

**Internal distribution code:**

- (A)  Publication in OJ  
(B)  To Chairmen and Members  
(C)  To Chairmen  
(D)  No distribution

**Datasheet for the decision  
of 11 March 2011**

**Case Number:** T 0854/09 - 3.2.04

**Application Number:** 00302512.9

**Publication Number:** 1041288

**IPC:** F04D 19/04

**Language of the proceedings:** EN

**Title of invention:**

Magnetic bearing device and a vacuum pump equipped with the same

**Patentee:**

Edwards Japan Limited

**Opponent:**

Pfeiffer Vacuum GmbH  
LEVITEC GmbH/Lust Antriebstechnik GmbH

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 56, 104(1), 113(1), 116

**Relevant legal provisions (EPC 1973):**

-

**Keyword:**

"Inventive step (yes) (second auxiliary request)"  
"Apportionment of costs (yes)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0854/09 - 3.2.04

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.04**  
**of 11 March 2011**

**Appellant:** Edwards Japan Limited  
(Patent Proprietor) 1078-1, Yoshihashi  
Yachiyo-shi  
Chiba (JP)

**Representative:** Cloughley, P.A.  
Miller Sturt Kenyon  
9 John Street  
London WC1N 2ES (GB)

**Respondent:** Pfeiffer Vacuum GmbH  
(Opponent 0I) Berliner Straße 43  
D-35614 Asslar (DE)

**Representative:** Knepfel, Cordula  
Patentanwältin  
Postfach 1924  
D-35529 Wetzlar (DE)

**Respondent:** LEVITEC GmbH/Lust Antriebstechnik GmbH  
(Opponent 0II) Georg-Ohm-Straße 11/Gewerbestraße 5-9  
D-35633 Lahnau/-Waldgirmes (DE)

**Representative:** Schubert, Siegmar  
Patentanwälte  
Dannenbergschubert Gudel  
Große Eschenheimer Straße 39  
D-60313 Frankfurt (DE)

**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted 9 February 2009  
revoking European patent No. 1041288 pursuant  
to Article 101(3)(b) EPC.**

**Composition of the Board:**

**Chairman:** M. Ceyte  
**Members:** A. de Vries  
C. Heath

## Summary of Facts and Submissions

I. On 8 April 2009 the Appellant (Proprietor) lodged an appeal against the Opposition Division's decision of 9 February 2009 to revoke European patent nr. 1 041 288 and simultaneously paid the prescribed appeal fee. The grounds of appeal were filed on 19 June 2009.

Two oppositions had been filed against the patent. Both were filed against the patent as a whole and based on Article 100(a) EPC in combination with Article 56 for lack of inventive step.

The Opposition Division held that this ground prejudiced maintenance of the patent in view of the following documents among others:

- E2: "Magnetically Levitated Turbomolecular Pumps : High Throughput Serie", Advertising Brochure, Seiko Seiki Co Ltd;
- E5: W.Ebert: "Magnetic Bearings", Proceedings of the First International Symposium ETH Zurich, CH, June 6-8, 1988
- E9: JP-A-58 058853
- E10: JP-A-03 093446
- E13: EP-A-0 694 699
- E14: DE-A-195 35 585
- Alb: K.Blumenstock et al.: "A Spaceflight Magnetic Bearing Equipped Optical Chopper with Six-Axis Active Control", Proceedings of the Sixth International Symposium on Magnetic Bearings, August 1988, Massachusetts Institute of Technology, Cambridge, USA, 1988, 95-105

A2: P.Allaire et al.: "Design, Construction and Test of Magnetic Bearings in an Industrial Canned Motor Pump", Proceedings of the Sixth International Pump Users Symposium, 1989, 65-73.

The Opposition also decided to apportion 50% of the costs of the Opponents to the Proprietor.

II. The Appellant (Proprietor) requests that the decision under appeal be set aside and the patent be maintained in amended form according to a main request, or one of the auxiliary requests 1 to 7, all filed with the grounds of appeal. He also requests that the decision to apportion costs be set aside.

The Respondents (Opponents I and II) both request that the appeal be dismissed. They also request the apportionment of 50% of the costs they incurred due to second oral proceedings before the first instance.

