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Datasheet for the decision of 7 October 2014

Case Number: T 0591/10 - 3.5.02

Application Number: 02718337.5

Publication Number: 1377947

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Language of the proceedings: EN

Title of invention:
Electronic Systems Incorporated into Textile Threads or Fibres

Applicant:
Leonard, Philip Noel

Relevant legal provisions:
EPC Art. 83

Keyword:
Sufficiency of disclosure - (no)

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Case Number: T 0591/10 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 7 October 2014

Appellant: (Applicant)	Leonard, Philip Noel Abbey House, Brockweir Chepstow, Gwent NP6 7YY (GB)
Representative:	Davies, Gregory Mark Urquhart-Dykes & Lord LLP 7th Floor Churchill House Churchill Way Cardiff CF10 2HH (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 16 September 2009 refusing European patent application No. 02718337.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. Ruggiu
Members:	R. Lord
	P. Mühlens

Summary of Facts and Submissions

I. This is an appeal of the applicant against the decision of the examining division to refuse European patent application No. 02 718 337.5. The reason given for the refusal was that the subject-matter of the independent claims lacked novelty (claim 15) or did not involve an inventive step (claim 1). During the course of the examination procedure the examining division had also raised an objection under Article 83 EPC.

II. The following document cited by the examining division is relevant for this decision:

D3: JP 2001 064 870 A and translation into English,

as are the following documents filed by the appellant (then applicant) during the procedure before the examining division:

Documents describing "ElastoTwist" by Hamel (3 pages);
News item printed from Bell Labs web-site entitled "Bell Labs Builds Smallest Transistor" (2 pages); and
E. Shapiro and Y. Benenson, "Bringing DNA Computers to Life", Scientific American, May 2006, pages 33 to 39.

III. The appellant requested in writing (letter dated 26 January 2010) that the decision under appeal be set aside and that a patent be granted on the basis of the set of claims filed with that letter.

In a communication accompanying a summons to oral proceedings dated 1 April 2014 the board indicated its

preliminary opinion that the application did not meet the requirement of Article 83 EPC.

Oral proceedings before the board took place on 7 October 2014, at which, as indicated by letter dated 25 September 2014, the appellant was not represented.

IV. Claim 1 according to the appellant's sole request reads as follows:

"An individual textile thread, comprising a plurality of integrated circuits encapsulated in said individual textile thread, at least one microprocessor included as part of the plurality of integrated circuits, at least one data memory element included as part of the plurality of integrated circuits, and means for interconnecting individual integrated circuits of said plurality of integrated circuits for permitting said individual integrated circuits to intercommunicate with one another for forming a signal processing system."

Claim 15 according to the appellant's sole request reads as follows:

"A fabric article formed of a plurality of textile threads comprising:
a plurality of integrated circuits encapsulated in one or more individual textile threads, together forming at least a portion of said textile threads, said plurality of integrated circuits including at least one microprocessor and [sic] least one memory element; and,
means for interconnecting individual integrated circuits of said plurality of integrated circuits for permitting said individual integrated circuits to intercommunicate with one another for forming a signal processing system."

V. The arguments of the appellant which are relevant for the present decision are essentially as follows:

Techniques for encapsulating a thin core in a thread were well-established. The cited "ElastoTwist" brochure disclosed one such technique, core-wrapping, which dated back to the 19th century.

The cited Bell Labs publication, dated 1997, described the fabrication of a transistor only 60 nm wide, thus indicating that technology was available for enabling integrated circuits to be made for forming systems according to the invention.

The cited article from Scientific American demonstrated that knowledge existed for the possible construction of a signal processing system based on DNA, which was technologically far more challenging than the claimed invention.

Reasons for the Decision

1. The appeal is admissible.

2. The claimed invention as defined in either claim 1 or claim 15 and described in the present application requires that a microprocessor, in the form of one or more integrated circuits, be encapsulated in one or more textile threads. This arrangement differs significantly from the conventional techniques for packaging microprocessors which could be considered to form part of the common general knowledge of the skilled person. However, the present application

contains no teaching as to how to achieve the claimed arrangement, other than the brief indication in the first paragraph on page 2 that since it is possible to manufacture electronic integrated circuits of extremely small size, such encapsulation can be carried out. In the opinion of the board, microprocessors, at least at the priority date of the present application, were of such a size and complexity, that the skilled person would not have been aware of any technique enabling their encapsulation within textile threads. Thus, taking into account also the significant issues of electrical interconnection and packaging for such large and complex circuits, the board concludes that the application does not disclose the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, thus not satisfying the requirement of Article 83 EPC.

3. The appellant's statement of grounds of appeal contains no arguments relating to Article 83 EPC. However, this issue was discussed during the procedure before the examining division, the division having raised objections under Article 83 EPC in its communications of 24 September 2004 and 24 September 2007, and the appellant (then applicant) having responded to these objections in letters dated 12 July 2005 and 23 October 2007. The board does not find the appellant's arguments in this context convincing, for the following reasons.

3.1 The "ElastoTwist" brochure filed with the second of these letters is undated, so that it is not clear whether it was published before the priority date of the present application. In the letter with which this document was filed, the applicant stated that the core-wrapping technique had been known since the 19th century. However neither that statement nor the

brochure (if it had been published in time) could provide any support for the disclosure of the claimed invention, since the application contains no suggestion that such a technique could be used for carrying out the invention, and since the brochure only describes threads wound around an elastomer core, so provides no teaching as to how elements such as integrated circuits might be encapsulated in a thread.

3.2 The Bell Labs publication referred to in both of the cited letters describes only a single transistor with a minimum feature size of 60 nm. This dimension is presumably the gate length of the transistor, so that, contrary to the argument of the appellant, this would not be the overall size of the transistor, which would instead be at least an order of magnitude larger. This moreover says nothing about the availability of a microprocessor of sufficiently small size to be encapsulated in a thread, particular taking into account the need to package and make connections to such a complex device, or to package separate elements forming collectively a microprocessor and make complex and sensitive connections between such elements.

3.3 The article from Scientific American filed with the second of the cited letters is dated five years after the priority date of the present application, so does not provide any clear teaching as to what was known at the priority date of the present application. Moreover, it describes only functionality which is much less complex than a microprocessor, and the experiments described are all carried out using DNA in solution (i.e. in a liquid), so that it is not clear how this teaching could be transferred to the claimed arrangement in which the circuitry is encapsulated in a thread.

3.4 For the sake of completeness, the board observes also that the document D3 does not disclose any circuit element as complex as a microprocessor. In any case, the teaching of a single patent document of this type cannot be considered to form part of the common knowledge of the skilled person. Moreover, the teaching of that document relating to the use of DNA-based signal processing involves the interaction between DNA sequences on the surface of the thread with organic material in which the thread is immersed. Thus this aspect of the teaching of D3 cannot provide any teaching as to how to encapsulate a microprocessor in a thread.

4. The board therefore agrees with the opinion expressed by the examining division in its communications of 24 September 2004 and 24 September 2007 that the present application is purely speculative, and thus does not disclose the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. Hence the appellant's sole request does not meet the requirement of Article 83 EPC, so that the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

U. Bultmann M. Ruggiu

Decision electronically authenticated