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File Number: T 588/89 - 3.2.3  
Application No.: 85 900 237.0  
Publication No.: 0 164 391  
Title of invention: Heat Exchanger Plate

Classification: F28F 3/00

D E C I S I O N  
of 15 January 1992

Proprietor of the patent: ALFA-LAVAL THERMAL AB  
Opponent: W. Schmidt GmbH & Co. KG

Headword: Heat Exchanger Plate / ALFA-LAVAL

EPC Articles 56, 111, 114

Keyword: Examination by the EPO of its own motion - Relevant document  
introduced in appeal proceedings - Remittal to Opposition Division

Headnote



Case Number : T 588/89 - 3.2.3

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.3  
of 15 January 1992

**Appellant :**  
(Opponent)

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**Representative :**

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**Respondent :**  
(Proprietor of the patent)

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**Decision under appeal :**

Decision of Opposition Division of the European Patent Office dated 8 June 1989, posted on 20 July 1989 rejecting the opposition filed against European patent No. 0 164 391 pursuant to Article 102(2) EPC.

**Composition of the Board :**

**Chairman :** C.T. Wilson  
**Members :** H. Andrae  
J.-C. Saisset

## Summary of Facts and Submissions

- I. European patent No. 0 164 391 comprising six claims was granted on 22 July 1987 in respect of the subject-matter contained in European patent application No. 85 900 237.0 filed on 5 December 1984.
- II. A Notice of Opposition to the patent was filed on 14 April 1988 by the Appellant in the present case requesting that the patent be revoked on the ground of lack of inventive step (Article 100(a) EPC). The opposition was based on
- D1: SE-A-342 691;
  - D2: Pamphlet "Alfa-Flex" of ALFA-LAVAL, May 1975;
  - D3: Pamphlet "Plattenwärmetauscher" of ALFA-LAVAL, September 1981;
  - D4: Pamphlet "Plattenwärmetauscher Modell A15" of ALFA-LAVAL, April 1975.
- III. By its decision taken at the oral proceedings on 8 June 1989, issued in written form on 20 July 1989, the Opposition Division rejected the opposition on the ground that the documents cited in the opposition proceedings do not lead, either individually or in combination, to the teaching of Claim 1.
- IV. The Appellant (Opponent) filed an appeal against this decision on 8 September 1989, paying the appropriate fee at the same date. The written Statement setting out the Grounds of Appeal was received on 17 November 1989. Together with this Statement, the Appellant (Opponent) referred to and filed the further documents:
- D5: Pamphlet HISAKA, Thermal Technology, Hisaka Works Ltd. (without publication date);

D6: Die Molkerei-Zeitung Welt der Milch, 34. Jahrgang, 1980/16, pages 478 and 479.

- V. By telecopy of 23 March 1990, confirmed by letter received on 26 March 1990, the Respondent (Patentee) requested that he be given the opportunity to request oral proceedings should the Appeal Board anticipate giving a decision revoking the patent. He requested an award of costs in his favour in the event that it became necessary for the patent proprietor to lodge further evidence and/or to attend oral proceedings.
- VI. By letter received on 18 October 1990, the Appellant (Opponent) requested oral proceedings in the event that his main request was not complied with.

In reply to this letter, the Respondent (Patentee) filed observations received by telecopy of 6 March 1991, confirmed by letter of 7 March 1991.

- VII. On 4 October 1991, the Board issued a communication pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal in which reference was made to the document DE-A-2 109 346 cited in the search report as being of particular relevance to the subject-matter of Claim 1. According to the provisional opinion of the Board, this document appeared to disclose the nearest prior art to the subject-matter of Claim 1 and it seemed that this prior art in combination with the teaching disclosed in D2, sheet 6, Figures 10 and 11 would suggest to the skilled person the solution to the inherent problem of reducing the flow resistance in the secondary heat exchange parts, as claimed in granted Claim 1.

Both the Appellant (Opponent) and the Respondent (Patentee) filed observations received on 11 December 1991 and on 10 January 1992 respectively.

VIII. In the oral proceedings, held on 15 January 1992, the Appellant requested that the decision under appeal be set aside and that the European patent No. 0 164 391 be revoked.

The Respondent (Patentee) requested that the appeal be dismissed and that the patent be maintained as granted or that the case be referred back to the Opposition Division (main request). Auxiliarily, he requested that the patent be maintained on the basis of a combination of granted Claims 1 and 3 or granted Claims 1, 2 and 3. His request in respect of an award of costs (cf. point V. above) was withdrawn.