III. Oral proceedings before the Board were duly held on 11 March 2011.

IV. The wording of the independent claims 1 and 7 of the main request of the first and second auxiliary requests is as follows:

**Main request**

1. "A vacuum pump magnetic bearing device having magnetic bearings including an active radial magnetic bearing and rotatably supporting a rotor shaft that is driven and rotated by a motor having a stator coil comprising:

an electromagnet unit (30) having an electromagnet (31) of the active radial magnetic bearing and a displacement sensor (32) for the electromagnet, axially spaced apart from said electromagnet, which are attached to a single circular holding member (30c) and then coated and molded with the use of a resin mold; and  
a stator coil unit (20) in which the stator coil is attached to a circular holding member and then coated and molded with the use of a resin mold (20d); wherein the electromagnet unit (30) and the stator coil unit (20) are engaged to a cylindrical stator column in the order stated."

7. "A method of manufacturing a vacuum pump magnetic bearing device comprising the steps of:  
attaching an electromagnet and a displacement sensor for the electromagnet, axially spaced apart from said electromagnet, to a single circular holding member to form an electromagnet unit and then coating and molding the electromagnet unit with a resin;  
attaching a stator coil to a circular holding member to form a stator coil unit and then coating and molding the stator coil unit with a resin; and  
engaging the electromagnet unit and the stator coil unit in a cylindrical stator column."

**Auxiliary Request 1**

Claim 1 is as in the main request but inserts the following feature before the final feature:  
" the resin molds are configured such that magnetic cores of the electromagnet, the displacement sensor and

the stator coil are superficially exposed at an inner circumferential surface; and".

Claim 7 is amended with respect to claim 7 of the main request to read (emphasis added by the Board to indicate inserted text):

"A method of manufacturing a vacuum pump magnetic bearing device comprising the steps of:  
attaching an electromagnet and a displacement sensor for the electromagnet, axially spaced apart from said electromagnet, to a single circular holding member to form an electromagnet unit and then coating and molding the electromagnet unit with a resin *such that magnetic cores of the electromagnet and the displacement sensor are superficially exposed at an inner circumferential surface;*  
attaching a stator coil to a circular holding member to form a stator coil unit and then coating and molding the stator coil unit with a resin *such that a magnetic core of the stator coil is superficially exposed at an inner circumferential surface; and*  
engaging the electromagnet unit and the stator coil unit in a cylindrical stator column *in the order stated.*"

#### **Auxiliary Request 2**

Claim 1 adds at the end of claim 1 of the auxiliary request 1 the following feature:

"and the thickness in the axial direction of a molded resin mold is slightly thinner than the thickness in the axial direction of a respective circular holding member."

Claim 6 is as claim 7 of the auxiliary request 1 but adds at its end the following feature:

", the electromagnet unit and the stator unit being coated and molded with a resin such that the thickness in the axial direction of a molded resin mold is slightly thinner than the thickness in the axial direction of a respective circular holding member."

V. The Appellant argued as follows:

Limiting the bearings to a vacuum pump magnetic bearing device is supported for example by the opening paragraph of the patent specification. A magnetic bearing device of a vacuum pump is fundamentally different from the cited prior art magnetic bearings as they operate at higher rotation speed, have a different rotor shape and smaller gap between rotor and stator. In a vacuum pump the resin moulding insulates and protects against the corrosive environment in which the pump operates, while giving it structural integrity and, importantly, maintaining axial alignment of its components.

Alb, A2, E5 all pertain to different applications of magnetic bearings. They do not show any form of moulding, nor in fact do they disclose a modular design as in the patent. E14 shows linear field bearings with a U-shaped cross-section that cannot be applied to a vacuum bearing device with rotor-stator arrangement.

Finally, the vacuum pump of E13 has a single moulding but no modular design.

The skilled person is an engineer designing vacuum pumps but with only limited knowledge of magnetic bearings in general. He would never consider sacrificing the known benefits of moulding after assembly in a vacuum pump such as that of E2 to adopt a modular design.

The prior art also does not show superficial exposure of the coil in combination with separate units in a vacuum pump as in claim 1 of the first auxiliary request. Further pertinent E9 and E10 relate to simple electromotors without any form of modularity.

Claim 1 of the second auxiliary request is sufficiently clear to the skilled person. The added feature allows the mould to expand into the gap between modules rather than radially inward. None of the prior art teaches this measure. E9 is not concerned with thermal expansion problems; the projecting stator wall merely results from a manufacturing method designed to allow manufacture of different mould shapes. In E10, which pertains to motors, the mould and surrounding frame are flush.

