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Datasheet for the decision of 26 February 2009

Case Number: T 0386/07 - 3.2.02

Application Number: 01923294.1

Publication Number: 1259183

IPC: A61B 18/14

Language of the proceedings: EN

Title of invention:
Electrosurgical blade with direct adhesion of silicone coating

Applicant:
CONMED CORPORATION

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 123(2)

Relevant legal provisions (EPC 1973):
EPC Art. 52(1), 56, 84

Keyword:
"Inventive step (yes, after amendments)"
"Added subject-matter (no, after amendments)"

Decisions cited:
T 0400/98, T 0184/00

Catchword:
-

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Case Number: T 0386/07 - 3.2.02

D E C I S I O N
of the Technical Board of Appeal 3.2.02
of 26 February 2009

Appellant: CONMED CORPORATION
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Representative: Menges, Rolf
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 2 October 2006 refusing European application No. 01923294.1 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: M. Noel
Members: C. Körber
A. Pignatelli

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division dated 2 October 2006 to refuse European patent application No. 01 923 294.1.

The grounds for the refusal were that the subject-matter of the claims did not meet the requirements of Articles 52(1) and 56 EPC 1973 for lack of inventive step, having regard to the following prior art documents:

D1: US-A-5 702 387
D2: EP-A-0 225 125.

II. On 30 November 2006 the appellant lodged an appeal against the decision and paid the prescribed fee. On 9 February 2007 a statement setting out the grounds of appeal was filed, together with amended sets of claims according to a main request and four auxiliary requests.

III. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request consisting of:

Claims 1 to 33 filed with letter dated 9 February 2007,

Description pages 1, 7a and 8a filed with letter dated 9 February 2007,

Description pages 5, 7, 8, 11, 13, 14, 18, 19, 22 and 23 filed with letter dated 13 March 2006,

Description pages 2-4, 6, 9, 10, 12, 15-17, 20, 21 and 24 as published, and

Drawing sheets 1/4 to 4/4 as published.

Alternatively he requested that a patent be granted on the basis of any one of a first to fourth auxiliary requests. Furthermore, oral proceedings were requested.

IV. The appellant argued that the obviousness objection of the examination division, which was based on the combination of D1 with D2, was the result of hindsight since the problem, as defined by the first instance, of "finding an alternative method for bonding a silicone coating onto the metal surface of the blade of D1" was too simplistic, over-generalized and therefore not objectively correct. It followed that D2 would not have been considered as a possible solution by the skilled person.

V. The independent device and method claims of the main request read as follows:

"1. An electrosurgical active electrode (100) used for conducting electrical energy to tissue during an electrosurgical procedure, comprising:

a conductive stainless steel body (110) having a working area portion (112) and a connection end (124, 126) to which the electrical energy is conducted, the working area portion (112) having a substantially rectangular cross-sectional configuration with two longitudinally extending broad sides (114) and two relatively narrower longitudinally extending edges (116)

joining the broad sides at longitudinally extending corners (118); and

a nonstick release coating (122) comprising substantially polysiloxane on the broad sides (114); and characterized in that:

the broad sides are substantially smooth and free of mechanical roughening;

the broad sides are oxidized sufficiently to obtain substantially maximum direct adherence of the polysiloxane coating to the broad sides without a primer coat;

the polysiloxane coating is directly adhered to the oxidized broad sides without a primer coat; and

the polysiloxane coating has a substantially uniform cross-sectional thickness extending transversely between the corners of the working area portion."

"16. A method (200) of manufacturing a coated electrosurgical active electrode (100) from a conductive stainless steel body (110) having a working area portion (112) with a substantially rectangular cross-sectional configuration having two longitudinally extending broad sides (114) and two relatively narrower longitudinally extending edges (116) joining the broad sides (114) at longitudinally extending corners (118), the body (110) also having a connection end (124, 126) to which electrical energy is conducted when the active electrode (100) is used in electrosurgery, the method comprising the steps of:

creating a nonstick release coating over at least the broad sides (114) with a liquid containing substantially polysiloxane; and

curing the polysiloxane coating; and further including the characterizing steps of:

using broad sides which are smooth and free of mechanical roughening;

oxidizing (214) the broad sides sufficiently to obtain substantially maximum direct adherence of the polysiloxane coating to the broad sides without a primer coat;

adhering (220) the polysiloxane coating directly to the oxidized broad sides without a primer coat; and

establishing (220) a substantially uniform cross-sectional thickness of the polysiloxane coating between the corners of each broad side."