In the oral proceedings, the discussion concentrated on the procedural question of whether the request of the Respondent that the case should be referred back to the Opposition Division, if the appeal were not dismissed, should be complied with.

IX. Independent Claim 1 of the main request reads as follows:

"A heat exchanger plate having a central primary heat exchange part (1) located between two secondary heat exchange parts (2, 3), and four ports (4-7) located two in each secondary heat exchange part the two ports in each secondary heat exchange part being at the same distance from but on opposite sides of the centre line (M) of the heat exchanger plate extending through the primary and secondary heat exchange parts, - the primary heat exchange part (1) and the secondary heat exchange parts (2, 3) having corrugation ridges and valleys so arranged that

when the plate is positioned against another substantially similar plate turned through 180° relative to said plate, the ridges of the respective plates will intersect and rest against one another, and - in at least the secondary heat exchange parts (2, 3) the corrugation valleys on one side of the plate being of substantially the same volume as the corrugation valleys on the other side of the plate, characterized in that the plate is adapted to be sealed to another similar plate positioned thereagainst around a sealing line surrounding all the heat exchange parts (1-3) and two diagonally opposite parts (4, 6; 5, 7) of said plate, whereby to delimit a passage for flow of a heat exchange medium between the plates from one port (4, 7) to the diagonally oppositely positioned port (5, 6), - that in each of the two secondary heat exchange parts (2a, 3a; 2b, 3b), at least on one side of the said centre line (M) of the plate, the ridges and valleys extend at an angle to the centre line, - that ridges and valleys in the primary heat exchange part (1a; 1b) and each secondary heat exchange part (2a, 3a; 2b, 3b) extend at different angles to said centre line (M) of the plate, and - that the ridges and valleys form such angles with the centre line of the plate, that when the plate is positioned against another substantially similar plate turned through 180° relative to said plate, a plate interspace is formed having for the flow direction through the interspace a flow resistance per unit length which is lower over the whole areas of secondary heat exchange parts (2a, 3a; 2b, 3b) than is said resistance over the area of the primary heat exchange part (1a; 1b)."

Claim 1 is followed by dependent Claims 2 to 6 as granted.

- X. The arguments of the Appellant in support of his request can be summarised as follows:

The document DE-A-2 109 346 referred to in the communication of the Board as being of particular relevance to the subject-matter of Claim 1 has been in the patent granting proceedings from the very beginning since it is cited in the International Search Report. This document was, therefore, at the disposal of both the Examining Division and the Opposition Division. It did also not constitute a new fact for the Patentee. The decision T 273/84 of 21 March 1986 (OJ EPO 1986, 346) cited by the Respondent deals with a different situation in which the Opponent introduced a relevant document for the first time in the appeal proceedings. In the present case, however, the cited document was available to all parties already in the proceedings before the first instance so that remittal of the case to the Opposition Division for further prosecution is not justified.

XI. The Respondent put forward the following arguments:

The document DE-A-2 109 346 cited in the Search Report was not referred to either by the Examining Division or by the Opposition Division. Also the Opponent failed to mention this document during opposition proceedings although he had the opportunity to do so. According to the principle laid down in decision T 273/84, relevant documents introduced for the first time in appeal proceedings must be examined at two levels of jurisdiction to avoid one of these being by-passed. In the present case, the above-cited document has to be regarded as new material because it was referred to for the first time in the proceedings before the Board of Appeal. Its relevancy derives from the mere circumstance that it was cited in the communication of the Board. Otherwise it would not have been necessary to introduce the document into the proceedings. The Opposition Division should therefore be given the

opportunity to fully examine said document as to its relevance in respect of the invention.

### Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rules 1(1) and 64 EPC; it is admissible.
2. Amendments (main request)
  - 2.1 Claim 1 of the patent is based upon originally filed Claim 1. It incorporates the additional feature that the centre line (M) extends through the primary and secondary heat exchange parts. This feature has been disclosed in the originally filed documents, Figures 1, 2 and 6 in combination with the description, page 5, paragraphs 3 and 4, and page 9, paragraph 2. Furthermore, instead of the wording "ridges and intermediate valleys embossed in the plate" the term "corrugation ridges and valleys of the plate" have been chosen which in substance is equivalent.
  - 2.2 Claims 2 to 6 as granted are in substance identical with Claims 2 to 6 as originally filed.
  - 2.3 Claims 1 to 6 comply, therefore, with the requirement pursuant to Article 123(2) EPC.
3. As stipulated by Article 114(1) EPC, the European Patent Office, in proceedings before it, shall examine the facts of its own motion; it shall not be restricted in this examination to the facts, evidence and arguments provided by the parties and the relief sought.

