BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [ ] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 5 March 2010

Case Number: T 0753/09 - 3.4.03

Application Number: 03013031.4

Publication Number: 1411566

IPC: H01M 2/24

Language of the proceedings: EN

Title of invention:
Sealing ring to be aplied to connection holes of the cells of an accumulator

Patentee:
Stocchiero, Franco

Opponent:
ACCUMA S.p.A.

Headword:
-

Relevant legal provisions:
EPC Art. 117(1)(e)
RPBA Art. 13(1)

Relevant legal provisions (EPC 1973):
EPC Art. 54, 56

Keyword:
"Novelty main and auxiliary request I (denied)"
"Inventive step auxiliary request II (denied)"
"Expert opinion (not admitted)"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0753/09 **-** 3.4.03

D E C I S I O N
of the Technical Board of Appeal 3.4.03
of 5 March 2010

Appellant: (Opponent)
ACCUMA S.p.A
Via Eustachi, 46
I-20129 Milano (IT)

Representative:
Modiano, Micaela Nadia
Dr. Modiano & Associati SpA
Via Meravigli 16
I-20123 Milano (IT)

Respondent: (Patent Proprietor)
Stocchiero, Franco
Via G. Zanella 34/a
I-36050 Montorso Vicentino (IT)

Representative:
Grünecker, Kinkeldey
Stockmair & Schwanhäusser
Anwaltssozietät
Leopoldstrasse 4
D-80802 München (DE)

Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 26 January 2009 concerning maintenance of European patent No. 1411566 in amended form.

Composition of the Board:

Chairman: G. Eliasson
Members: V. L. P. Frank
T. Bokor

Summary of Facts and Submissions

I. This is an appeal by the opponent against the interlocutory decision of the opposition division to maintain the patent EP 1 411 566 as amended during the opposition procedure (Article 101(3)(a) EPC).

The patent was opposed in its totality. Grounds of opposition were lack of novelty and inventive step and unallowable extension of the subject-matter of the patent (Articles 100(a) and (c), 54 and 56 EPC 1973).

On appeal only the objections of lack of novelty and inventive step were pursued.

II. At oral proceedings before the board, the appellant opponent requested that the decision under appeal be set aside and that the patent be revoked.

The respondent proprietor requested that the appeal be dismissed (main request) or, in the alternative, that the decision under appeal be set aside and the patent be maintained in amended form according to auxiliary requests I or II filed with letter of 20 October 2009.

III. The independent patent claim 1 maintained by the opposition division and defended by the respondent proprietor on appeal as main request reads:

"1. Sealing ring (1, 100, 101) to be applied to frusto-conical connection holes (5) of the divider walls (P) of an accumulator (A), said ring comprising a plate (2, 2a) equipped with a through hole (3, 31) axially to which is arranged the base

(7) of a sheath (4, 4a, 4b) suitable for coupling in said connection hole (5),
characterized in that the outer surface (41) of said sheath (4a, 4b) is substantially frusto-conical so as to substantially match the profile of the hole (5); and in that the taper of said frusto-conical sheath diverges moving away from said plate (2, 2a)."

In claim 1 of auxiliary request I the following feature was appended to claim 1 of the main request:

"and in that said sheath (4, 4a, 4b) has a length equal or less than the thickness of the divider wall (P) of said accumulator (A)."

Claim 1 of auxiliary request II reads as follows:

"1. Container (B) for an accumulator (A), said container (B) comprising a plurality of vertical divider walls (P) defining cells (L), said container (B) further comprising one or more sealing rings (1, 100, 101) each applied to frusto-conical connection holes (5) of the divider walls (P) of said container (B), said one or more sealing rings comprising a plate (2, 2a) equipped with a through hole (3, 31) axially to which is arranged the base (7) of a sheath (4, 4a, 4b) suitable for coupling in said connection hole (5), characterized in that the outer surface (41) of said sheath (4a, 4b) is substantially frusto-conical so as to substantially match the profile of the hole (5); and in that the taper of said frusto-conical sheath diverges moving away from

said plate (2, 2a) and in that said sheath (4, 4a, 4b) has a length equal or less than the thickness of the divider wall (P) of said container (B)."

