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D E C I S I O N
of 6 December 2000

Case Number: T 0960/97 - 3.3.5

Application Number: 88309851.9

Publication Number: 0313348

IPC: A61M 1/34

Language of the proceedings: EN

Title of invention:

Device and method for depletion of the leukocyte content of blood and blood components

Patentee:

PALL CORPORATION

Opponent:

NPBI Nederlands Produktielaboratorium voor
Bloedtransfusieapparatuur en Infusievloeistoffen B.V.
Terumo Kabushiki Kaisha Head Office
FRESENIUS AG

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 84

Keyword:

"Clarity (yes): linguistic flaw not leading to lack of clarity"

"Novelty (yes): prior generic disclosure"

"Inventive step (yes): purposive selection"

Decisions cited:

-

Catchword:

-



Case Number: T 0960/97 - 3.3.5

D E C I S I O N
of the Technical Board of Appeal 3.3.5
of 6 December 2000

Appellant:
(Opponent)

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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 15 July 1997
concerning maintenance of European patent
No. 0 313 348 in amended form.

Composition of the Board:

Chairman: R. K. Spangenberg
Members: A.-T. Liu
J. H. Van Moer

Summary of Facts and Submissions

- I. The appeal is from the interlocutory decision of the Opposition Division maintaining European patent No. 0 313 348 in response to three oppositions.
- II. The impugned decision was based on the amended set of 50 claims filed at the oral proceedings of 6 June 1997. Claims 1, 33 and 36 were independent claims for a device, and independent claim 50 was directed to a method for use of the claimed devices. These claims read as follows:

"1. A device for the depletion of the leukocyte content of a blood product comprising at least first, second, and third porous elements with the second element interposed between the first and third elements, each successive element having a smaller pore diameter than that preceding it, the first element including means for removing gels, the second element including means for removing microaggregates, and the third element including means for removing leukocytes, said means for removing microaggregates and said means for removing leukocytes being made of melt-blown fibers and at least the second and third elements have been modified to a CWST of 55 dynes/cm to 80 dynes/cm.

33. A device for the depletion of the leukocytes from a blood product comprising at least one element in which a fibrous medium has been radiation-grafted and thereafter hot compressed to form a coherent filter element with a CWST of from 55 to 80 dynes/cm.

36. A device for filtering a blood product comprising at least three porous elements, the first element composed at least in part of a needled fibrous web, the second having a smaller pore diameter than the first,

said element for removing microaggregates and said element for removing leukocytes being made of melt-blown fibers and the second and third elements having a CWST of from 55 to 80 dynes/cm.

50. A method for the depletion of the leukocyte content of a blood product comprising passing the blood product through the device of any one of claims 1 to 49."

III. Of the documents which were introduced in the opposition proceedings, reference shall be made in the present decision to the following:

D1: US-A-3 765 536.

D2: EP-A-0 267 286.

D6: EP-A-0 155 003.

D11: Letter dated 24 August 1995 and signed by Dr R. Reverberi.

D12: Declaration of G. Mari dated 2 October 1995.

D13: Letter dated 11 September 1995 signed by M. Morra of Nobil Biorecherche with attachment.

D19: J. Clin. Pathol. (1983), pages 1200 to 1201.

D20: Transfusion (1987) pages 402 to 405.

D2, published on 18 May 1988 in accordance with Article 168(3) EPC, corresponds to the international application with the publication number WO 87/05812, published 8 October 1987.

IV. The opposition division dismissed an allegation of prior use of a filter named Sepacell R-500A on the ground that the public availability of that filter was not completely proven.

It further found that the cited prior art neither disclosed nor suggested a device comprising an element with a CWST value of 55 to 80 dynes/cm as stipulated in the claims. The distinguishing feature was further held to solve the technical problem of providing a leukocyte depleting device which allowed a short operating time and ease of use. The opposition division therefore concluded that the claimed devices were new and involved an inventive step.

V. With the Statement of the grounds of appeal, the appellant filed new documents with the aim of further substantiating the objection that a filter for leukocyte removal with the trade name Sepacell R-500 was commercially available before the priority date of the patent in suit. These documents were:

D26: Boswijk et al, Red Cross Bloodbank Groningen-Drenthe, August 1983.

D27: Karger, page 10, 1994.

D28: Kunststofffen en rubber instituut tno, Rapport nummer 238/'86 dated 21 May 1986.

D29: Terlingen et al, Holland biomaterials group, December 1996.

