

Publication in the Official Journal ~~Yes~~ / No

File Number: T 924/90 - 3.4.1

Application No.: 87 310 403.8

Publication No.: 0 275 642

Title of invention: Needle base for subcutaneously applying electric current
for use in plastic surgery

Classification: A61N 1/26

D E C I S I O N
of 13 January 1992

Applicant: Takase, Haruo

Headword: Subcutaneous needle base

EPC Article 56

Keyword: "Inventive step - yes (after amendments)"
"combination of features to achieve a new technical effect"

Headnote



Case Number : T 924/90 - 3.4.1

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 13 January 1992

Appellant : Takase, Haruo
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Decision under appeal : Decision of Examining Division 040 of the
European Patent Office dated 25 July 1990
refusing European patent application
No. 87 310 403.8 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : G.D. Paterson
Members : R.K. Shukla
H.J. Reich

Summary of Facts and Submissions

- I. European patent application No. 87 310 403.8 (publication No. 0 275 642) was refused by a decision of the Examining Division.

- II. The reason given for the refusal was that the subject-matter as claimed did not involve an inventive step having regard to the prior art as disclosed in

D6: US-A-3 994 300
D1: GB-A-291 865
D7: DE-A-186 177

and the prior art described with reference to Figure 5 of the patent application in suit.

- III. The Applicant lodged an appeal against this decision and filed two sets of revised claims and two sets of new pages of the description for consideration of a grant of the patent along with the written Statement of the Grounds of the Appeal. Independent Claim 1 of the second set of claims forming the basis of an "alternative" submission differed from the independent Claim 1 of the first set of claims merely in that it was in one-part form, since in the opinion of the Appellant, the two-part formulation pursuant to Rule 29(1)EPC adopted for the independent Claim 1 of the first set of claims was not appropriate having regard to any of the cited prior art documents.

- IV. In response to a communication pursuant to Article 110(2) EPC, wherein the Rapporteur expressed his provisional view that the invention as claimed appeared to lack an inventive step having regard to the prior art as acknowledged in the application in suit and the disclosure

in document D1, the Appellant requested oral proceedings which were duly appointed.

V. At the beginning of the oral proceedings, the Appellant filed two sets of claims forming the basis of his main and auxiliary requests respectively, the independent claim of the main request having the same wording as the independent claim which was regarded by the Board as lacking an inventive step. During the oral hearing, the Board also referred to document CH-A-243 478 (D8) which had been cited in the European Search Report. The Appellant was informed that his main request was not considered to be allowable, whereas independent Claim 1 of his auxiliary request was regarded as providing the basis of an acceptable main claim. Thereupon, the Appellant filed new description and claims and requested the grant of a patent on the basis of these documents and the drawings as originally filed.

VI. The amended Claim 1 has the following wording:

"A needle base for subcutaneously supplying electric current in plastic surgery, comprising a plurality of needles (14) which are capable of being inserted into an area of skin to a predetermined depth in the skin for the subcutaneous supply of electric current and are mounted on and project a uniform distance from the surface of a non-conductive plate (12) at spaced intervals therebetween with base portions of the needles implanted in the plate (12), the base portions of said needles (14) being conductively connected so as to enable simultaneous application of predetermined electric current thereto, said needles comprising a shank portion and a pointed leading end to facilitate insertion into the skin, with the lower part of said shank portion, near the bottom thereof, being covered with a non-conductive member (15),

and the covered and exposed portions of each needle shank having substantially the same external diameter, wherein said non-conductive plate (12) is convex to have a protruding centre portion."

Claims 2 and 3 are dependent on Claim 1.