Turning to the question of apportionment of costs, there was no abuse of procedure or intent to abuse the procedure. The amendments were made to the first request at the first oral proceedings in response to the discussion. When filed there had still been sufficient time to deal with this and the further requests. It was the division's decision to nevertheless adjourn.



VI. The Respondent-Opponent I argued as follows:

The main features of claim 1 are directed at a magnetic bearing. That these are provided in a vacuum pump does not limit the skilled person to that field. Rather he will have knowledge of any document relating to magnetic bearings.

E2, the closest prior art, shows a vacuum pump magnetic bearing device with spacer sleeves between the electromagnet and stator coil units. The only difference resides in the separate moulding of the units. The magnetic bearing of E14, which can also be a rotational bearing, is also moulded and a similar feature can be inferred from the photo in figure 4 of E5. E5 shows that alignment remains possible with a modular design.

Various documents also show superficial core exposure (auxiliary request 1), see E9, E10, E13 or E14 inter alia.

Similarly, giving the mould a slightly thinner axial dimension than the circular member - a formulation which is not very clear - is a trivial measure for the average skilled person.

By adding in the first opposition oral proceedings a feature from the description to the first auxiliary request it first became necessary to carry out a further search. This was why the division adjourned.

VII. The Respondent-Opponent II added the following arguments:

The prior art cited in the specification is also not limited to vacuum pump magnetic bearings and clearly the technical field should not be limited to vacuum pumps, but the wider field of magnetic bearings. Therefore the skilled person would consider Alb, which, from its title alone, is concerned with magnetic bearings in general. Alb is a specific vacuum application which is clearly modular. As for moulding, this does not contribute to the alignment of the components; that is determined by the surrounding support.

E9 and E10 show that it is a standard moulding technique to leave the cores and coils exposed as in auxiliary request 1. It is equally routine not to mould flush with the circular member (auxiliary request 2), much as one avoids filling a container right to the top. The stator-rotor gap must be kept free, also during operation and it is then obvious to give the mould axial space to expand.

## Reasons for the Decision

1. The appeal is admissible.
2. *Background & Claim Interpretation*
  - 2.1 The patent concerns magnetic bearing devices with active magnetic bearings and a stator arranged in a stator column that supports a rotor. The main idea of the patent is essentially that the bearing device is formed from pre-assembled, pre-moulded electromagnetic and stator units, which have been inserted into the stator column. Vis-à-vis the prior art, where all components are first press-fitted into the stator column and then resin moulded, such a modular design is simpler to manufacture and is not as wasteful as only the relevant unit - and not the whole device- need be discarded if defective, specification paragraphs [0005],[0020] and [0021]. Claims are to the resultant device, and to the method of manufacture. These have now been limited to vacuum pump magnetic bearing devices.
  - 2.2 In the independent claims this modular design concept is expressed in the requirement that the components of the units - an electromagnet with associated sensor for the electromagnet unit and a stator coil for the stator coil unit - are "mounted on a [respective] circular ... member and then coated and molded with ... a resin mold", with the units then "engaged to a cylindrical stator column in the order stated". This formulation - which is fully clear in the context of the method of manufacture of the device, is less so when used to define the device itself. Nevertheless, in particular

when reading the claims together and in context, it is sufficiently clear to identify the bearing and stator units as *separate, individually resin-moulded units or modules*. The Board adds that the term "circular member" refers to what in the embodiments is in fact a *cylindrical member*, designated at 20c, 30c, 40c for the respective units in the partial sectional views of figures 2 and 3.

3. *Main Request, Auxiliary Requests 1: Lack of Inventive Step*

3.1 It is undisputed that E2 discloses the prior art. This document, entitled "magnetically levitated turbomolecular pumps", relates to a vacuum pump with magnetic bearings. The general design is shown in the top figure of page 4, and includes among other features a rotor with shaft rotatably supported by radial active magnetic bearings in the form of a *radial electromagnet* positioned at either end of what is clearly a *cylindrical stator column*. The electromagnets are each associated with an axially spaced *radial sensor* sensing radial displacement; together they can be said to constitute functional units. A *stator coil* is located between the two radial electromagnets and forms part of an electromotor driving rotation of the rotor.

