BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 30 June 1994

Case Number: T 0911/91 - 3.2.2

Application Number: 85 305 524.2

Publication Number: 0 181 057

IPC: A61B 5/04, A61N 1/04

Language of the proceedings: EN

Title of invention:
Biomedical electrode

Applicant:
Nitto Denko Corporation

Opponent:
-

Headword:
-

Relevant legal norms:
EPC Art. 54, 56

Keyword:
"Inventive step - (yes) after amendment"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0911/91 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 30 June 1994

Appellant: Nitto Denko Corporation
1-2, Shimohozumi 1-chome Ibaraki-shi
Osaka (JP)

Representative: Dixon, Donald Cossar, et al
Gee & Co.
Chancery House
Chancery Lane
London WC2A 1QU (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office dated 15 July 1991 refusing European patent application No. 85 305 524.2 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: H. Seidenschwarz
Members: P. Dropmann
J. Van Moer

Summary of Facts and Submissions

I. The Appellant (Applicant) lodged an appeal against the decision of the Examining Division refusing application No. 85 305 524.2.

The Examining Division held that the application did not meet the requirements of Articles 52(1) and 56 EPC having regard to document WO-A-81/01646 (D1).

II. Following a communication of the Board dated 24 January 1994 and a telephone conversation on 24 June 1994 between the Appellant's representative and the rapporteur, the Appellant filed, with its letter of 28 June 1994, an amended set of Claims 1 to 5 together with an adapted description and sheet of figures.

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

Claims 1 to 5, filed with the letter of 28 June 1994, Claim 2 being amended such that "10.0" is replaced by "ten-odd" as agreed by the Appellant on the telephone,

Description pages 1 and 2 as originally filed and pages 3 to 8 filed with the letter of 28 June 1994, wherein, as agreed by the Appellant, at page 4, lines 11 and 12 the expression "an elastomer such as a foamed article" is replaced by "a foamed elastomer" and at page 7, lines 7 and 8 the expression "or difficult to adhere" is deleted, the sentence at lines 9 and 10 is deleted, and at line 11 the expression "non-tacky member" is replaced by "non-elastomer", and

Figures 1 and 2 filed with the letter of 28 June 1994.

IV. Claims 1 to 5 read as follows:

"1. A biomedical electrode comprising a flexible electrode plate (1) capable of conforming to a skin surface of a living body, an electrically conductive adhesive layer (2) capable of fixing the plate to the skin surface and transmitting an electric signal from the living body to said plate (1), a non-contact area to which said conductive adhesive layer (2) is not substantially bonded being formed on the electrode plate (1) by a non-tacky member (6) interposed between said electrode plate (1) and said electrically conductive adhesive layer (2), said non-tacky member (6) being non-adherent to said electrode plate (1), and an electrically conductive tongue (4) for connecting a terminal which takes said electric signal from the living body to a biomedical diagnostic apparatus being formed by a cut (3) in the electrode plate (1) in the non-contact area characterised in that said non-tacky member (6) is made of a foamed elastomer which, before formation of said cut (3), is in a compressed state, and upon formation of said cut (3), enables the automatic raising of said electrically conductive tongue (4) by the rebound stress of the elastomer.

2. A biomedical electrode as claimed in Claim 1, wherein the elastomer has a thickness of 0.5 mm to ten-odd mm.

3. A biomedical electrode comprising a flexible electrode plate (1) capable of conforming to a skin surface of a living body, an electrically conductive adhesive layer (2) capable of fixing the plate to the skin surface and transmitting an electric signal from the living body to said plate (1), a non-contact area to which said conductive adhesive layer (2) is not substantially bonded being formed on the electrode plate

(1) by a non-tacky member (6) interposed between said electrode plate (1) and said electrically conductive adhesive layer (2), said non-tacky member (6) being non-adherent to said electrode plate (1), and an electrically conductive tongue (4) for connecting a terminal which takes said electric signal from the living body to a biomedical diagnostic apparatus being formed by a cut (3) in the electrode plate (1) in the non-contact area characterised in that said non-tacky member (6) is formed of a thick non-elastomer such that part of said electrically conductive adhesive layer surface which is located in the region of said non-contact area and which is to face the skin surface is caused to protrude away from the remaining part of the said adhesive layer surface, whereby said conductive tongue (4) is caused to be raised automatically when the biomedical electrode is attached to the skin surface.

4. A biomedical electrode as claimed in any preceding claim, wherein said electrode plate (1) comprises a laminate of an electrically conductive layer (1") and an electrically insulating layer (1'), and said electrically conductive adhesive layer (2) is formed on the side of said electrically conductive layer (1").