IV. The following prior art documents are cited in this decision:

E1: GB 0 460 656 A

E2: FR 2 032 096 A

E8: US 4 231 631 A

E10: DE 1 856 569 U

With letter dated 4 December 2009 the appellant opponent submitted a declaration signed by Mr G. on the disclosure of documents E1 and E2.

V. In the decision under appeal, the opposition division found that:

- Document El did not disclose a sealing ring *per se* with a sheath having a frusto-conical outer surface. The drawings of figures 9 and 10 were unclear and contradicted the corresponding passages of the description.

- Document E2 disclosed electrical connections between plates of electric accumulators with cylindrical or frusto-conical connection holes, wherein the sealing ring comprised a sheath having shoulders at the end of said sheath so as to cover both sides of the hole. To allow a good insertion of the ring into the

corresponding hole, the sealing ring described in E2 was made of rubber or an elastic material. However, E2 did not disclose a sealing ring *per se* having a sheath with a frusto-conical outer surface wherein the taper of said sheath diverged moving away from the plate of the ring.

– The problem addressed by the present invention was regarded as providing a sealing ring which could be stably coupled with the connection holes of the divider walls of an accumulator and which could not be easily detached from it during the battery manufacturing process, while also ensuring tightness and allowing a better dissipation of heat developed during the welding of the rods connecting the different cells through the connection holes.

– According to E2, the issue of avoiding the detachment of the ring was addressed by providing the ring with two flanges on both sides of the connection hole. There were no incentives in the prior art to modify the known sealing rings so as to obtain the ones according to the present invention.

VI. The appellant opponent argued essentially as follows:

– Document E10 was filed together with the statement of grounds of appeal and should be admitted into the proceedings, as it was relevant for assessing the novelty of the claimed sealing ring.

– The declaration of Mr G. was submitted to show how the person skilled in the art would interpret the disclosures of documents E1 and E2.

– The features of claim 1 of the main request and of auxiliary request I defining the shape and/or the dimension of the sealing ring by reference to the accumulator's divider wall should be disregarded when construing the claim, as the divider wall was neither part of the claimed subject-matter nor did it have standardized dimensions.

– Document E2 disclosed a container for an accumulator with a sealing ring applied to a connection hole of a divider wall. The only difference with the container according to claim 1 of the auxiliary request II was the frusto-conical shape of the ring's outer surface, as the claim did not restrict the sealing ring to comprise only a single plate. The ring's frusto-conical shape matched the shape of the hole and served thus to improve the tightness of the seal. This modification was straightforward for a skilled person.

VII. The respondent proprietor argued essentially as follows:

– Document E10 and the declaration of Mr G. were belated and should not be admitted into the proceedings. The appellant opponent was aware of the existence of E10 from the running Italian infringement proceedings even before the date of the oral proceedings in front of the opposition division. If this document was relevant for assessing the novelty of the sealing ring of claim 1 of the main request, then the opponent should have introduced it during the opposition proceedings. However, this document was in reality completely irrelevant, as it

did not relate to sealing rings for accumulators and did not address the problems encountered in an accumulator, eg the heat produced during the welding of the connection bars, the requirement for an absolute tightness of the cells and the acid environment. E10 addressed instead the issue of how to avoid damaging the insulator of electric cables when passing through openings in electrical casings, a completely different technical field.

– The background of Mr G., an alleged skilled person in the art, was left completely in the dark. He was not an independent expert, but one appointed by a party to the proceedings. From the fact that he only had signed the Italian declaration, but not the English translation, it could be deduced that he lacked sufficient language skills for understanding the translation. It was thus doubtful if he really had understood document E1, an English patent application, or document E2, a French patent application. The respondent proprietor requested, in case the board would admit the declaration of Mr G. into the proceedings, that the board of appeal appoint an independent expert to produce an affidavit on the teachings of E1 and E2 or, alternatively, that the respondent proprietor be given the opportunity to file a corresponding affidavit.

– The sealing ring of document E10 was not suitable for being used in an accumulator, as it was not designed to resist the heat produced while welding the connection rods. It was, moreover, not designed for a liquid environment and was at the most

suitable for sealing against humidity. The sealing ring according to claim 1 of the main request or auxiliary request I was thus new over the disclosure of document E10.