3.2 The vacuum pump magnetic bearing device of claim 1 of the main request differs from this known device in the features indicated above in section 2.2 as defining the main concept of modularity, with the units as *separate, individually resin-moulded modules*.

Though it is true that functionally separate units can be identified in the top figure on page 4 of E2, it is insufficiently detailed for the Board to conclude with certainty that these are also structurally separate units. What appear to be spacers in the drawing between the functional units does not necessarily mean that the units are not in some way structurally integrated into a single body, for example by the acknowledged prior art technique of resin moulding after assembly. E2 in fact does not mention resin moulding, but it is clear from the above that the figure is open to interpretation. Consequently, E2 does not directly and unambiguously disclose separate, resin-moulded modules.

- 3.3 A modular design offers well-known advantages for manufacture and maintenance as outlined for example in specification paragraph [0005]. Manufacture is easier and more efficient with modules, which can be replaced if defective.

The benefits of resin moulding are not expressly mentioned in the patent specification, but are readily apparent to the skilled person: the mould insulates the electrical components and protects them from the environment while also supporting them and providing structural integrity.

The two measures and their effects are not inherently linked and can essentially be considered separately when assessing inventive step, following well-established practice.

- 3.4 The partial objective technical problems can be formulated for each difference as follows: for the

modular design of the device it is *how to adapt the design such that it allows for simpler and less costly manufacture, reduced wastage and easier maintenance.*

The use of resin on the other hand addresses the problem of *how to protect and insulate various components of the bearing device while giving them structural integrity within the device.*

- 3.5 Modularity is known in connection with magnetic bearing devices, with Alb, see page 98, A2, in figures 5, 9 and 10, and E14, see abstract and figure 1, each offering examples of modules. Though these documents refer to different fields of application (optical choppers, canned pumps) or do not mention any particular application (E14), the skilled person will be familiar with their content. Here the relevant skilled person is a mechanical engineer involved in the design of vacuum pumps that feature magnetic bearings as a central component. He therefore takes a particular interest in magnetic bearings and will follow developments in that wider field that may be of use in vacuum pumps.

Alb will be of particular interest to him as it shows a bearing device, albeit in an optical chopper, which has a layout that is similar to that of a vacuum pump such as in E2. That layout is basically modular with individual "magnetic bearing modules", see figure 1, identified in the text on page 98 as "front" and a "rear radial magnetic bearing module[s]", as well as a separate stator motor assembly. Each bearing module has an integrated optical sensor disk. These parts are clamped in place by means of end caps, which when removed allow them to be "slid out of the front of the

housing as a unit", bottom lines on page 98. This is understood in context as meaning that when unclamped these parts can be removed *as one* or *together* (as opposed to separate disassembly of each part), not that they permanently form a unit, which would defeat the purpose of the use of modules.

3.5.1 It stands to reason that the skilled person, whose constant concerns are cost and complexity of manufacture and subsequent maintenance, will recognize in the principle of modularity underlying Alb the inherent benefits for manufacture and maintenance of a vacuum pump bearing device as in E2. He will therefore as a matter of obviousness adopt such a design for a pump as in E2, realizing the bearings and stator as structurally separate modules, that can be easily inserted and removed at will.

3.5.2 Alb provides little detail of the modules per se. However, their placement in the cylindrical space within the stator column dictates a cylindrical design. As each module per definition forms a self-contained unit, the skilled person will house it accordingly within a cylindrical housing that fits easily within the stator column.

Alternatively, he will draw on examples of existing magnetic bearing modules known to him from A2 or E14. The bearing modules in the photos of figures 5 and 10 of A2 are cylindrical, while a cylindrically housed bearing module can also be inferred from lines 40 to 43 of column 1 in conjunction with figure 1 of E14.

- 3.5.3 In conclusion, the features of claim 1 pertaining to modular design lack inventive step.
- 3.6 Resin moulding is conventionally employed in the field of electronics, including in magnetic bearing devices, and, more particularly, in vacuum pumps magnetic bearing devices, to protect and insulate vulnerable components and give them structural integrity. The patent acknowledges as much in its description of the prior art, see specification paragraph [0004] and also the Appellant's submissions in the grounds of appeal, point 18. E13 provides confirmation for vacuum pumps, see the abstract, and column 1, lines 50. That the skilled person would therefore routinely resin mould the components in a stator column of a vacuum pump magnetic bearing device such as that of E2 behoves no further comment. This feature is thus per se without inventive merit.