VII. In support of the allowability of his request, the Appellant presented essentially the following arguments:

In US-A-3 994 300 (D6), considered as describing the closest prior art by the Examining Division, there is no clear teaching of a plurality of needles which are mounted on and project from the surface of a non-conductive substrate at spaced intervals therebetween with the base portions of the needles implanted in the substrate. None of the documents cited in the decision discloses devices which include skin-insertable needle electrodes. Indeed document D6 specifically teaches an electrical epilatory device in which no probes are inserted in the tissue of the patient. An important structural difference between the invention and the cited document DE-A-186 177 (D7) is that whereas in the former a non-conductive material covers only a lower portion of the needle shank so as to protect the surface skin areas from the application of electric current, in document D7 the entire shank is covered with insulation leaving only the tip portion exposed. Consequently, even a "notional" combination of the cited documents does not produce a device as claimed. The electro-therapeutic hair brush in citation D1 does not bear the slightest resemblance to and is totally non-analogous in object, effect and structure from a subcutaneous needle base according to the present invention and should not therefore be compared with the latter.

The conventional subcutaneous needle base which is most pertinent to the Applicant's invention as the prior art is a known single needle base shown in Figure 5 of the patent application in suit. Since in this structure a non-conductive member provided on a conductive needle portion forms a curved step, considerable skill is required during epilation to ensure that the pointed end of the needle is inserted to the correct depth in the skin so as to cauterise the hair follicle.

Though in document CH-A-243 478 (document D8), a needle base with several subcutaneous needles is described, the shank portion of the needle is not provided with insulation. Furthermore, the document does not address the problem of insertion of the needles to a uniform depth in the skin when a resilient or curved area of the skin is to be treated.

VIII. At the conclusion of the oral proceedings, the Board announced its decision to set aside the decision of the Examining Division and to remit the case with an order to grant a patent on the basis of the description, claims and drawings as identified in item V. above.

Reasons for the Decision

1. Allowability of amendments

Claim 1 is based on Claims 1, 2 and 5, and the description and drawings as originally filed. In particular, basis for the amendment, "a plurality of needles which are capable of being inserted ... to a predetermined depth" is to be found on page 2, lines 26 to 27 and page 4, lines 21 and 26 to 28. The feature of the claim, "a plurality of needles ... are mounted on and project ... from the

surface of a non-conductive plate" is derivable from Figure 4 and the description on page 3, lines 19 to 26. Basis for the amendment, "wherein said non-conductive plate (12) is convex to have a protruding centre portion" is to be found on page 4, lines 7 to 11 and in Figure 3.

The description has been amended to render it consistent with the claimed invention and to acknowledge the prior art document D8 (CH-A-243 478) pursuant to Rule 27(1)(b) EPC.

In the Board's view, therefore, the application documents as amended meet the requirements of Article 123(2) EPC.

2. Inventive step

The only issue which remains to be considered in the present appeal is, therefore, the question of inventive step.

- 2.1 In the Board's view, the prior art coming closest to the claimed invention is the epilation device described in document D8. The epilation device comprises several needles (N1, N2, N3; Figure 3) for insertion in the skin, the needles being disposed in a common holder (H) and being electrically connected together in the holder so that simultaneous treatment of several hair papilla is possible (page 2, lines 21 to 36 and Figure 3). Furthermore, the schematic drawing of the holder in Figure 3 shows three separate conductors extending between the needles and a common conductor within the holder so that although there is no explicit disclosure in the document that the needles are mounted on a non-conductive plate, in the Board's view the skilled person would clearly derive from the figure and the description as a whole that the holder must involve the use of a non-

conductive substrate in which at least the bases of the needles and portions of the conductors are embedded so as to electrically isolate the needles from each other. The document is however silent as regards the form of the substrate and whether or not the needles project a uniform distance from the substrate.

2.2 The needle base according to the present invention, therefore, differs from the above known epilation device in that (a) a plurality of needles are mounted on and project a uniform distance from the surface of a non-conductive plate (b) which is convex to have a protruding centre portion, and (c) the lower part of the shank portion of the needle near the bottom thereof is covered with a non-conducting member so that the covered and exposed portions of the needle shank have substantially the same diameter. The underlined features were not present in the claims of the main request which was filed at the beginning of the oral proceedings and subsequently replaced (see paragraph V.).