5. A biomedical electrode as claimed in Claim 4, wherein said electrically insulating layer (1') is a laminate of plastic film and functional material."

Reasons for the Decision

1. The appeal is admissible.

2. *Formal aspects*

2.1 The claims and description meet the requirements of Article 123(2) EPC. In particular, the features of Claim 1 have their basis in Claims 1 and 5 to 7, at page 7, second paragraph, and page 10, line 22 to page 11, line 3 and in Figure 6 of the application as originally filed. The features of independent Claim 3 are disclosed in Claims 1 and 5 to 7, at page 7, line 21 to page 8, line 4, page 11, lines 3 to 7 and page 13, lines 3 to 7 and in Figure 7 of the original application. As to dependent Claims 2, 4 and 5, reference is made to page 10, lines 22 to 24 and Claims 2 and 3 of the original documents.

2.2 The application does not contravene Article 82 EPC (unity of invention), the single general inventive concept of the subject-matter of independent Claims 1 and 3 being seen in the automatic raising of the electrically conductive tongue either during the manufacture of the biomedical electrode or during its attachment to the skin.

2.3 The claims are clear as prescribed by Article 84 EPC.

2.4 The independent claims are, as required by Rule 29(1) EPC, correctly delineated over the prior art known from document D1.

2.5 The description complies with Rule 27 EPC.

3. *Novelty*

The Appellant has restricted the claims to biomedical electrodes comprising a non-tacky member which is either made of a foamed elastomer (Claim 1) or formed of a thick non-elastomer such that part of the adhesive layer surface is caused to protrude away from the remaining part of the said adhesive layer surface (Claim 3).

None of the documents mentioned in the search report or during the examination proceedings discloses an electrode having a non-tacky member of this type. In particular, in the electrode (170') known from document D1, page 31, second paragraph and Figures 26 and 27, the coating of the underside of the tab (180') with a medical grade of silicone or the like, which coating prevents adherence of the tab to the adhesive layer (171') and thus represents a non-tacky member, does not have the features specified in Claim 1 or 3. It follows that the biomedical electrodes according to Claims 1 and 3 are novel over these documents within the meaning of Article 54 EPC.

4. *Inventive step*

4.1 Document D1, on which the prior art portions of Claims 1 and 3 are based, represents the state of the art which is closest to the subject-matter of Claims 1 and 3. This document is the only one amongst those cited during the proceedings and in the search report which discloses a biomedical electrode comprising an electrically conductive tongue formed by a cut in the electrode plate and a non-tacky member interposed between the electrode plate and the adhesive layer.

4.2 Document D1 is silent as to how the electrically conductive tongue can be raised and lifted away from the electrode plate having the cut, such raising being necessary for coupling to the tongue a lead wire terminal which is connected to a biomedical apparatus.

In the light of the state of the art known from document D1, the objective technical problem underlying the present invention can be seen as enabling the tongue to be raised automatically either during the manufacture of the electrode or during its attachment to the skin.

4.3 This problem is solved by forming the non-tacky member either of a foamed elastomer in a compressed state in accordance with the characterising portion of Claim 1 or of a thick non-elastomer such that part of the adhesive layer surface is caused to protrude away from the remaining part of the adhesive layer surface in accordance with the characterising portion of Claim 3. This solution enables the tongue to be raised automatically, thereby facilitating the connection of the lead wire terminal.

4.4 It is therefore necessary to consider whether the prior art revealed in the documents mentioned in the proceedings gives any indication as to whether this problem can be solved in this way.

4.5 As pointed out in 4.1 above, these documents, with the exception of D1, do not relate to electrodes comprising an electrically conductive tongue formed by a cut in the electrode plate. Therefore, they cannot have suggested to the skilled person how to facilitate raising of the tongue.

On the other hand, document D1 discloses electrodes having such a tongue. Its underside is coated with a medical grade of silicone or the like which coating represents a non-tacky member. However, no suggestion is made in this document of the use of a foamed elastomer or of a thick non-elastomer as non-tacky member. Document D1 furthermore provides no hint that such use could be of any advantage and could solve the problem set out in point 4.2 above.

4.6 It follows that the electrodes according to Claim 1 and Claim 3 cannot be derived in an obvious manner from the cited state of the art and thus involve an inventive step in accordance with Article 56 EPC.

5. The subject-matter of Claims 1 and 3 is, therefore, patentable having regard to Articles 52(1), 54 and 56 EPC.

Claims 2, 4 and 5 define further embodiments and meet likewise the requirements of the EPC.

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 in the version set out in point III above.

The Registrar:

S. Fabiani

The Chairman:

H. Seidenschwarz