The only point to consider is how the skilled person might realize resin moulding in a device as in E2 but with a modular design. It makes no sense for him to resin mould once the modules are in place, as any benefits a modular design offer would then be lost. It will be immediately clear to him that the only sensible option is to resin mould the individual modules. Alternatively, should he draw on E14 for the general design of an individual module, that document also teaches resin moulding of its components, see column 1, lines 29 to 31 ("Vergießen mit Kunststoff").

- 3.7 The Appellant has argued that the skilled person would be disinclined to combine a modular design with resin moulding as this would compromise the protection



offered by a resin moulding against a corrosive environment. No evidence has been put forward in this regard, nor is the Board able to see how this might be so. In turbo-pumps corrosion is mainly due to leakage into the gap between rotor and stator at the point where the rotor shaft enters the stator column and it is in the gap that components are most exposed and liable to corrode. This remains so whether or not the stator column is formed of modules. Leakage from between modules within the stator column into the gap is highly unlikely. Nor does the fact that the resin is not continuous throughout the stator column mean that the components in the modules are more at risk: what matters is that they are encapsulated in resin and that is also the case for modules with resin moulding.

3.8 Summarizing, the skilled person as a matter of obviousness adopts a modular design as in Alb in order to facilitate manufacture and maintenance of a vacuum pump magnetic bearing device such as that of E2. The modules will obviously be cylindrical, with a cylindrical housing, to accommodate them within the cylindrical stator column. To protect, insulate and support the electrical components he will resin mould them as is conventional, but within their modules, as it would not make sense to do otherwise. He so arrives at the subject-matter of claim 1 of the main request in obvious manner. The Board concludes that the subject-matter of claim 1 of the main request lacks inventive step, Article 52(1) with Article 56 EPC.

3.9 The Board adds that it arrives at the same conclusion for further independent claims 2 and 7. Claim 2 basically adds a further, second radial magnetic

bearing, a feature also present in E2, see the top figure on page 4. Claim 7 to the manufacturing method sets out the steps of assembling the device of claim 1 as necessarily follow from its modular design.

- 3.10 The *first auxiliary request* adds to claim 1 and claim 7 the feature that the cores and coils are superficially exposed at an inner circumferential area, taken to mean at the gap between rotor and stator. The patent itself, in specification paragraph [0004], lines 13 to 17, describes this as conventional in existing magnetic bearing devices, and the Board has not been given any reason why this should be less so if the device were modified to have a modular design. In view of the fact that the electromagnetic field is highly sensitive to the gap at the coils respectively cores and that a magnetic bearing device is a precision device it will in any case be immediately evident to the skilled person that he should keep the gap small and clear of resin. This is also what E14 teaches for its bearing module, see figure 1. The Board thus finds that the subject-matter of claim 1 of the first auxiliary request also lacks an inventive step, Articles 52(1) and 56 EPC.

#### 4. *2nd Auxiliary Request*

- 4.1 With respect to claim 1 as granted claim 1 of the 2nd auxiliary request specifies that the device is a *vacuum pump* magnetic bearing device and adds the features of superficial exposure (see above) and the axial thickness of the resin mould being slightly thinner than that of the circular member. That the patent has been concerned from the outset with bearing

devices for vacuum pumps in particular is evident from the opening paragraph of the application as filed, or claims 5 and 6 as filed. Superficial exposure of the coils and cores is mentioned in paragraph [0017] and [0018] of the A publication. The final feature corresponds verbatim to the features of dependent claim 3 as filed.

Method claim 6 is amended in like manner with respect to granted claim 7.

The remaining claims remain unchanged, while the description is merely brought in line with the new claims.

The Board is satisfied that these amendments do not add subject-matter. It is also evident that they do not extend the scope of protection so that all requirements of Article 123 EPC are met.

- 4.2 The Board adds that the incorporation into the independent claims of the features of granted claim 3 is also not objectionable for lack of clarity. According to established case law Article 101(3)(a) EPC allows Article 84 EPC to be invoked only if a lack of clarity arises from an amendment per se, but not if it applies already against the granted patent as would be the case here. This feature is understood in the light of specification paragraph [0024] and figure 3 as referring to the small clearance  $\delta$  at the end of the circular member due to the longer axial dimension of member with respect to mould.

