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D E C I S I O N
of 28 September 2005

Case Number: T 0943/02 - 3.3.05

Application Number: 97103352.7

Publication Number: 792836

IPC: C01B 13/10

Language of the proceedings: EN

Title of invention:

Electric energy converting/storing method and system therefor

Applicant:

Mitsubishi Denki Kabushiki Kaisha

Opponent:

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Headword:

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Relevant legal provisions:

EPC Art. 123(2), 111(1)

Keyword:

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Decisions cited:

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Catchword:

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Case Number: T 0943/02 - 3.3.05

D E C I S I O N
of the Technical Board of Appeal 3.3.05
of 28 September 2005

Appellant: Mitsubishi Denki Kabushiki Kaisha
2-3, Marunouchi 2-chome Chiyoda-ku
Tokyo 100 (JP)

Representative: Hieber, Friedrich, Dipl.-Phys.
Hoffmann - Eitle,
Patent- und Rechtsanwälte
Arabellastrasse 4
D-81925 München (DE)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 2 May 2002
refusing European application No. 97103352.7
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: M. M. Eberhard
Members: H. Engl
S. Hoffmann

Summary of Facts and Submissions

- I. The appeal lodged on 28 June 2002 lies from the decision of the examining division posted on 2 May 2002 refusing European patent application No. 97103352.7.
- II. The decision under appeal was based on independent method and apparatus claims filed with letter dated 7 November 2001 as main and three auxiliary requests, on further auxiliary requests proposed in said letter and on a still further auxiliary request proposed during oral proceedings on 7 December 2001.

Claim 1 of said main request reads as follows:

"1. An electric energy converting/storing method, comprising the steps of:

- (a) producing an ozonized gas by using electric energy during a time period in which electric power consumption is low;
- (b) storing ozone contained in said ozonized gas; and
- (c1) taking out said stored ozone as an ozone containing gas for utilization thereof during a time period in which the electric power consumption is high; and wherein
- (c2) said ozone containing gas is supplied to an ozone consumer (23) substantially at a predetermined constant ozone concentration and substantially at a predetermined flow

rate during said time period in which the electric power consumption is high."

All requests of 7 November 2001 furthermore contained one independent apparatus claim directed at an electric energy conversion / storage system.

- III. The examining division held that the process claims on file, in accordance with the main and all of the auxiliary requests, contravened the requirements of Article 123(2) EPC. More specifically, feature (c2) in claim 1 of said requests was not considered to be originally disclosed in the context of the said claims. A further request, announced during oral proceedings and containing apparatus claims only, was found inadmissible under Rule 86(3) EPC. The examining division observed that said claims related to a different invention than the claimed process and that the objection of lack of unity raised earlier by the division had not been countered or challenged.
- IV. The appellant filed new sets of claims (main and auxiliary request) with the grounds of appeal. Claim 1 of said requests remained substantially unamended with respect to claim 1 of the main request previously filed. The appellant argued that the critical features (a) to (c2) of claim 1 were disclosed in the description of "Embodiment 1" on pages 16, second paragraph, to page 21, second paragraph. The application would also meet the requirements of Article 83 EPC.
- V. The Board issued a first communication in which objections under Article 123(2) EPC were upheld against claim 1. It was argued *inter alia* that the requirement

of the ozone containing gas to be supplied at a predetermined constant ozone concentration was not disclosed in embodiment 1 and could probably not be achieved by a process according to embodiment 1, because during the storage of the compressed gas the ozone concentration gradually decreases. In reply thereto, the appellant filed two sets of amended claims as main and auxiliary requests on 28 June 2004. New objections under Article 123(2) EPC arose in a second communication against method claim 4 and apparatus claim 7 of the main request, and an objection under Rule 29(2)a EPC was raised against independent apparatus claims 7 and 10 of said request.

VI. The appellant filed with letter of 25 August 2005 new sets of claims 1 to 22 and 1 to 21 as a main and auxiliary request, respectively.

VII. Oral proceedings took place on 28 September 2005 during which the main request filed on 25 August 2005, as well as amendments thereto, were discussed. The appellant eventually filed a new, sole request consisting of method claims 1 to 5 replacing all previous requests.