In order to comply with this obligation, the Board considered it necessary to introduce the document DE-A-



2 109 346 into the proceedings. The prior art disclosed therein raises doubts as to the question of whether the subject-matter of granted Claim 1 involves an inventive step and thus as to the validity of the contested decision.

4. In the opinion of the Board, DE-A-2 109 346 reflects the closest prior art with regard to granted Claim 1. This document discloses besides the subject-matter of the precharacterising portion of Claim 1 the features that the heat exchange plate is adapted to be sealed to another similar plate positioned thereagainst around a sealing line surrounding all the heat exchange parts and two diagonally opposite ports of said plate, whereby to delimit a passage for flow of a heat exchange medium between the plates from one port to the diagonally oppositely positioned port, that in each of the two secondary heat exchange parts the ridges and valleys extend at an angle to the centre line and that ridges and valleys in the primary heat exchange part and each secondary heat exchange part extend at different angles to said centre line of the plate (cf. in particular Figures 5 to 8 with the corresponding description).

The subject-matter of Claim 1 differs from the disclosure of DE-A-2 109 346 in that the ridges and valleys form such angles with the centre line of the plate that when the plate is positioned against another substantially similar plate turned through 180° relative to said plate, a plate interspace is formed having for the flow direction through the interspace a flow resistance per unit length which is lower over the whole areas of secondary heat exchange parts than is said resistance over the area of the primary heat exchange part.

Confronted with the problem of reducing the flow resistance in a given part of a heat exchange plate of the type shown in DE-A-2 109 346, the person versed in the field of heat exchange plates is aware of the inter-relationship between the angular positioning of the ridges and valleys on the heat exchange plate with regard to the flow direction and the resistance to flow in the space formed by two adjacent plates (cf. D2, sheet 6, Figures 10 and 11, or the contested patent, Figures 4 and 5 with the corresponding description).

In his letter of 10 January 1992, filed by telecopy, subsequently to the communication of the Board dated 4 October 1991, the Respondent (Patentee) held that the document DE-A-2 109 346 provided no teaching whatsoever pertinent to the regions of the plate adjacent the inlet and outlet ports. This argument is questionable since the cited document discloses that ridges and valleys in the primary heat exchange part and each secondary heat exchange part extend at different angles to the plate centre line as outlined above.

5. The newly introduced closest prior art puts the maintenance of the patent, at least according to the claims as granted, at risk. Examination of the case as to patentability needs to be resumed taking account of the newly introduced document.

It is true that this document does not concern new material in the sense that it had not been known to the parties. However, due to the fact that this document was not considered to be of particular relevance in the substantive examination proceedings before the first instance, the Respondent (Patentee) was not induced to defend himself against this prior art. The present situation is thus comparable to that underlying the

decision T 273/84, insofar as the closest prior art had not been discussed in the proceedings before the first instance.

According to Article 111(1) EPC, in the decision on the appeal, the Board of Appeal may either exercise any power within the competence of the department which was responsible for the decision appealed or remit the case to that department for further prosecution. In the exercise of such discretion, the particular facts of the case to be decided have to be taken into account. In the present case, the newly introduced document reflects the closest prior art as outlined above which means that the examination as to patentability which includes a new definition of the objective problem has to be resumed on the new basis. A further viewpoint not to be ignored is that the newly introduced document could raise serious doubts as to the presence of an inventive step in the subject-matter of Claim 1.

In the Board's opinion, the Respondent (Patentee) would lose the opportunity of having an examination of the claimed subject-matter before two instances if the Board itself terminated examination as to patentability in the present state of proceedings, although in a similar situation (cf. decision T 273/84) the case was remitted to the Opposition Division for further examination.

For the reasons given above, the Board considers that in cases like this the interest of the Respondent (Patentee) in having an examination of his case before two instances has to be given priority over the interest of the Appellant (Opponent) in having short proceedings.

6. The Board must therefore set aside the decision of the first instance and avail itself of its power under

Article 111(1) EPC in order to refer the case back to the Opposition Division for further prosecution.

Order

For these reasons, it is decided that:

1. The impugned decision is set aside.
2. The case is referred back to the Opposition Division for consideration of the opposition to be resumed with particular attention being paid to the document DE-A-2 109 346 cited in the International Search Report.

The Registrar:

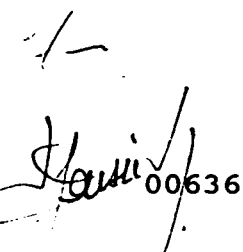


N. Maslin

The Chairman:



C.T. Wilson

  
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