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D E C I S I O N
of 13 September 2005

Case Number: T 0617/03 - 3.2.02

Application Number: 92920634.0

Publication Number: 0604563

IPC: A61F 7/12

Language of the proceedings: EN

Title of invention:
Device for Hyperthermia Treatment

Patentee:
Wallsten, Hans Ivar

Opponent:
Gynelab Products, Inc.

Headword:
-

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

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0617/03 - 3.2.02

D E C I S I O N
of the Technical Board of Appeal 3.2.02
of 13 September 2005

Appellant: (Opponent)
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Representative:
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Respondent: (Proprietor of the patent)
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Representative:
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 31 March 2003 rejecting the opposition filed against European patent No. 0604563 pursuant to Article 102(2) EPC.

Composition of the Board:

Chairman: T. Kriner
Members: S. Chowdhury
E. Dufrasne

Summary of Facts and Submissions

I. The appellant (opponent, Gynelab Products, Inc., USA) lodged an appeal against the decision of the opposition division relating to European patent No. 0 604 563. The decision was dispatched on 31 March 2003. The appeal and the fee for the appeal were received on 30 May 2003. The statement setting out the grounds of appeal was received on 30 July 2003.

The opposition was filed against the whole patent and based on Article 100(a) EPC (lack of inventive step). The opposition division decided that the subject-matter of claim 1 involved an inventive step and rejected the opposition, accordingly.

II. The Board has considered the following documents:

A2: US-A-4 160 455

A3: Günther Ott, "The PTC Thermistor as Heating Element", reprint from Siemens Components XVI (1981), No. 2, pages 56 to 59

A4: E. Andrich, "PTC-Thermistoren als selbstregelnde Heizelemente", Philips Technische Rundschau, 30. Jahrgang, 1969/70, Nr. 6/7, pages 192 to 200

A5: DE-A-3 725 691.

III. Oral proceedings were held on 13 September 2005.

Appellant requested that the decision under appeal be set aside and that the patent No. 0 604 563 be revoked.

Respondent (patent proprietor, H. I. Wallsten, CH) requested that the appeal be dismissed and that the patent be maintained as granted, in the alternative, according to the auxiliary request filed with the letter of 22 December 2003.

IV. The independent claim 1 of the main request reads as follows:

"A device for carrying out hyperthermia in a body cavity or duct, the access path of which is narrow, comprising an elongate distal section (3) intended to be inserted into said cavity or duct comprising a centrally located, heat-releasing element (19), which is surrounded by an elongate housing, a flexible and/or elastic enclosure (37) surrounding said housing in a liquid-tight manner, further including means (13,15) for supplying energy to the heat-releasing element (19), an axially operating inlet passage (35) at the proximal part of the housing, an outlet (33;68;87) from the housing being arranged for the supply of heat-transmitting medium under pressure for expansion of the flexible enclosure(37) to accomodate to and to exert a controlled pressure on surrounding walls of said cavity or duct, a second inlet to the housing, and means for internal circulation of said medium through the housing, characterized in that the heat-releasing element is self-regulating and comprises a PTC-semi-conductor material having a Curie temperature or Trip point, said heat-releasing element contains two or several axially and parallelly arranged PTC-part-elements having substantially parallel surfaces, said part-elements being separated to form passages between and about the

part-elements for effective and even heat-release to the surrounding flow of heat-transmitting medium."

Claims 2 to 18 are dependent claims.

V. The parties argued as follows:

Appellant

The person skilled in the art would replace the resistor heating element of document A2 by a PTC element since these were commercially available and generally known as compact and simple heating elements (eg see A5). The person skilled in the art also knew that for efficient heat transfer the surface area must be maximised, for which reason flat elements must be used, and according to need, more than two elements may be used (eg see A3, page 3, Result). Moreover, these elements would be arranged longitudinally so as not to obstruct the flow of liquid. Therefore, the claimed arrangement fell out automatically upon application of general knowledge to the arrangement of A2, and not by inventive activity.

Respondent

Document A2 was concerned with providing uniform heat distribution outside the housing and nowhere did this document indicate that heat flow from the heating element to the flowing fluid was a problem. Neither of A3 or A5 indicated that a parallel arrangement of heating elements may have an advantage or solve the problem of heat transfer to a flowing medium. Therefore, the claimed arrangement involved an inventive step.