2.3 During the oral proceedings, it was submitted by the Appellant that due to the combination of the features (a) (b) and (c) above, during the epilation of the skin at resilient locations, the needles can be fully inserted into the skin till the latter touches the surface of the plate whereby the resilient skin conforms to the convex shape of the plate and the pointed ends of all the needles are located at a uniform depth at the hair follicles in the skin. This ensures that many hair follicles are cauterised in a single operation. The provision of a non-conductive member at the bottom of the needle shank as set out in the feature (c) above additionally prevents cauterisation of the epidermis. The Board accepts these submissions which are supported by the description as

originally filed, on page 2, lines 7 to 11 and 24 to 28 and page 4, line 36 to page 5, line 4.

In view of the above, in examining for inventive step in the claimed subject-matter, the question which is to be considered is whether a combination of the features (a), (b) and (c), and not the features (a), (b) and (c) taken individually, was obvious to the skilled person having regard to the disclosures in the cited prior art.

- 2.4 The prior art subcutaneous needle base described with reference to Figure 5 in the application in suit (see column 1, lines 11 to 36 of the published application) and as shown in detail in Figure III attached with the Appellant's response dated 10 September 1991, comprises a single needle (4) with its base mounted in a non-conductive member (5), the needle having a shank portion and a pointed leading end and the non-conductive member forming a curved step portion with the needle. This document thus does not deal with the problem of simultaneous insertion of a plurality of needles to a uniform depth at resilient skin areas.
- 2.5 In the epilation device disclosed in document D6, comprising a plurality of spaced apart pointed electrodes, the latter are not inserted into the skin during epilation but are spaced very closely above the free ends of the hair shafts whereby an electric discharge is created between the latter and the electrodes (column 1, lines 5 to 9 and 22 to 24). The teaching of this document is thus not relevant in so far as the features (a), (b) and (c) are concerned.
- 2.6 Similarly, document D1 deals with a high frequency electrical apparatus for therapeutic or electric massage of the scalp (page 1, lines 6 to 9, lines 57 to 62), the

apparatus comprising electrically interconnected bristles in the form of, for example, rigid metal pins (10) mounted in a resilient base (9) so that when the bristles are pressed against the head of the user, they are sufficiently yielding (page 1, line 92 to page 2, line 25 in combination with page 4, lines 102 to 130 and Figure 5). The tips of the metal pins may be covered with an insulating material so that any inadvertent electrical contact between the pins and the skin is prevented during the treatment (page 2, lines 2 to 7). This document is thus relevant to the present invention only in so far as it demonstrates that in the art of electrical stimulation in general it is known to cover metal pins or electrodes with an insulating material to prevent electrical contact with the skin.

2.7 Document D7 is no more relevant than document D1 to the present invention, since the former also does not relate to a subcutaneous epilation device but describes a comb type electrode structure for treatment of the scalp, the electrodes being covered with an insulating material so that only the tips of the electrodes are exposed.

2.8 As mentioned earlier, the teaching of document D8 is incomplete as regards the form of the non-conductive substrate in which the needles are mounted. However, in the Board's view, as the substrate in the holder in document D8 has to be sufficiently rigid so that the needles can be inserted into the skin, the use of a flat plate having sufficient rigidity would readily occur to the skilled person. Also, the use of needles projecting a uniform distance from the plate lies within his routine competence.

However, the Board agrees with the Appellant that none of the cited documents gives any consideration to the problem

of insertion of needles to a uniform depth at resilient locations, and that a combination of the features (a), (b) and (c) to this end provides technical advantages as set out in paragraph 2.3 above and is not taught by any of the prior art documents taken either individually or together.

- 2.9 For the foregoing reasons, in the Board's judgment the subject-matter of Claim 1 as amended was not obvious to a skilled person within the terms of Article 56 EPC, and the invention to which the application as amended relates meets the requirement of inventive step. Thus, Claim 1 is allowable under Article 52(1) EPC. Dependent Claims 2 and 3 concern particular embodiments of the needle base claimed in Claim 1 and are, therefore, likewise allowable.

Order

For these reasons, it is decided that:

1. The decision of the Examining Division is set aside.
2. The case is remitted to the first instance with an order to grant a patent on the basis of the description and claims as filed at the oral hearing, and the drawings as originally filed.

The Registrar:

The Chairman:

M. Beer

G.D. Paterson