Claim 1 of said request has the following wording:

"1. An electric energy converting/storing method, comprising the steps of :

(a) producing an ozonized gas by using electric energy during a time period in which electric power consumption is low;

- (b) storing ozone contained in said ozonized gas; and
- (c1) taking out said stored ozone as an ozone containing gas for utilization thereof during a time period in which the electric power consumption is high;
- (c2) wherein said ozone containing gas is supplied to an ozone consumer (23) substantially at a predetermined flow rate during said time period in which the electric power consumption is high."

VIII. The appellant argued in the written procedure and during oral proceedings that the features in item (c2) of present claim 1 relating to the "predetermined flow rate" were originally disclosed at page 16, third paragraph, of the originally filed documents. As a matter of fact, the entire part of the description at pages 16 to 21 would describe the embodiment of the invention depicted in Figure 1; all features and characteristics of the invention described in said passage would therefore be disclosed in the same context and should be seen as relating to the same invention. The expression "at a predetermined flow rate" was essentially intended to describe an ozone flow adjusted in accordance with the needs of the consumer. The flow rate would be substantially constant when the ozone supply was running; if ozone was then to be supplied to another consumer, said rate could be set to a different, predetermined value. The appellant further pointed to page 20, last paragraph, and page 21, first and second paragraphs of the description for the

process features appearing in items a) and c2) of claim 1. These passages would disclose - in connection with embodiment 1 - a method of operation wherein the ozone production was carried out during a period of time when the electric power consumption is low, whereas the ozone is utilized during times when power consumption is high.

- IX. The appellant requested that the decision of the first instance be set aside and a patent be granted on the basis of claims 1 to 5 according to the sole request filed during oral proceedings on 28 September 2005.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments*

Claim 1 differs from claim 1 as originally filed, apart from purely editorial amendments (numbering of items (a) through (c2)), by the addition of item (c2). Said item consists of several features as analyzed below.

The **ozone consumer (23)** to which **the ozone containing gas** is to be **supplied** is disclosed in particular in Figure 1 of the originally filed drawings and in the description, *inter alia* at page 18, third paragraph, which concerns the first embodiment shown in Figure 1. It is also disclosed in all the other embodiments of the application as filed.

The feature according to which the said ozone containing gas is supplied to an ozone consumer (23) **at a predetermined flow rate** is disclosed in the context of the description of embodiment 1 of the application at page 16, third paragraph, and page 18, third paragraph. In a more general context, this feature also appears at page 9 of the description, at the end of the second paragraph relating to the electric energy conversion and storage system. Said latter passage also forms a basis for the qualifier "**substantially**". The fact that absolute precision of the flow rate is normally not intended is also apparent from the description of the first embodiment on page 18, third paragraph, last sentence, disclosing the optional use of a pressure regulating valve between ozone storage tank 21 and gas flow regulating valve 24 to realize flow rate control with a higher accuracy.

Said features are originally disclosed in combination with a method of electric energy conversion and storage, wherein the **ozone production takes place at times when electric power consumption is low** (item (a) of claim 1) and **ozone gas supply takes place when said power consumption is high** (item (c2) of said claim); see pages 16 to 21 of the description, relating to the first embodiment. In particular, this mode of operation is disclosed in connection with the electric energy conversion / storage system at pages 20, beginning with the last paragraph, till page 21, second paragraph. The ozone discharging operation can be realized by opening and controlling the gas flow regulating valve, as described at the end of said second paragraph at page 21.

The Board therefore finds claim 1 to meet the requirements of Article 123(2) EPC.

The same holds for dependent claims 2 to 5, which correspond to the original claims 2, 3, 6 and 7, respectively.

3. *Unity of invention (Article 82 EPC)*

The set of claims under consideration by the Board consists of one independent method claim and dependent claims only, the apparatus (system) claims having been deleted. The Board therefore concludes that the objection of lack of unity raised by the examining division against the previous sets of claims cannot be maintained.

4. *Remittal*

The contested decision was solely based on the ground of non-allowable amendment (Article 123(2) EPC). The process claims now on file fulfil said requirement, as shown above. The Board finds it appropriate in these circumstances, in exercising its discretionary power pursuant to Article 111(1) EPC, to remit the case to the department of the first instance 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 department of the first instance for further prosecution.

The Registrar:

The Chairman:

A. Wallrodt

M. Eberhard