VI. The appellants' arguments may be summarised as follows:

- The claimed devices were not new due to the public prior use of Sepacell R-500 and R-500A filters.

- The subject-matter of claim 1 was essentially distinguished from the closest prior art according to D1 in the stipulation of a CWST value within the range between 55 and 80 dynes/cm.
- The respondent had accepted that the device according to D2 comprised a leukocyte removing element with a CWST of at least 72 dynes/cm. The claimed device would thus lack an inventive step with respect to D1 in combination with D2.
- The wording of Claim 36 was unclear.

VII. With his reply to the appeals, the respondent filed an auxiliary request in which claim 36 was reworded to meet the objection of lack of clarity. The respondent's arguments submitted in writing and during the oral proceedings are summarised as follows:

- Sepacell R500A filters were not publicly available.
- The literature reporting the public prior use of Sepacell R500 filters did not reveal all the features of the claimed devices in combination. Moreover, the public availability of the Sepacell R500 filters investigated in D29 was contested.
- The filter of D1 was to fulfil an opposite purpose to that of the present devices.
- Consequently, not D1 but rather D6 should be considered to comprise the closest prior art.
- D2 neither disclosed nor suggested a fibrous medium with a CWST value in the range of 72 to 80 dynes/cm.

- The selected CWST range was not rendered obvious by the available prior art.

VIII. At the end of the oral proceedings held on 6 December 2000, the appellant requested that the decision under appeal be set aside and that the European patent No. 0 313 348 be revoked.

The respondent (patentee) requested that the appeal be dismissed or, in the alternative, that the patent be maintained according to the auxiliary request i.e. with an amended claim 36.

Reasons for the Decision

Main request

1. *Amendments*

The Board concurs with the undisputed findings of the first instance in that the amendments introduced during the opposition proceedings meet the requirements of Article 123(2) and (3) EPC.

2. *Clarity*

The appellant has raised the objection that the subject-matter of claim 36 lacks clarity, remarking that claim 36 makes reference to "said element for removing microaggregates and said element for removing leukocytes" without having an antecedent for the respective element. This objection is, a priori, directed to a linguistic flaw of the claim wording.

The appellant has neither argued that the wording of the claim is not understandable, nor that it is open to different ways of interpretation. In other words, the appellant has not raised any doubt as to the meaning of the claim's wording in its present form. The Board therefore finds that, in this case, the objection of lack of clarity under Article 84 EPC is not founded.

3. *Prior use*

3.1 Sepacell R-500 (Asahi, Japan)

3.1.1 The appellant has asserted that documents D26 (Introduction, paragraph 3), D27 (page 10, caption of Fig.1), D28 (page 2, paragraph 2) and D29 (page 4: "Filters") provide proof that a leukocyte filter with the trade name Sepacell R500 was publicly available before the priority date of the patent in suit. Concerning the filters reported in the last mentioned document, the appellant has submitted that the lot number of a filter corresponds to the date of its production and the sterilisation date of a filter means that the filter concerned is to be used within 6 months from that date, as the sterilisation is only guaranteed within this time limit. Since the lot number of two of the filters investigated in D29 is 850715 and the sterilisation date for the filter with control number N77AF1 is 15.7.87, the filters in question would have been available before the priority date of the patent in suit. Thus, D29 should be regarded as evidence disclosing the object of the alleged prior use.

The appellant has then argued that the data in D28 and the later investigations reported in D29 show that this commercial filter has all the features of claim 1 (see D28, page 3, Table and D29, page 3: "Introduction"; page 7, last paragraph; page 8, Tables 2 and 3; and page 9: "Conclusion").

3.1.2 The respondent has observed that Sepacell R-500 is described in D19 as a filter consisting of a circular disc of polycarbonates (page 1200, left hand column: "Materials and methods"). According to D20, Sepacell R-500 would be, in contrast, a microfilter of nonwoven polyester (abstract and left hand column, paragraph 1). The clearest picture is given in D29 which reveals the different layers in the filters, classified according to their structure. On the one hand, the two Sepacell R-500 filters with Lot no 850715 are constituted with 4 layers each of type A and B, 2 layers each of type C, D and E and 12 layers of type F. The respective CWST values of these layers are determined to be 59/60, >87, 63, >87, 63 and 66/70 mN/m, respectively. On the other hand, the Sepacell R-500 filter with Control number N77AF1 consists of 2 layers of type A, 6 layers of type B, 4 layers of type C and 14 layers of type D with CWST values being 70, 58, 66 and 70 mN/m (see Tables 2 to 4 and Appendixes 1 to 3). Thus, D29 itself is already clear evidence that the trade name Sepacell R-500 has been employed for designating different types of filters.