- 4.3 That the subject-matter of claims 1 and 6 is novel is undisputed. All parties moreover agree that the final feature of claims 1 and 6 of the relative axial "thickness" of mould and member distinguishes the claimed invention over the closest prior art of E2.
- 4.3.1 As explained in specification paragraph [0024] this feature provides space between modules in the assembled magnetic bearing device for thermal expansion of the resin when it heats up during operation. This prevents it from expanding radially into the rotor-stator gap where it could cause damage or otherwise compromise operation. The associated objective technical problem can be formulated accordingly as *how to reduce the effects of thermal expansion in a vacuum pump magnetic bearing device such as that of E2*.
- 4.3.2 Though both E9 and E10 show axial clearance between resin and outer housing nothing in these documents suggests that the feature is in some way linked to thermal expansion of the resin. Both documents are in fact silent as to the exact significance of this feature.
- 4.3.3 Nor is there anything to suggest that this measure might form part of the relevant skilled person's common general knowledge. It cannot be equated with filling a container to just under the rim which serves the completely different purpose of avoiding liquid spilling from the top of the container.
- 4.3.4 The Board concludes that the subject-matter of claims 1 and 6 involves an inventive step.

4.3.5 Taking into consideration the amendments made to the patent according to the 2nd auxiliary request the Board finds that the patent and the invention to which it relates meet the requirements of the European Patent Convention, Article 101(3)(a) EPC. The patent can therefore be maintained as amended according to this request.

5. *Apportionment of costs*

5.1 The Appellant-Proprietor also appeals the Opposition Division's decision to apportion 50% of either Opponent's costs to the Proprietor under Article 104(1) EPC. The Division held, see point 56 of the decision, that this was justified as the Proprietor had filed a new request based on material from the description towards the end of oral proceedings, and this necessitated adjournment to allow the opponents to react and also to deal with the remaining requests.

5.2 By invoking its statutory right to oral proceedings, Article 116 EPC, a party can ensure that it is heard before any decision adverse to it is taken, Article 113(1) EPC. Oral proceedings thus provide a final opportunity to be heard and, with the pronouncement of the decision, will normally conclude the procedure. With this general purpose of oral proceedings in mind, parties should conduct themselves accordingly. Their actions should therefore not intentionally or irresponsibly jeopardize the taking of a decision at the oral proceedings.

5.3 In the present case the Appellant-Proprietor submitted new main and auxiliary requests at the beginning of the

first oral proceedings held 3 July 2007 and in the course thereof amended the first auxiliary request several times, see points 1, 9, 16 and 17 of the minutes (notification of 17 July 2007). As a direct consequence of the Proprietor's filing of new requests and repeated amendment of the first auxiliary request during the oral proceedings, where further requests still needed discussion, the case could not be concluded at the first oral proceedings and a further oral proceedings became necessary. It is certainly true that the division could have used its discretion under Rule 116 EPC not to admit such a late filed request based on material from the description to ensure timely conclusion of the case, but failed to do so. Nevertheless, responsibility for filing amended requests so late ultimately lies with the Proprietor, who is taking a calculated risk.

Nor is it apparent to the Board from the file that the late filing might somehow have been justified by points newly raised by the Division or the Opponents during the oral proceedings. It was the Proprietor himself who at the oral proceedings first mentioned the feature in question - superficial exposure - and its significance, see point 14, third paragraph, of the minutes.

- 5.4 As the adjournment was primarily the result of the late filing of the new first auxiliary request, though it need not have been admitted, the Board finds it equitable to apportion part of the ensuing costs to the Proprietor as foreseen in Article 104(1) EPC. The Board therefore confirms the Opposition Division's decision to apportion 50% of Opponents' costs to the Proprietor. The costs concerned are those reasonably incurred by

either Opponent in connection with the second oral proceedings, that is the expenses of a single representative for each Opponent preparing for and attending the second proceedings, including travel and accommodation.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent as amended in the following version:

Claims: 1-6 according to the second auxiliary request filed with the grounds of appeal

Description: Columns 1-4 and 7-8 as filed during the oral proceedings before the Board  
Columns 5-6 of the patent specification

Drawings: Figures 1-6 of the patent specification.

3. The Appellant shall bear 50% of the costs incurred by both respondents for the preparation, travel, accommodation and attendance of one representative each in respect of the second oral proceedings in opposition.

The Registrar:

The Chairman:

G. Magouliotis

M. Ceyte