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**Datasheet for the decision
of 15 February 2007**

Case Number: T 0479/05 - 3.2.02

Application Number: 97926142.7

Publication Number: 0959787

IPC: A61B 17/39

Language of the proceedings: EN

Title of invention:
Under water treatment

Applicant:
GYRUS MEDICAL LIMITED

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes, after amendments)"

Decisions cited:
-

Catchword:
-



Case Number: T 0479/05 - 3.2.02

D E C I S I O N
of the Technical Board of Appeal 3.2.02
of 15 February 2007

Appellant: GYRUS MEDICAL LIMITED
4 Fortran Road
Saint Mellons
Cardiff CF3 0LT (GB)

Representative: Pratt, David Martin
Withers & Rogers LLP
Goldings House
2 Hays Lane
London SE1 2HW (GB)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 15 November 2004
refusing European application No. 97926142.7
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: T. Kriner
Members: D. Valle
M. Vogel

Summary of Facts and Submissions

I. The appellant (applicant) lodged an appeal on 13 January 2005 against the decision of the examining division posted on 15 November 2004 to reject the European patent application 97926142.7. The fee for the appeal was paid on the same day and the statement setting out the grounds for appeal was received on 18 March 2005.

II. The examining division held that the subject-matter of claim 1 then on file did not meet the requirements of the Articles 56 EPC, since it did not involve an inventive step having regard to the documents:

D3 = US - A - 5 300 087 and

D4 = J. Friedman: "The technical aspect of electrosurgery", Oral Surgery, Vol. 36, No. 2, 1973, pages 177-187.

In addition to these documents, the following documents cited in the search report have been considered for the present decision:

D2 = DE - A - 4 425 015

D5 = WO - A - 94/10924

D6 = WO - A - 94/06510

D7 = US - A - 4 936 310

D8 = US - A - 4 381 007.

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

Claims: 1 to 3 and 12 to 18 (first part on page 23) filed with the letter of 2 February 2007,
4 to 11 and 18 (second part on page 24) filed with the letter of 27 December 2006;

Description: pages 1 to 20 as filed with letter of 27 December 2006;

Drawings: Figures 1 to 6 as published (WO-A-97/48346).

IV. Claim 1 reads as follows:

"An electrosurgical system for the vaporisation of tissue in the presence of an electrically-conductive fluid, the system comprising an RF electrosurgical generator, an electrosurgical instrument and a pump, the electrosurgical instrument comprising an instrument shaft (10), and an electrode assembly (12) at one end of the shaft, the electrode assembly comprising a tissue treatment electrode (14), a return electrode (18), and an insulation member (16) spacing and electrically insulating the tissue treatment electrode from the return electrode, the tissue treatment electrode having an exposed end for treating tissue, and the return electrode having a fluid contact surface which is spaced from the tissue treatment electrode in such a manner as to define, in use, a conductive fluid

path between the tissue treatment electrode and the return electrode when the electrode assembly is immersed in an electrically-conductive fluid, wherein the electrode assembly is provided with a plurality of apertures (14a) through which apertures vapour bubbles and/or particulate material can be aspirated from the region surrounding the tissue treatment electrode, characterized in that said apertures are provided in the tissue treatment electrode, the electrosurgical generator is rated to deliver sufficient RF power to the electrode assembly to vaporize the electrically conductive fluid surrounding the tissue treatment electrode, and the pump is arranged to subject the distal end portion of the instrument shaft to a sub-atmospheric pressure for aspirating, in use, vapour bubbles and/or particulate material through said apertures from the region surrounding the tissue treatment electrode."