– The sealing ring according to the invention was kept in place by the sheath's outer surface matching the frusto-conical shape of the connection hole. Thus a second plate (shoulder or flange), as used in document E2, was not required for keeping the seal in place. This permitted the accumulator's electrodes to extend up to the divider wall, as no space for a second sealing plate was necessary. Document E2 only disclosed sealing rings with a cylindrical outer surface and there were no incentives for modifying these rings. The sealing ring according to the opposed patent provided a new and inventive solution to the issue of maintaining the seal in place prior to the welding of the connection rods.

Reasons for the Decision

1. The appeal is admissible.

2. *Admission of document E10 into the proceedings*

2.1 Document E10 was submitted by the appellant opponent with the statement of grounds of appeal, ie at the earliest possible moment of the appeal proceedings. According to the appellant, this document was introduced in response to the argument of the opposition division that *"none of the documents E1-E9*

*discloses a sealing ring **per se** having the characteristics of the claimed invention"*. Document E10 was furthermore relevant for assessing the novelty of the sealing ring of claim 1, as several features mentioned in the claim did not refer to the sealing ring, but to the container of the accumulator.

2.2 The respondent proprietor argued that document E10 was belated, as the appellant opponent was aware of this document from the pending infringement proceedings brought forward in Italy as from 21 July 2008. Document E10 should therefore have been introduced at the oral proceedings before the opposition division which took place on 17 December 2008. Moreover, this document did not relate to accumulators and to the specific problems encountered therein.

2.3 When exercising the discretion to admit new evidence the boards weigh *inter alia* the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy (Article 13(1) RPBA). The board is, moreover, not persuaded by the respondent's argument that a party has an obligation to submit all possibly relevant documents as soon as they become known to it, since doing so unnecessarily encumbers the proceedings. It is an important aspect of the proceedings that they be carried out as expeditiously as it can reasonably be expected.

2.4 As document E10 does not introduce any complex subject-matter which the parties or the board could not reasonably be expected to deal with at the start of the

proceedings, the board decides to admit document E10 into the proceedings.

3. *Admission of the declaration of Mr G. into the proceedings*

3.1 The declaration of Mr G. was filed by the appellant opponent as a response to the summons to oral proceedings issued by the board, ostensibly for demonstrating how the skilled person would interpret documents E1 and E2. From a procedural point of view, the submission is belated (Art. 12(2) RPBA, for the applicable version see OJ EPO 2010, Supplement to the OJ 1, page 39), nevertheless such late submissions are normally admitted if sufficiently relevant and if the other party can reasonably react to the late filing.

3.2 Firstly, it appears that the declaration does not provide more technical information than the documents E1 and E2 themselves, thus from a technical point of view it is not more relevant than the documents on file. In principle, it is the primary and everyday task of a board of appeal under the EPC, comprising at least two technically qualified members (Art. 21(3)(a)(b) and (4) EPC) to establish what various technical documents teach to the skilled person. Given that the technical teaching of both documents is relatively simple, and given that patent attorneys normally have a technical background themselves, the explanation provided by Mr G. may as well be put forward in an equally convincing fashion by the authorized representatives of the appellants, with no less evidentiary weight before the board. Therefore, in order to establish the teaching of

documents E1 and E2 there is no need to admit the declaration of Mr G.

3.3 On the other hand, it is apparent that the appellant opponent seeks to add more weight to its previously developed technical argumentation by emphasizing the very fact that Mr G. has the same view in his capacity as an expert, i.e. a skilled person by definition. The respondent proprietor has various options to deal with such late filed evidence, since an expert declaration must be considered not just an argument, but evidence pursuant to Article 117(1)(e) EPC. It is certainly open to the other party to contest the expert qualifications of Mr G. (which the respondent proprietor did), but more importantly, if statements of an expert indeed require expert knowledge, and for the same reason a greater evidentiary weight should be attributed to them than to "simple" statements of a party, then the possibility must be given to the other party to have such an expert declaration verified or possibly refuted by another expert having the same qualifications (as also requested by the respondent proprietor as an auxiliary measure). Such a defense against an expert's declaration requires quite some time. In the present case the expert declaration was submitted less than two months before the oral proceedings, not leaving enough time for the respondent proprietor to prepare a suitable counterstatement, also given the holiday season between the submission and the oral proceedings. Article 13(1) RPBA stipulates that "Amendments [to a party's case] sought to be made after oral proceedings have been arranged shall not be admitted if they raise issues which ...the other party ...cannot reasonably be expected to deal with without adjournment of the oral

proceedings". This being the case here, the expert declaration of Mr G. is not admitted into the proceedings.

