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Datasheet for the decision of 10 November 2014

Case Number: T 1580/12 - 3.2.06

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Title of invention:
PLASMA ARC TORCH ELECTRODE

Applicant:
Thermal Dynamics Corporation

Headword:

Relevant legal provisions:
EPC Art. 123(2)
RPBA Art. 13(1)

Keyword:
Late-filed requests - admitted (no)
Amendments - allowable (no)

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G 0002/10, G 0002/98

Catchword:

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Case Number: T 1580/12 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 10 November 2014

Appellant: (Applicant)	Thermal Dynamics Corporation Industrial Park No. 2 West Lebanon New Hampshire 03784 (US)
Representative:	Hedges, Martin Nicholas A.A. Thornton & Co. 10 Old Bailey London EC4M 7NG (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 28 November 2011 refusing European patent application No. 03746950.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. Harrison
Members:	T. Rosenblatt
	K. Garnett

Summary of Facts and Submissions

I. The appellant (applicant) filed an appeal against the decision of the examining division to refuse European patent application No. 03 746 950.9.

Together with the grounds of appeal, amended claims according to a main request and five auxiliary requests were submitted.

II. In the communication annexed to a summons to oral proceedings, the Board informed the appellant of its preliminary opinion, according to which none of the pending requests appeared to meet *inter alia* the requirement of Article 123(2) EPC. The Board noted that compared to claim 1 as originally filed, several features had been added to claim 1 of the main request, which features appeared however to have been taken from the description of a specific embodiment since they were not defined in the set of originally filed claims. In the specific embodiments these added features were however disclosed only in combination with a number of other features. The resulting subject-matter of the amended claims therefore constituted an intermediate generalisation for which there appeared to be no basis in the application as filed.

III. In a further letter, the appellant replied to the Board's objections and replaced the requests submitted with the appeal grounds by an amended main request and amended auxiliary requests 1 to 5.

IV. At the start of the oral proceedings before the Board, the Board stated *inter alia* that the objection under Article 123(2) EPC was seemingly not overcome by any of the requests. The appellant then submitted further

amended claims in the form of a new main request together with new auxiliary requests 1 to 5, these requests replacing the previously filed requests.

V. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the main request, alternatively on the basis of one of auxiliary requests 1 to 5, all as filed during the oral proceedings of 10 November 2014.

VI. Claim 1 of the main request reads:

"A plasma arc torch (10) comprising:
a cartridge body (106);
a cathodic element (22) defining an outer perimeter surface (227); and
an electrode (100) centrally disposed within the cartridge body (106) and configured for electrical contact with the cathodic element (22);
characterised in that
the electrode (100) is further configured for the passage of a fluid between the cathodic element (22) and the electrode (100), the electrode (100) defining an inner perimeter surface (225) contacting, during operation, the outer perimeter surface (227) of the cathodic clement (22) which extends partially into the electrode (100), the inner perimeter surface (225) of the electrode (100) defining a plurality of ribs (222) and a plurality of flutes (220) alternately arranged and extending parallel to a longitudinal axis of the electrode (100), the outer perimeter surface (227) of the cathodic element (22) contacting the plurality of ribs (222) of the inner perimeter surface (225) to establish an electrical contact between the plurality of ribs (222) of the electrode (100) and the cathodic

element (22) and to form a plurality of fluid passageways through the plurality of flutes (220), the electrode (100) further comprising a distal cavity (120) in fluid communication with a coolant tube (42) of the torch (10) and with the plurality of fluid passageways."

Compared to claim 1 of the main request, the last feature of the claim ("the electrode further comprising...plurality of fluid passageways") in the auxiliary requests has been amended to read as follows:

- In claim 1 of auxiliary request 1:

"the electrode (100) further comprising a distal cavity (120), in fluid communication with a coolant tube (42) of the torch (10) and with the plurality of fluid passageways, the fluid being directed distally from inside the cathodic element (22) to the distal cavity (120) of the electrode (100) and then proximally to exit the electrode (100) through the adjacent perimeter surfaces (225, 227) between the electrode (100) and the cathodic clement (22)".

Additionally the indefinite article "a" in front of the feature "cartridge body (106)" in the second line of the claim is set in upper case; this amendment is also present in each of auxiliary requests 2 to 5.