Independent claim 18 reads as follows (amendments with respect to claim 1 are underlined):

"An electrosurgical system for the vaporisation of tissue in the presence of an electrically-conductive fluid, the system comprising an RF electrosurgical generator, an electrosurgical instrument and a pump, the electrosurgical instrument comprising an instrument shaft (10), and an electrode assembly (12) at one end of the shaft, the electrode assembly comprising a tissue treatment electrode (14), a return electrode (18), and an insulation member (16) spacing and electrically insulating the tissue treatment electrode from the return electrode, the tissue treatment electrode having an exposed end for treating tissue,

and the return electrode having a fluid contact surface which is spaced from the tissue treatment electrode in such a manner as to define, in use, a conductive fluid path between the tissue treatment electrode and the return electrode when the electrode assembly is immersed in an electrically-conductive fluid, wherein the electrode assembly is provided with a plurality of apertures (14a) in the insulation member and wherein the electrosurgical generator is rated to deliver sufficient RF power to the electrode assembly to vaporize the electrically conductive fluid surrounding the tissue treatment electrode, characterized in that the pump is a suction pump arranged to subject the distal end portion of the instrument shaft to a sub-atmospheric pressure for aspirating, in use, vapour bubbles and/or particulate material through said apertures from the region surrounding the tissue treatment electrode, the exposed end of the tissue treatment electrode (14) extends laterally through a cut-out (16a) provided in the insulation member (16) at the distal end portion of the instrument, and a single coiled filament (14) constitutes the tissue treatment electrode."

V. In support of his requests the appellant brought forward essentially the following arguments.

D3 did not belong to the field of the invention. The revised independent claims 1 and 18 were now delimited against D5 which represented the closest state of the art. The available state of the art did not make the subject-matter of the independent claims obvious, since no hints could be derived from it in the direction of the claimed invention.

Reasons for the Decision

1. The appeal is admissible.
2. *Article 123(2) EPC*

Claim 1 is based on the originally filed claim 1 and on Figure 2 together with the corresponding passages of the description. Claim 18 is based in the originally filed claim 1 and on Figure 4 together with the corresponding passages of the description. Claims 2 to 17 are based on the original claims 3 to 18. the description has been adapted to the newly filed claims. Accordingly, the amendments comply with Article 123(2) EPC.

3. *Novelty*
 - 3.1 D5 - which is considered to represent the closest state of the art - discloses an electrosurgical system for the vaporisation of tissue in the presence of an electrically-conductive fluid, the system comprising an RF electrosurgical generator (12), an electrosurgical instrument (16) and a pump (24), the electrosurgical instrument comprising an instrument shaft (30), and an electrode assembly at one end of the shaft, the electrode assembly comprising a tissue treatment electrode (34), a return electrode (38 and/or 40, see page 6, lines 37 to 39), and an insulation member spacing and electrically insulating the tissue treatment electrode from the return electrode (see page 4, lines 38, 39), the tissue treatment electrode

having an exposed end for treating tissue, and the return electrode having a fluid contact surface which is spaced from the tissue treatment electrode in such a manner as to define, in use, a conductive fluid path between the tissue treatment electrode and the return electrode when the electrode assembly is immersed in an electrically-conductive fluid, wherein the electrode assembly is provided with a plurality of apertures (see Figure 6, 60; and page 5, lines 13 to 16), suitable for aspirating vapour bubbles and/or particulate material from the region surrounding the tissue treatment electrode (in the embodiment illustrated in Figure 7, however, the apertures are used to discharge fluid to adjacent tissue), wherein the apertures are arranged in the insulation member.

However, with respect to claim 1, D5 does not disclose that the apertures are arranged in the tissue treatment electrode, nor that, in use, the electrosurgical generator delivers sufficient RF power to the electrode assembly to vaporize the electrically conductive fluid surrounding the tissue treatment electrode, and that the pump subjects the distal end portion of the instrument shaft to a sub-atmospheric pressure thereby to aspirate, in use, vapour bubbles and/or particulate material through said apertures from the region surrounding the tissue treatment electrode.

With respect to claim 18, D5 does additionally not disclose that the pump is a suction pump arranged to subject the distal end portion of the instrument shaft to a sub-atmospheric pressure for aspirating, in use, vapour bubbles and/or particulate material through said apertures from the region surrounding the tissue

treatment electrode and that the exposed end of the tissue treatment electrode extends laterally through a cut-out provided in the insulation member at the distal end portion of the instrument, and a single coiled filament constitutes the tissue treatment electrode.