4. *Main request and auxiliary request I – Novelty*

4.1 The appellant opponent argued that document E10 disclosed a sealing ring which was suitable for being applied to the divider walls of an accumulator, as it disclosed that the sealing ring was made of an elastic material, eg rubber, which was known to resist the acid environment of an accumulator. The sealing ring was formed by a plate and a sheath having a frusto-conical outer surface, wherein the taper of the sheath diverged moving away from the plate.

The feature of claim 1 of the main request that the outer surface of the sheath matched the profile of the hole on the divider wall could not be considered as a feature of the sealing ring, as it was defined in relation to the divider wall which was not part of the claimed subject-matter and, in particular, as those holes had no standard size and shape.

The same was true for the feature of claim 1 of the auxiliary request I that the sheath had a length equal or less than the thickness of the divider wall of the accumulator, as these walls also had no standard thickness.

Thus the features of claim 1 of both the main request and the auxiliary request I which defined the shape or dimensions of the sealing ring with reference to a hole

in the divider wall of the accumulator had to be ignored when construing the claims.

4.2 The respondent proprietor argued that the sealing ring disclosed in document E10 was not foreseen to be applied to the divider walls of an accumulator, but was instead a grommet or a bushing for an electric wire passing through the opening of an electrical casing ("Kabeldurchführung"). A sealing ring for an accumulator would have to resist the accumulator's electrolyte and the heat of welding the rods together when connecting the cells. Moreover the bushing of E10 was not foreseen for a liquid environment, as the case is in an accumulator where swapping of the electrolyte has to be prevented.

4.3 The board observes, however, that the electrical connections of the cells of an accumulator are not always welded interconnecting rods. For example, document E8 discloses a connector in which the connecting parts are screwed together (Abstract and Figures). Hence as no heat has to be dissipated from the rods when interconnecting the cells using the connector of E8, no heat resistant sealing rings are necessary. Thus the reference "to be applied to frusto-conical connection holes of an accumulator" found in claim 1 of the main and auxiliary request I cannot be interpreted as implying any heat resistance of the sealing rings as a further implicit feature.

4.4 As to the question whether the bushings disclosed in E10 would be suitable for use in an accumulator, document E10 discloses that the bushings are made of an elastic material, eg rubber (paragraph bridging pages 3

and 4). Document E2 on the other hand discloses sealing rings for accumulators made of soft rubber ("caoutchouc semi-souple", page 3, line 25). The board considers therefore that rubber is a material suitable to be employed for sealing rings of an accumulator and that the bushing disclosed in document E10 fulfils the requirement that it can "be applied to the divider walls of an accumulator". Moreover, the board considers that these bushings would also be suitable for preventing liquid seepage form one side of the divider wall to the other, a further requirement on a sealing ring to be used in an accumulator.

For these reasons, the board concludes that the bushings disclosed in document E10 are suitable to be applied to frusto-conical holes of the divider walls of an accumulator as required by claim 1 of the main and auxiliary request I.

4.5 The bushing or sealing ring of E10 further comprises a plate 3 equipped with a through hole 2 axially to which is arranged the base of a sheath 7 suitable for coupling in the connection hole, wherein the outer surface of said sheath is substantially frusto-conical and the taper of said frusto-conical sheath diverges moving away from said plate (Figures 1 and 3).