- In claim 1 of auxiliary request 2:

"the electrode (100) further comprising a distal cavity (120), in fluid communication with a coolant tube (42) of the torch (10) and with the plurality of fluid passageways; and the plasma arc torch (10) further

comprises a coolant tube that is assembled within the cathode (22) and is in fluid communication with the distal cavity (120) of the electrode (100), wherein the fluid is directed distally from the coolant tube (42) to the distal cavity (120) and then proximally between the coolant tube (42) and the electrode (100) and exits the electrode (100) through the adjacent perimeter surfaces (225, 227) between the electrode (100) and the cathodic element (22)".

Additionally, a comma has been inserted before the feature "which extends partially into the electrode (100)". This amendment is also comprised in auxiliary requests 3 to 5.

- In claim 1 of auxiliary request 3:

"the electrode further comprising a distal cavity (120), in fluid communication with a coolant tube (42) of the torch (10) and with the plurality of fluid passageways and in that the cathodic element (22) includes an outer wall (224) defining a plurality of axial tabs (226), wherein the plurality of axial tabs (226) contact the plurality of ribs (222) of the electrode (100)."

Furthermore the preposition "to" in the expression "parallel to a longitudinal axis" has been deleted.

- In claim 1 of auxiliary request 4:

"the electrode (100) further comprising a distal cavity (120), in fluid communication with a coolant tube (42) of the torch (10) and with the plurality of fluid passageways. and in that the electrode (100) defines radial passageways (232) and axial slots (234) to

provide cooling between the electrode (100) and the cathodic clement (22)"

- In claim 1 of auxiliary request 5:

"the electrode (100) further comprising a distal cavity (120), in fluid communication with a coolant tube (42) of the torch (10) and with the plurality of fluid passageways, in that the fluid is directed distally from inside the cathodic element (22) to the distal cavity (120) of the electrode (100) and then proximally to exit the electrode (100) through the adjacent perimeter surfaces (225,227) between the electrode (100) and the cathodic element (22);
in that the plasma arc torch (10) further comprises a coolant tube that is assembled within the cathode (22) and is in fluid communication with the distal cavity (120) of the electrode (100), wherein the fluid is directed distally from the coolant tube (42) to the distal cavity (120) and then proximally between the coolant tube (42) and the electrode (100) and exits the electrode (100) through the adjacent perimeter surfaces (225, 227) between the electrode (100) and the cathodic element (22);
in that the cathodic clement (22) includes an outer wall (224) defining a plurality of axial tabs (226), wherein the plurality of axial tabs (226) contact the plurality of ribs (222) of the electrode (100);
and in that the electrode defines radial passageways (232) and axial slots (234) to provide cooling between the electrode (100) and the cathodic element (22), wherein the fluid flows distally from the cathodic element to the distal cavity (120), then proximally to the radial passageways (232) and then proximally to the axial slots (234), and wherein the fluid exits the

electrode (100) through the adjacent perimeters between the electrode (100) and the cathodic element (22)"

Furthermore, and similarly to the change of case of the indefinite article to capital letter, "A", in the definition of the feature "cartridge body", the indefinite articles in the definitions of the features "cathodic element" and "electrode" have also been modified in claim 1 of auxiliary request 5.

VII. The appellant's arguments, as far as relevant for the present decision, may be summarised as follows.

The amendments of claim 1 were supported in the application as filed by the disclosure in the Figures 12a-12d and also by paragraph [0115], in particular the first sentence thereof. The incorporation of only certain features from the embodiments into the claim did not represent an intermediate generalisation contrary to Article 123(2) EPC. What the skilled person understood as an essential part of each of the features of the embodiments had to be considered. The essential features had to be determined regarding the overall teaching of the entire application, including the introductory portion of the description, for example paragraphs [0009] and [0010]. From this overall teaching, the skilled person was able to derive those features essential to achieve what the invention aimed at. Hence, only the features which related to the particular configuration of the electrode and the cathodic element for achieving improved cooling were considered essential. Since other features mentioned in paragraph [0115] served different purposes, they could be omitted when amending claim 1.