3.1.3 Since reference is made in prior art documents to Sepacell R-500 filter as a commercial product, the Board does not have any doubt as to the public prior use of a filter with this trade name (see for example D19, page 1200, left hand column, first paragraph: "We wish to present the results of evaluating a new filter for leukocyte depletion of blood, Sepacell R-500 (Asahi Medical Co Ltd, Tokyo, Japan), which has been marketed recently"). The Board holds, however, that the various documents cited by the parties corroborate the assumption that the trade name Sepacell R500 represents more than one type of filter. As a consequence, the

eclectic information about Sepacell R-500 cannot be accepted as representing one single piece of prior art. Rather, each report on a Sepacell R-500 filter has to be considered separately on its own merits.

The Board further concedes to the appellant's interpretation that the lot number and the sterilisation date are evidence that the Sepacell R500 filters reported in D29 had been **produced** before the priority date. However, this does not imply that these products were publicly available before that date. The only evidence offered by the appellant in this respect is the fact that some other filters with the trade name Sepacell R500 were commercially available before that date (see preceding paragraph). In the Board's judgment, this is insufficient evidence for establishing with the necessary degree of certainty that the particular filters reported in D29 were also available. This document bearing the date of December 1996 does not indicate that the filters concerned were purchased before the priority date of the patent in suit, nor does it provide any evidence as to the public availability of these filters. It is thus not excluded that these filters were only given to the authors of D29 for test purposes, so that it cannot be taken as proven that the tested products were part of the prior art.

3.2 Sepacell R-500A (Asahi, Japan)

The appellant has further maintained that D11 constitutes evidence of prior use of the Sepacell R-500A filter, whose properties are analysed in D12 and D13.

The Board notes that, in D11, Dr. Reverberi refers to the Sepacell R-500A filters as "samples to be evaluated for tender purposes" (see paragraphs 1 and 3: "samples of Sepacell R500A (Asahi Japan) filters for leukocyte removal, lot 860329, prep. 29/3/86 ... Those filters were samples to be evaluated for tender purposes"). The chosen wording is in sharp contrast with the reference to Sepacell R500 filters in the same paper (see D11, last paragraph: "Sepacell R500 filters (Asahi Japan) have been in use in my Service since approximately 1985"). The Board therefore infers from Dr. Reverberi's declaration in D11 that, unlike Sepacell R-500, the Sepacell R-500A filters were only available to him as "samples" and not as commercial products. Furthermore, their availability was probably under the seal of secrecy since evaluations ("samples to be evaluated") and negotiations ("for tender purposes") were still under way. Therefore, D11 cannot be construed as evidence to the prior use of Sepacell R-500A. Consequently, D12 and D13, dated 2 October 1995 and 11 September 1995 respectively, which relate to the evaluation of Sepacell R-500A filters carried out after the priority date of the patent in suit, are not part of the prior art.

Since the appellant has not submitted any other piece of evidence, the Board does not accept the public prior use of Sepacell R-500A filters as proven.

4. *Novelty*

The appellant has not cited any single prior art document which discloses the combination of features of claim 1. The Board thus concurs with the opposition division that the subject-matter of independent claim 1 is new.

5. *Inventive step*

5.1 Claim 1 is directed to a device for the depletion of the leukocyte content of a blood product.

5.2 The Board concurs with the appellant in that the closest prior art is represented by D6. The filter unit for removing leukocytes disclosed therein comprises one or more prefilters and a main filter, the latter being of a non-woven fabric made of melt-blown fibres. The purpose of the prefilters is to remove microaggregates and adhesive substances such as protein-gel (page 4, lines 25 to 27; page 5, lines 18 to 20; page 8, line 32 to page 9, line 7; page 11, lines 24 to 33).

The primary purpose of the filter device according to D1 is to remove sticky particles of the dimension of non-viable platelets while permitting the red blood cells and at least a substantial proportion of white blood cells to pass through (claim 1). The Board therefore does not consider D1 to be a relevant prior art document since a device ineffective in retaining white blood cells would not be regarded as a source of useful suggestions, let alone as a suitable starting point for achieving the present aim of depleting the leukocyte content of a blood product.

