining Division, dispatched on 28 April 1997. The notice of appeal was received on 7 July 1997, the prescribed fee being paid on the same day. The statement setting out the grounds of appeal was received on 28 July 1997.

III. Oral proceedings were held on 6 December 2000 during which the applicant submitted a new set of claims 1 to 21.

IV. The independent claims 1 and 15 on file read as follows:

"1. An electrolytic cell operated with a cathode current density in the range of 5 to 400 milliamps per square centimetre comprising:

-- a vessel containing at least one cathode, at least one anode, and an electrolytic solution connecting the cathode to the anode;

-- a source of hydrogen atoms; and

-- a source of potassium ion or rubidium ion as catalyst."

"15. Use of an electrolytic cell according to any one of the preceding claims for the production of heat."

V. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims submitted during the oral proceedings.

VI. The Appellant argued essentially that claim 1 specified in clear technical terms the features of an electrolytic cell which could be implemented by any skilled person. Consequently, the reasons for the refusal of the application set out by the decision of the Examining Division no longer applied.

The same considerations applied with respect to claim 15 for the use of such an electrolytic cell.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is therefore admissible.

2. *Amendments*

2.1 The features of claim 1 are supported by the following parts of the originally filed description:

-- ***"An electrolytic cell"*** see page 10, lines 6 and 7; page 14, line 41; page 15, line 27;

-- ***"operated with a cathode current density in the range of 5 to 400 milliamps per square centimetre"*** see page 11, lines 8 to 11 in connection with lines 39 to 42;

-- ***"a vessel containing at least one cathode, at least one anode, and an electrolytic solution connecting the cathode to the anode"*** see page 10, line 6 to 9; page 14, line 41, to page 15, line 1, in combination with Figure 2;

-- ***"a source of hydrogen atoms"*** see page 10, line 36; page 11, line 1 to 2;

-- ***"a source of potassium ion or rubidium ion as catalyst"*** see page 10, line 35.

2.2 The particular embodiments of the dependent claims are disclosed:

-- claim 2: see page 10, lines 33 to 35;

-- claims 3 and 4: see page 15, line 1 and lines 40 to 43;

-- claim 5: see original claim 9 and page 10, lines 32 to 33;

-- claim 6: see original claim 10, page 13, line 10, and page 14, line 44;

-- claim 7: see page 9, lines 3 to 4;

-- claim 8: see page 10, lines 18 to 19, and page 15, line 1;

-- claim 9: see page 15, lines 3 to 4 in combination with Figure 2;

-- claim 10: see page 12, line 26;

-- claim 11: see page 10, lines 16 to 18;

-- claim 12: see page 10, lines 19 to 20

-- claim 13: see page 13, lines 15 to 16;

-- claim 14: see page 13, lines 15 to 18;

2.3 The independent claim 15 is directed to the use of an electrolytic cell according to any of the claims 1 to 14 *"for the production of heat"*. This effect is self-evident for the skilled person when an appropriate voltage is applied to the cathode - anode causing a current across the electrolytic cell.

2.4 The particular embodiments of the dependent claims are disclosed:

-- claim 16: see page 11, lines 1 to 2;

-- claim 17: see page 12, lines 38 to 43, and original claim 13;

-- claim 18: see original claim 14;

-- claim 19: see page 8, lines 30 to 35;

-- claim 20: see page 13, lines 31 to 32;

-- claim 21: see page 10, lines 16 to 18;

2.5 In view of the above, the Board is satisfied that the amendments are admissible under Article 123(2) EPC.

3. *Clarity*

3.1 Claim 1 now relates to an electrolytic cell in operation. The cell is "operated" with a cathode current density in the range of 5 to 400 milliamps per square centimetre: i.e., the current density of the cathode is not just a device parameter, but is the current density actually applied to the cathode during the operation of the device.

3.2 The electrolytic cell according to claim 1 comprises:

-- a vessel containing;

-- at least one cathode;

-- at least one anode;

-- an electrolytic solution connecting;

-- the cathode to the anode;

-- a source of hydrogen atoms; and

-- a source of potassium ion or rubidium ion as catalyst.

The above features can be readily and clearly recognised by the skilled person. In particular, according to the "Oxford English Dictionary" (Oxford University Press 1999), the term *"catalyst"* indicates "a substance which when present in small amounts increases the rate of a chemical reaction or process but which is chemically unchanged by the reaction".

It is, therefore, understood that the term "catalyst" in the expression "a source of potassium ion or rubidium ion as catalyst" defines the role of the elements potassium and rubidium, which contribute to and increase the rate of the electrolytic reaction in the cell without being consumed or chemically modified in the reaction.

The Board regards any other meanings attributed to the term "catalyst" in the originally filed application documents as speculative and not in conformity with the subject-matter for which protection is now sought.

3.3 As to claim 15, the Board interprets the expression "for the production of heat" as relating to the well-known ohmic heat which is produced when a current flows through an electrolytic cell. As far as it refers to speculative and controversial phenomena described as "excess heat" in the original application, the description is not in conformity with the subject-matter of claim 15.

3.4 As the claimed subject-matter is defined in clear technical terms, the claims comply with the requirement of clarity according to Article 84 EPC. However, for the reasons given above, the description must be adapted to the claims, so as to fulfil all the requirements of Article 84 EPC.

4. *Disclosure of the invention*

4.1 What is to be understood by an electrolytic cell forms part of textbook knowledge. According to the "IEEE Standard Dictionary of Electrical and Electronics Terms", second edition, published by The Institute of Electrical and Electronics Engineers, Inc. New York, 1978, page 222, an electrolytic cell is defined as follows:

"A cell in which electrochemical reactions are produced by applying electric energy, or conversely, that supplies electric energy as a result of electrochemical action. The latter cell may be called a galvanic cell. Each electrolytic cell comprises two or mores electrodes and one or more electrolytes contained in a suitable vessel."

4.2 The Board is satisfied that a person skilled in the art would be able to implement an electrolytic cell comprising the features specified in claim 1. In particular, the Board accepts that a source of potassium ion or rubidium ion may act as a "catalyst" in the sense that it may affect the reactions occurring in the cell without being depleted or chemically modified during the cell's operation (cf. 3.2 above). In fact, it is known that potassium or other alkali species can be used in electrolytic cells to increase the conductivity of the electrolyte.

4.3 As to claim 15, it is self-evident to any person skilled in the art that an electrolytic cell according to claim 1, which is operated with a cathode current density in the range of 5 to 400 milliamps per square centimetre, could, in principle, be used to produce heat.

4.4 Since the Board is satisfied that the skilled person can carry out the invention as specified in claims 1 and 15 , the requirements of Article 83 are met.

5. In summary, the claims according to the appellant's request comply with Articles 83, 84 and 123(2) EPC. However, their subject-matter has not yet been examined with respect to all other requirements of the EPC, in particular with respect to novelty and inventive step. Furthermore, the description still contains references to speculative subject-matter which needs be deleted to bring it into conformity with the claims in order to comply with all the requirements of Article 84 EPC (cf. 3.2 and 3.3 above).

In order not to deprive the applicant of the right to an examination in two instances , the Board deems it appropriate to remit the case to the Examining Division for further prosecution.

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 for further prosecution on the basis of claims 1 to 21 contained in the main request filed on 6 December 2000.

The Registrar: The Chairman:

R. Schumacher U. G. Himmler