4.6 The board agrees with the appellant opponent that the feature that the outer surface of the sheath "substantially match the profile of the hole" in claim 1 of the main request and the further feature that "said sheath has a length equal or less than the thickness of the divider wall of said accumulator" in claim 1 of the auxiliary request I are not features

that can be attributed to the sealing ring *per se*, as they refer to the interrelation between the ring and the hole in the divider wall. Dimensional features that arise from the interplay with a device that is not part of the claimed subject-matter cannot be taken into account when assessing the novelty of the claimed device, unless they relate to a standardized dimension that can be determined even in absence of the not claimed device. In the present case, it has not been suggested that through-holes in the divider walls of an accumulator would have standardized dimensions.

4.7 The board judges, for these reasons, that the sealing ring of claim 1 of the main request and auxiliary request I is not new over the disclosure of document E10.

5. *Auxiliary request II – Inventive step*

5.1 Claim 1 of this request is directed towards a container for an accumulator comprising one or more sealing rings applied to the connection holes of the container's divider walls. Thus the features that the outer surface of the sealing ring's sheath matches the profile of the hole and that the sheath has a length equal or less than the thickness of the container's divider wall are now well defined.

5.2 The appellant opponent argued that document E2 disclosed a container for an accumulator comprising sealing rings. The sealing rings comprised two plates or flanges, one at each side of the container wall, and a sheath extending between these two plates. Consequently, these sealing rings comprised a sheath

having a length equal to the thickness of the divider wall. Moreover, as claim 1 did not exclude the presence of a second plate, the only feature differentiating the container of claim 1 from the one disclosed in E2 was that the outer surface of the sheath matched the profile of the hole. A skilled person would however adapt the shape of the sealing ring to the profile of the shape, as this obviously improved its sealing property.

5.3 The respondent proprietor argued that in E2 it was the use of two plates which avoided the ring from falling out from the opening of the divider wall. According to the present invention this effect was achieved without requiring a second plate, as the ring was held in place by the frusto-conical shape of the ring matching the profile of the divider wall's hole.

5.4 The board observes, however, that the sealing ring is defined in claim 1 as "comprising a plate equipped with a through hole axially to which is arranged the base of a sheath" and not consisting of these elements. The wording used for specifying the sealing ring defines thus a non-exhaustive list of the ring's components, leaving open the presence of further components, eg a second plate, as found in the sealing rings disclosed in E2.

5.5 According to claim 1, the base of the sheath is arranged axially to the plate. Hence the sheath's length is evaluated from the point where the sheath joins the plate to its free end. It follows, using the same criterion for evaluating the sheath's length, that in the sealing rings of E2 the sheath's length also

equals the thickness of the container's divider wall, since the sheath extends between the points where it joins each one of the two plates.

5.6 The board therefore considers that the features differentiating the sealing ring of claim 1 of the auxiliary request II from the one disclosed in document E2 are

- a) that the outer surface of the sheath is substantially frusto-conical so as to substantially match the profile of the hole and

- b) that the taper of said frusto-conical sheath diverges moving away from said plate.

5.7 In the view of the board a skilled person would adapt the shape of the sealing ring's sheath to the profile of the hole (ie feature (a)), as one function of the sealing ring is the avoidance of the electrolyte swapping from one cell to the next. A better fit between connection hole and sealing ring clearly improves the seal.

Document E2 achieves this effect by employing a soft rubber ("caoutchuc semi-souple", page 3, line 25) which deforms to match the profile of the hole when in place ("Le joint disposé dans l'ouverture épouse alors naturellement sa forme", page 4, lines 28 to 29). However, it is obvious that adapting the shape of the sheath's outer surface to the profile of the hole allows to employ stiffer materials which do not need to deform as much as prior to the shape's adaptation.

5.8 As soon as the sheath of a sealing ring according to E2 has a frusto-conical outer surface, feature (b) is forcefully present due to the presence of two plates. In any direction in which the taper goes, from one of the plates it diverges away.

5.9 The respondent's proprietor argument that the sealing ring of the present invention did not require the presence of a second plate as in E2 is not persuading, as it is not mirrored by the wording used in claim 1 which does not exclude the presence of a second plate.

5.10 The board judges, for these reasons, that the container for an accumulator according to claim 1 of the auxiliary request II does not involve an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

Registrar | Chair

S. Sánchez Chiquero | G. Eliasson