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

Claim 1 of the main request is based on claim 1 and parts of claims 3, 16 and 29 and page 8, line 9 of the description as originally filed. Corresponding amendments have been introduced in the method claim 16,

accordingly. The insertion of the term "substantially" before the word "uniform" in the last paragraph of the claim represents a clarification and is not objectionable since the transversal cross-sectional thickness of the coating is actually not exactly uniform, as shown in Fig. 4 and recited on page 14, lines 1-4. The amendments made to the description are aimed at adapting the introductory part of the description to the amended claims and acknowledging the relevant prior art documents.

Therefore, the amendments are allowable under Article 123(2) EPC. The requirements of Article 84 EPC 1973 are also met.

3. *Inventive step - main request*

3.1 Document D1 represents the closest prior art. It discloses all the features of the preamble of claim 1. It describes a coated electrosurgical electrode, having a coating of silicone elastomer on its working surface. The outer surfaces of the metallic conductive substrate of the electrode are preferably roughened in order to improve adhesion, and a primer is applied to the roughened metallic conductive substrate. Moreover, the thickness of the silicone coating is clearly non-uniform, not even "substantially uniform", as shown in Fig. 2 of D1 and referred to in the paragraph bridging columns 4 and 5. Accordingly, the subject-matter of claim 1 is distinguished over the disclosure of D1 by the features contained in its characterising portion.

3.2 With respect to this closest prior art, the objective problem underlying the invention can be defined as

providing an electrode with enhanced electrical insulation against arcing through the coating, and capable of reducing drag in use without compromising the adhesion of the coating. This formulation can be deduced from the patent application.

As a matter of fact, the mechanical roughening of the metallic surface of the electrode described in D1 and the peaks and valleys resulting therefrom lead to unintended arcing through the coating from point source field gradients at the peaks. In order to avoid this unwanted effect, the coating must be sufficiently thick. The use of a primer adds further to the thickness. The thicker the coating, however, the more drag will be experienced by the user during an electrosurgical cutting procedure.

3.3 These drawbacks are avoided according to the solution as presently claimed by applying the coating **directly** to a **smooth** but **oxidized** surface, the oxidation assisting in providing the required adherence. The advantageous effects achieved by the invention are detailed on pages 8 and 9 of the description. Further advantages can be seen in savings of manufacture costs as the claimed method only requires an oxidizing step before applying the silicone coating without the need of roughening and applying a primer.

In the impugned decision (point 1.3 of the reasons), the problem has been reformulated in a less ambitious way, namely to find an alternative method for bonding a silicone coating onto the metal surface of the blade of document D1. According to the established case law (see, for example, T 400/98, reasons 4.3.5, or T 184/00,

reasons 5), such a reformulation is only appropriate if it turns out that an incorrect state of the art was used or that the technical problem disclosed has in fact not been solved, which is not the case here.

3.4 Document D2 discloses a method for bonding silicone rubber to an oxidized metallic substrate as an alternative to sandblasting or phosphating the surface prior to applying the coating. D2 discloses (see page 2, lines 47 to 51) that after oxidation and cooling, silicone is applied to the metal member. Application of a primer composition prior to the application of the silicone composition is preferred. The method is applicable to metal members of any form or shape, but more specifically to gaskets (see page 2, lines 37 to 40).

However, document D2 fails to address the objective problem identified above under point 3.2. Although in D2 a silicone rubber coating seems to be applied directly to the oxidized surface of the metal member, the avoidance of metal roughening and application of a primer coating are neither explicitly mentioned nor specifically sought for in this document. Moreover, D2 is concerned with a remote technical field (see the document classification) and the particular application to gaskets points away from considering the teachings of this document since electrical insulation properties play no role in the case of a gasket, which is usually compressed firmly between metal parts so as to prevent any lateral movement. Even the provision of good adhesion of the coating is not of great importance in this situation.

Accordingly, the skilled person, starting from document D1 and faced with the above-defined objective problem indicated under point 3.2, would not be prompted to consider the teaching of document D2, unless using hindsight considerations.

3.5 For these reasons, and after having considered the other prior art documents cited in the examining procedure, the subject-matter of claim 1 according to the main request involves an inventive step within the meaning of Article 56 EPC 1973.

The same applies to the method claim 16 which contains corresponding features, but formulated in terms of method steps for manufacturing the electrosurgical electrode.

4. Since the claims according to the main request are allowable, the request for oral proceedings is irrelevant.

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 with the order to grant a patent on the basis of the following documents:

Description:
pages 1, 7a and 8a filed with letter dated 9 February 2007,
pages 5, 7, 8, 11, 13, 14, 18, 19, 22 and 23 filed with letter dated 13 March 2006,
pages 2-4, 6, 9, 10, 12, 15-17, 20, 21 and 24 as published;

Claims:
1 to 33 according to the main request filed with letter dated 9 February 2007;

Drawings:
sheets 1/4 to 4/4 as published.

The Registrar: The Chairman:

D. Sauter M. Noel