Reasons for the decision

1. The appeal is admissible.

2. *Novelty*

Lack of novelty was not a ground of opposition and novelty was not contested by the appellant.

3. *Inventive step (Main request)*

3.1 State of the art

The most relevant state of the art is undisputedly represented by document A2 which discloses a device according to the pre-characterising portion of claim 1.

3.2 Technical problem and solution

The patent itself adequately sets out the technical problem to which the patent relates, at page 3 lines 37-39. In fact, the problem may be broken down into two sub-problems as follows:

(i) The device of document A2 has a temperature sensor and a feedback circuit in addition to a heating resistor. This is neither compact nor simple.

(ii) Sufficient heat must be provided to the liquid in the housing for the device to be effective.

3.3 The formulation of sub-problem (i) is obvious since it is universally desirable to make things simple and compact. Column 3, lines 29-33 of A5 states that a PTC thermistor automatically (ie without a temperature sensor and a feedback circuit) maintains the ambient temperature constant. This is a clear incentive for the skilled person to replace the complex and heating system of A2 by the simple and compact thermistor of A5. This combination of problem and solution is not inventive, accordingly.

3.4 Regarding problem (ii), this is not disclosed in the prior art. If the heater of A2 were to be replaced by a PTC thermistor, as per the incentive from A5 or from general knowledge, then there is still no indication that this could pose a problem as regards the efficacy of heat flow. In particular, there is no indication in A2 whatsoever that the cylindrical configuration of the heating element 14 is deficient in this respect.

3.5 As against this, the patent identifies a problem associated with a compact design of thermistor, which is that of creating sufficient power output while avoiding self-inhibition associated with a compact design of the heating element (page 3, lines 40 and 41). That is, the cylindrical configuration of the heating element of A2 does not transfer heat to the flowing liquid in the housing efficiently.

3.6 In view of this problem the patent in suit proposes to alter the geometry and configuration of the heating element of A2, using instead a plurality of axially and parallelly arranged PTC-part-elements having substantially parallel surfaces, said part-elements

being separated to form passages between and about the part-elements defined in claim 1.

3.7 The solution to this problem is not given or suggested by the prior art. The claimed arrangement of parallel-arranged PTC elements separated to form passages provides effective and even heat-release to the surrounding flow of heat-transmitting medium, and at the same time provides an effective liquid circulation, as explained on page 9, lines 15-17 and 55-57 of the patent.

4. *Appellant's arguments*

4.1 The appellant argued that the skilled person would, having regard to general knowledge, automatically employ flat spaced-apart PTC elements of the type disclosed in A3 in place of the heating system of A2. This argument uses hindsight since it pre-supposes the technical problem on which the patent in suit is based. As shown above, there is no indication in the prior art that cylindrical heating elements, as exemplified by A2 and A5, posed a problem as regards heat transfer to flowing fluid around it. Thus, there is no indication in the prior art that the heating element of A2 required any modification in this respect.

4.2 However, even supposing that the person skilled in the art would modify the configuration of the heating element of A2, the prior art still does not give an incentive to do so in the manner defined in claim 1 of the patent in suit, as the appellant argued, referring particularly to A3 and A4.

Firstly, it is noted that A3 and A4 relate to industrial use and not to medical use, where different considerations apply (eg higher temperatures-see Figure 1 of A4) and a different heat conducting mechanism is used. In A3 the liquid in a water heater does not flow and it is heated directly by heating elements, and in A4 (the devices described with reference to Figures 9 and 10) the heat is conducted directly from a PTC element to the exterior. For this reason the flat sandwich construction of A4 employs a single PTC element which is not configured to enable fluid flow through and around it. By contrast, in the patent in suit the heat is conducted first to a flowing liquid and then via the flowing liquid to a flexible enclosure.

Moreover, PTC thermistors having all kinds of configurations are known in the prior art, not just the flat types of documents A3 and A4, whose selection from all the different conceivable shapes is done by the appellant with hindsight. For example, the person skilled in the art could replace the cylindrical element of A2 by an annular element, which would provide the additional surface area and facilitate fluid flow, were he aware of a reason for so doing in the first place, of course.

5. Therefore, starting from A2 and modifying it with the thermistor from A5, there is still no indication of the technical problem (ii) or of its solution in the prior art, so that this combination of problem and solution involves an inventive step.

5.1 For the above reasons the claims of the main request involve an inventive step and meet the requirements of Article 52(1) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

V. Commare T. K. H. Kriner