5.3 It is common ground that, with respect to D6, the technical problem is the provision of an improved device for the depletion of the leukocyte content of blood.

5.4 The Board concedes that D6 does not explicitly disclose the pore diameter of the respective filter element. As is acknowledged in the patent in suit, however, formulae have been proposed to predict the average pore diameter by calculating the average distance between fibers from fiber diameter, bulk density, fiber density

(see page 19, lines 53 to 55). This approach appears to be used in D6 which indicates in example 8 that the average distance between two adjacent fibers in the successive filter elements, starting from the upstream prefilter, is 15.1 μm , 7.1 μm and 2.0 μm , respectively. Even if the average distance between two adjacent fibers is not an exact measure of the pore diameter, the respondent has not given a reason for dismissing the appellant's interpretation that the decreasing average distance of the fibers in the filters of D6 is an indirect expression of each successive element having a smaller pore diameter than that preceding it.

The Board therefore holds that the solution proposed in claim 1 is distinguished from the device according to D6 essentially in the stipulation of at least the second and third filter elements having been modified to a CWST of 55 dynes/cm to 80 dynes/cm.

- 5.5 The experimental results in the patent in suit demonstrate that the distinguishing feature contributes to solving the technical problem indicated in point 5.3. This is not in dispute. The only question is therefore whether the solution as stipulated in claim 1 is obvious in view of the available prior art.
- 5.6 The appellant has observed that D2 also relates to a filter medium for selectively removing leukocytes. The filter efficiency is increased by modifying the surface of the filter material with hydrophilic groups and a nitrogen-containing functional group (abstract and claim 1). The appellant has then asserted that it is therefore obvious for the skilled person to apply the teaching of D2 to solving the present technical problem.

It is undisputed that the modification according to D2 would automatically lead to filter material with a CWST value of at least 72 dynes/cm, which is the lowest value for "hydrophilic" filter materials. The appellant has, however, not contested the respondent's argument that D2 does not give an upper limit for the hydrophilic nature of the fibres or for the resulting CWST values. In fact, he has neither demonstrated that any one of the examples comprised in D2 is based on fibre media where the CWST value is in the range of from 72 to 80 dynes/cm nor challenged the respondent's statement that the fibres in D2 are modified to such an extent that the resulting CWST-values are well above 80 dynes/cm. The Board therefore concludes that D2 does not disclose or suggest a device comprising a filter element with a CWST of from 55 to 80 dynes/cm, let alone give a pointer in that direction as a solution to the present technical problem.

In contrast, claim 1 stipulates a selected range of values ranging from slightly hydrophobic with a CWST value of 55 dynes/cm to slightly hydrophilic fibres having a CWST value up to 80 dynes/cm as an essential feature for a filter device to effectively remove leukocytes from red blood cells. Since this selection is not suggested in D2 nor in any other citation belonging to the state of the art, the Board holds that the combination of features of claim 1 is not obvious.

The Board would not have come to a different conclusion, even if the filters described in D29 were taken into account as part of the prior art. Indeed, although D29 shows CWST values of the fibrous materials to be within the range as stipulated in claim 1, there is no indication as to the significance of these data. The report expressly states that it relates to the evaluation of CWST values only and does not cover any other filter characteristics (see page 7, last

paragraph). The influence of these critical CWST-values on the leukocyte depletion efficiency was, however, not known at the priority date of the patent in suit. Without the knowledge of the patent in suit, the skilled person thus did not have any reason for selectively combining this particular feature with the disclosure of D6 in order to solve the present technical problem.

6. The above findings with respect of claim 1 apply mutatis mutandis to the other independent claims for a device, claims 33 and 36, and to the independent method claim 50 which all stipulate the same new and inventive feature as claim 1, namely a filter element having been modified to a CWST of 55 dynes/cm to 80 dynes/cm.

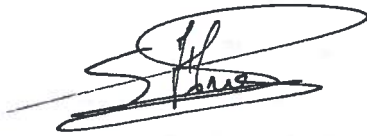
Claims 2 to 32, 48 and 49 are dependent claims relating to specific embodiments of the device according to claim 1. Likewise, claims 34 and 35 are dependent claims relating to specific embodiments of the device according to claim 33, and claims 37 to 47 dependent claims relating to specific embodiments of the device according to claim 36. The patent can therefore be maintained with these claims. From this, it follows that the auxiliary request submitted by the respondent need not be considered.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:



S. Hue

The Chairman:



R. Spangenberg