3.2 D3 does not refer to an electrosurgical instrument for the vaporisation of tissue, but to a multiple purpose forceps mainly designed for lasing, irrigating, suctioning and cauterizing (see column 1, line 34). Vaporisation of tissue is not disclosed in D3, let alone to perform it in presence of an electrically conductive fluid. The electrodes and the spacing insulation member are not disclosed either.

3.3 D4 is a document explaining the basic theory of electrosurgical instrumentation using RF (radio frequency). However, D4 does not disclose an electrosurgical system comprising a pump, an electrode assembly comprising an insulation member spacing and electrically insulating the tissue treatment electrode from the return electrode, the return electrode having a fluid contact surface which is spaced from the tissue treatment electrode in such a manner as to define, in use, a conductive fluid path between the tissue treatment electrode and the return electrode when the electrode assembly is immersed in an electrically-conductive fluid, wherein the electrode assembly is provided with a plurality of apertures in the tissue treatment electrode, through which apertures vapour bubbles and/or particulate material can be aspirated from the region surrounding the tissue treatment electrode, wherein, in use, the electrosurgical

generator delivers sufficient RF power to the electrode assembly to vaporize the electrically conductive fluid surrounding the tissue treatment electrode, and the pump subjects the distal end portion of the instrument shaft to a sub-atmospheric pressure thereby to aspirate, in use vapour bubbles and/or particulate material through said apertures from the region surrounding the tissue treatment electrode.

- 3.4 D2 (see page 3, lines 35 to 56 and Figure) discloses an electrosurgical system for the vaporisation of tissue in the presence of an electrically-conductive fluid, the system comprising an RF electrosurgical generator, an electrosurgical instrument and a pump (implicitly disclosed), the electrosurgical instrument comprising an instrument shaft, and an electrode assembly at one end of the shaft, the electrode assembly comprising a tissue treatment electrode (16), a return electrode (20), and an insulation member (14) spacing and electrically insulating the tissue treatment electrode from the return electrode, the tissue treatment electrode having an exposed end for treating tissue, and the return electrode having a fluid contact surface which is spaced from the tissue treatment electrode in such a manner as to define, in use, a conductive fluid path between the tissue treatment electrode and the return electrode when the electrode assembly is immersed in an electrically-conductive fluid, wherein the electrode assembly is provided with a plurality of apertures (9).

However, D2 does not disclose that said apertures are situated in the tissue treatment electrode, and that vapour bubbles and/or particulate material can be

aspirated through these apertures from the region surrounding the tissue treatment electrode; that, in use, the electrosurgical generator delivers sufficient RF power to the electrode assembly to vaporize the electrically conductive fluid surrounding the tissue treatment electrode and that the pump subjects the distal end portion of the instrument shaft to a sub-atmospheric pressure thereby to aspirate, in use vapour bubbles and/or particulate material through said apertures from the region surrounding the tissue treatment electrode.

3.5 The further documents of the available prior art (D6, D7, D8) are less relevant.

3.6 With respect to the above assessment, the subject-matter of claims 1 to 18 is novel.

4. *Inventive step*

Starting from D5, the object to be achieved by the present application is to provide an improved electrosurgical instrument. For this purpose claims 1 and 18 suggest electrosurgical systems which are suitable for vaporizing electrical conductive fluid surrounding the tissue treatment electrode and for aspirating vapour bubbles and particulate material.

These functions are enabled by those features of claims 1 and 18 which are not known from D5 (see section 3.1 above).

Since the other available documents do not suggest any of these features, the available prior art does not give any hints which can lead to the invention in an obvious way.

Therefore the present claims also involve an inventive step.

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 patent on the basis of the following version of the application:

Claims: 1 to 3 and 12 to 18 (first part on page 23) filed with the letter of 2 February 2007,
4 to 11 and 18 (second part on page 24) filed with the letter of 27 December 2006;

Description: pages 1 to 20 as filed with the letter of 27 December 2006;

Drawings: Figures 1 to 6 as published (WO-A-97/48346).

The Registrar:

The Chairman:

V. Commare

T. Kriner