Reasons for the Decision

1. The main request and auxiliary requests 1 to 5 were filed during the oral proceedings to replace the previously filed requests, in order to overcome objections raised previously and considered still valid by the Board against those previous requests. Having been filed after filing the grounds of appeal, which according to Article 12(2) of the Rules of Procedure of the Boards of Appeal (RPBA) should contain the appellant's complete case, these requests constitute an amendment to the appellant's case. According to Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA), any amendment to a party's case may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy.

   In order to be in line with the requirement of procedural economy, amendments should be prima facie or clearly allowable in the sense that they at least overcome the objections raised against previous requests.

2. In the present case, neither the amendments according to the main request nor those according to auxiliary requests 1 to 5 were clearly allowable in regard to the requirement of Article 123(2) EPC (see below). As a consequence, none of the requests filed during the oral proceedings was admitted into the proceedings.

2.1 The amendments of claim 1 according to all of these requests do not overcome the objection under Article

123(2) EPC raised in the Board's communication (cf. item II. above).

The appellant indicated, as support for the amendments to claim 1 of the main request, the specific embodiment depicted in Figures 12a-12d which illustrates the arrangement of flutes and ribs on the inner perimeter surface of the electrode, the resulting contact of respective inner and outer surfaces of the electrode and cathodic element and the formation of the fluid passageways. Furthermore, based on the first sentence of paragraph [0115], to which paragraph the Board had by way of example referred in its communication (in order to point out that the features of the specific embodiment appeared to be disclosed in combination with other features mentioned in that paragraph), further features mentioned in that sentence were introduced by the appellant into claim 1 of the main request, such as *inter alia* the feature "cartridge body" and the fluid communication of the electrode's distal cavity with the coolant tube. There is however no indication in paragraph [0115], which refers in particular to Figure 5 illustrating a complete plasma arch torch with an anode body, supply lines, an electrode and a cathodic element comprising particular features for fluid supply, including electrical contact to, and electrical isolation from, respective other parts etc., nor in the passages describing the embodiment illustrated in Figures 12a-12d(see in particular paragraphs [0129-0131]), that all the other features of the plasma arch torch described there, and in particular the structure "electrode - cathodic element" mentioned in these passages and shown in the Figures, were optional or could be omitted. The appellant did not indicate any other basis in the application as filed from which the particular combination of features according to claim 1

of the main request was directly and unambiguously derivable, nor could the Board identify any such basis. The resulting subject-matter of claim 1 of the main request thus (still) constitutes an inadmissible intermediate generalisation lying between the subject-matter of originally filed claim 1 and the specific embodiment disclosed in the description (in particular that shown in Figures 5 and 12a-12d).

Also, the additional features added to claim 1 of auxiliary requests 1 to 5 do not change this finding.

2.2 The appellant argued that the skilled person would have unambiguously identified the essential features of the invention by considering the aim to be achieved, which itself could be derived from the overall teaching of the application. The Board cannot accept this argument, however, since this does not reflect the correct standard when examining claims for compliance with Article 123(2) EPC. In order to comply with the requirement of Article 123(2) EPC the subject-matter resulting from an amendment must be directly and unambiguously derivable from the application as filed by the skilled person, using common general knowledge. See G 2/10, OJ EPO 2012, 376, point 4.3, and references therein, and in particular G 2/98, OJ EPO 2001, 413, point 9.

Even if the appellant's argument concerning the identification of "essential features" from the "overall teaching" of the application were followed, (which approach the Board however does not agree with), the subject-matter of claim 1 of the main request and of the auxiliary requests would still be considered as extending beyond the content of the application as filed. The passages indicated by the appellant in this

regard, for example paragraphs [0009] and [0010], clearly disclose other features related to the flow of cooling fluid in the structure comprising the electrode and the cathodic element (see for example last sentence on page 9); other passages of the description disclose further features in this context (see for example paragraph [0110]). None of the different versions of claim 1 according to the main request or the auxiliary requests defines the features mentioned for example in paragraph [0009].

3. Since there is no request comprising claims which satisfy the requirements of the EPC, the appellant's request to grant a patent based on any of these requests cannot be allowed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. H. A. Patin M. Harrison

Decision electronically authenticated